



DRAFT

ENVIRONMENTAL IMPACT REPORT

DRAFT EIR

Waterfront Plan

San Francisco Planning
Case No. **2019-023037ENV**

State Clearinghouse No. 2020099002

<i>Public Draft</i>	<i>Draft EIR Publication Date:</i> February 23, 2022	<i>Written comments should be sent to:</i> Sherie George Environmental Coordinator 49 South Van Ness Ave, Suite 1400 San Francisco, CA 94103 or CPC.WaterfrontEIR@sfgov.org
	<i>Draft EIR Public Hearing Date:</i> March 24, 2022	
	<i>Draft EIR Public Comment Period:</i> February 23, 2022–April 25, 2022	



**San Francisco
Planning**



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ACRONYMS AND ABBREVIATIONS

Acronym/Abbreviation	Definition
1997 Plan	1997 Waterfront Land Use Plan
2017 Clean Air Plan	<i>2017 Clean Air Plan: Spare the Air, Cool the Climate</i>
2020 Citywide HRA	2020 Citywide Health Risk Assessment
ABAG	Association of Bay Area Governments
ADA	Americans with Disabilities Act
AE	Aesthetics
air district	Bay Area Air Quality Management District
APEZ	Air Pollutant Exposure Zone
AQ	Air Quality
AQI	Air Quality Index
ARPP	archeological resource preservation plan
ARR	Archeological Resources Report
ASA	Archeological Sensitivity Analysis
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers
AWSS	Auxiliary Water Supply System
BACT	Best Available Control Technology
BART	Bay Area Rapid Transit
basin plans	water quality control plans
Bay Bridge	San Francisco-Oakland Bay Bridge
Bay Plan	San Francisco Bay Plan
Bay Trail Plan	San Francisco Bay Trail Plan
BCDC	San Francisco Bay Conservation and Development Commission
BI	Biological Resources
BNSF Railway	Burlington Northern Santa Fe Railway
BSHC	Board of State Harbor Commissioners
CAAQS	California Ambient Air Quality Standards
California Register	California Register of Historical Resources
Caltrans	California Department of Transportation
CAP	Clean Air Plan
CARB	California Air Resources Board

Acronyms and Abbreviations

Acronym/Abbreviation	Definition
CCR	California Code of Regulations
CDFG	California Department of Fish and Game
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Acts
CFGC	California Fish and Game Code
CFR	Code of Federal Regulations
Clean Air Plan	2017 Bay Area Clean Air Plan
CMP	Congestion Management Program
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
CO	carbon monoxide
Corps, or USACE	U.S. Army Corps of Engineers
CR	Cultural Resources
CRPR	California Rare Plant Rank
CWA	Clean Water Act
CZMA	federal Coastal Zone Management Act of 1972
dB	decibel
dBA	A-weighting decibel
DLOP	Driveway and Loading Operations Plan
DPM	diesel particulate matter
EIR	environmental impact report
ERO	Environmental Review Officer
EV	electric vehicle
FESA	federal Endangered Species Acts
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
GHG	greenhouse gas
GMP	General Management Plan
Heritage	San Francisco Heritage
hp	horsepower
HPC	San Francisco Historic Preservation Commission

Acronym/Abbreviation	Definition
HRA	health risk assessment
in/sec	inches per second
kW	kilowatt
L _{dn}	day-night sound level
LED	light-emitting diode
LEED	Leadership in Energy and Environmental Design
L _{eq}	equivalent continuous noise level
L _{max}	maximum, instantaneous noise level
LTS	less-than-significant or negligible impact; no mitigation required
LTSM	less than significant impact, after mitigation
MEISR	maximally exposed individual sensitive receptor
MERV	Minimum Efficiency Reporting Value
micrograms per cubic meter	µg/m ³
MLD	Most Likely Descendant
MMDP	materials management disposal plan
mph	miles per hour
MTC	Metropolitan Transportation Commission
MTS	Metropolitan Transportation System
Muni	San Francisco Municipal Railway
NA	not applicable
NAAQS	National Ambient Air Quality Standards
NACTO	National Association of City Transportation Officials
NAHC	Native American Heritage Commission
National Register	National Register of Historic Places
ng/m ³	nanograms per cubic meter
NI	no impact
NMFS	National Marine Fisheries Service
NO	Noise
NO ₂	nitrogen dioxide
NOAA	National Oceanographic and Atmospheric Administration
NOP	notice of preparation
NOx	nitrogen oxides
NPS	National Park Service

Acronyms and Abbreviations

Acronym/Abbreviation	Definition
NWIC	Northwest Information Center
OEHHA	Office of Environmental Health Hazard Assessment
PAR	Preliminary Archeology Review
PCO	parking control officers
PDR	production, distribution, and repair
PM ₁₀	respirable particulate matter
PM _{2.5}	fine particulate matter
Port	Port of San Francisco's
ppb	part per billion
ppm	parts per million
PPV	peak particle velocity
REB Task Force	Resource-Efficient Building Task Force
regional board	San Francisco Bay Regional Water Quality Control Board
RMS	root mean square
ROG	reactive organic gases
S	significant
SAP	Special Area Plan
SB	Senate Bill
SDAT	Street Design Advisory Team
Seaport Plan	San Francisco Bay Area Seaport Plan
Secretary's Standards	<i>Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings</i>
SEL	sound exposure level
SF-CHAMP	San Francisco Chained Activity Modeling Process
SFMTA	San Francisco Municipal Transportation Agency
SFPE	San Francisco Port of Embarkation
SLC	State Lands Commission
SO ₂	sulfur dioxide
SPCC	spill prevention control and countermeasure
SU	significant and unavoidable adverse impact, no feasible mitigation
SUD	Special Use District
SUM	significant and unavoidable adverse impact, after mitigation
TAC	toxic air contaminant

Acronym/Abbreviation	Definition
TAZ	transportation analysis zone
TCR	tribal cultural resource
TCRIP	Tribal Cultural Resources Interpretation Plan
TMP	transportation management plan
TOG	total organic gases
TR	Transportation and Circulation
Transfer Agreement	Transfer Agreement relating to Transfer of the Port between the State and the City and County of San Francisco
TRU	transportation refrigeration unit
U.S. EPA	United States Environmental Protection Agency
UCSF	University of California, San Francisco
UPRR	Union Pacific Railroad
USC	United States Code
USFWS	U.S. Fish and Wildlife Service
USGS	United States Geological Survey
VdB	vibration decibels
VMT	vehicle miles traveled
VOC	volatile organic compound
Waterfront Plan	2019 Draft Waterfront Plan
WEAP	Worker Environmental Awareness Program
WETA	Water Emergency Transportation Authority
WPA	Works Progress Administration
ZEV	zero-emissions vehicle

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WATERFRONT PLAN EIR SUMMARY

S.1 Introduction

This document is a draft environmental impact report (Draft EIR) for the Port of San Francisco's (Port) 2019 Draft Waterfront Plan (Waterfront Plan). This chapter of the Draft EIR provides a summary of the Waterfront Plan, a summary of anticipated environmental impacts that could result with implementation of the Waterfront Plan and identified mitigation measures, a summary of alternatives including identification of the environmentally superior alternative, and areas of controversy to be resolved.

S.2 Project Summary

The Waterfront Plan would update and amend the 1997 Waterfront Land Use Plan (1997 Plan), which sets long-term goals and policies to guide the use, management, and improvement of 7.5 miles of properties owned and managed by the Port, from Fisherman's Wharf to India Basin. The area encompassed by the Waterfront Plan, referred to as the "Plan area," includes approximately 800 acres (see **Figure 2-1**, p. 2-2), and is the same area covered by the 1997 Plan. The Plan area is generally bounded to the north by Hyde Street Pier and Jefferson Street in Fisherman's Wharf, and includes piers and upland properties adjacent to The Embarcadero including Oracle Park; piers and waterfront properties adjacent to Terry A. Francois Boulevard in Mission Bay; and properties generally east of Illinois Street south of Mission Bay to Cargo Way in India Basin. The Port developed the 1997 Plan pursuant to Proposition H, approved by San Francisco voters in 1990, and the Port Commission adopted it in 1997. The goals and policies in the 1997 Plan have guided the development of new parks, maritime facilities, historic rehabilitation, and development projects on Port properties.

In 2015, the Port conducted a comprehensive review and identified changes in conditions and the need to update the 1997 Plan. This led to a three-year public planning process led by a Waterfront Plan Working Group, which produced policy recommendations to be reflected in the updated Plan. In June 2019, the Port published the Draft Waterfront Plan for Public Review and Comment (2019 Plan), which incorporates those policy recommendations along with other updates to recognize and align with City policies, evolving public trust needs, and land use changes on Port property. Revisions to the 2019 Draft Waterfront Plan were made to address refinements or public comment issues raised during the public review process, and the Plan was republished in December 2019, which is the current Waterfront Plan. The Waterfront Plan provides a long-range policy framework to guide future Port improvement projects, programs, and stewardship initiatives.

Future improvements along the Port's waterfront would be guided by nine goals and policies that provide direction for managing and improving the waterfront throughout its jurisdiction. Goals and policies include but are not limited to preservation and enhancement of the waterfront's function as a maritime port, hosting a diversity of activities and people, enhancing public access and open space along the waterfront, the design of quality new development and preservation of the waterfront's historic character, strengthening the Port's resilience to climate change impacts, and cultivating an environmentally sustainable port to limit the impacts of climate change.

The initial study (see Appendix B) and Draft EIR analyzed the Waterfront Plan at a programmatic level of review. A programmatic analysis is appropriate for a project that involves a series of actions that are (1) related

geographically; (2) logical parts in a chain of contemplated actions; (3) connected as part of a continuing program; and (4) carried out under the same authorizing statute or regulatory authority, with similar environmental impacts that can be mitigated in similar ways (California Environmental Quality Act [CEQA] Guidelines section 15168). CEQA Guidelines section 15168 notes that the use of a programmatic analysis can “ensure consideration of cumulative impacts that might be slighted in a case-by-case analysis; avoid duplicative reconsideration of basic policy considerations; allow the lead agency to consider broad policy alternatives and program-wide mitigation measures at an early time, when the agency has greater flexibility to deal with basic problems or cumulative impacts; and allow for a reduction in paperwork.”

S.3 Summary of Impacts and Mitigation Measures

This Draft EIR analyzes the potential environmental effects of implementation of the Waterfront Plan. The initial study (see Appendix B) determined that the following topics would have either no significant impacts or impacts that can be reduced to less than significant with mitigation: land use and planning, population and housing, cultural resources (archeology only), tribal cultural resources, greenhouse gas emissions, wind, shadow, recreation, utilities and service systems, public services, geology and soils, hydrology and water quality, hazards and hazardous materials, mineral resources, energy, agricultural and forestry resources, and wildfire. Discussion and analysis of impacts related to these resource areas are presented in the initial study.

The initial study found that the Waterfront Plan could result in significant impacts associated with the resource topic areas listed below. Chapter 4, Environmental Setting, Impacts, and Mitigation Measures, of this Draft EIR presents detailed discussion and analysis of these resource topic areas.

- Section 4.A, Aesthetics
- Section 4.B, Historic Resources
- Section 4.C, Transportation and Circulation
- Section 4.D, Noise and Vibration
- Section 4.E, Air Quality
- Section 4.F, Biological Resources

Table S-1, p. S-4, and **Table S-2**, p. S-37, summarize the potential impacts of the Waterfront Plan, identify the significance of each impact, and present the full text of mitigation measures that would avoid or reduce significant impacts and would be required to be implemented if the Waterfront Plan is approved. Impacts and mitigation measures presented in Chapter 4 of this Draft EIR are summarized in Table S-1. Impacts and mitigation measures presented in the initial study are summarized in Table S-2.

As indicated in Table S-1 and discussed in detail in Chapter 4, the analysis conducted for this Draft EIR determined that the Waterfront Plan would result in significant and unavoidable impacts in the following areas, even with implementation of feasible mitigation measures.

TRANSPORTATION AND CIRCULATION

- The Waterfront Plan could result in commercial vehicle and/or passenger loading deficit, and the secondary effects could create potentially hazardous conditions for people walking, bicycling, or driving; or substantially delay public transit. (Impact TR-6)

- The Waterfront Plan, in combination with cumulative projects, could contribute considerably to significant cumulative construction-related transportation impacts. (Impact C-TR-1)
- The Waterfront Plan, in combination with cumulative projects, could contribute considerably to significant cumulative public transit delay impacts. (Impact C-TR-4)
- The Waterfront Plan, in combination with cumulative projects, could contribute considerably to significant cumulative loading impacts. (Impact C-TR-6)

AIR QUALITY

- The Waterfront Plan could involve construction activities that could result in a cumulatively considerable net increase in any criteria air pollutant for which the project region is in nonattainment status under an applicable federal, state, or regional ambient air quality standard. (Impact AQ-3)
- The Waterfront Plan could result in operational activities that could result in a cumulatively considerable net increase in any criteria air pollutant for which the project region is in nonattainment status under an applicable federal, state, or regional ambient air quality standard. (Impact AQ-4)
- The Waterfront Plan could result in emissions of fine particulate matter (PM_{2.5}) and toxic air contaminants that could result in exposure of sensitive receptors to substantial pollutant concentrations. (Impact AQ-5)
- The Waterfront Plan, in combination with cumulative projects, could result in exposure of sensitive receptors to substantial levels of fine particulate matter (PM_{2.5}) and toxic air contaminants under cumulative conditions. (Impact C-AQ-1)

Table S-1 Summary of Impacts of the Waterfront Plan Identified in the EIR

Environmental Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
EIR SECTION 4.A, AESTHETICS			
Impact AE-1: The Waterfront Plan would not have a substantial adverse effect on a scenic vista, damage scenic resources, degrade the existing visual character or quality of public views of the site or its surroundings, or conflict with applicable zoning and other regulations governing scenic quality.	LTS	No mitigation required.	NA
Impact AE-2: The Waterfront Plan would not create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area.	LTS	No mitigation required.	NA
Impact C-AE-1: The Waterfront Plan, in combination with cumulative projects, would not result in a significant cumulative impact on aesthetics.	LTS	No mitigation required.	NA
EIR SECTION 4.B, HISTORIC RESOURCES			
Impact CR-1: The Waterfront Plan could cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines section 15064.5.	S	Mitigation Measure M-CR-1a: New Locations for Contributing Auxiliary Water Supply System Element to Preserve Historic District Character. Where a streetscape or street network improvement proposed under the Waterfront Plan would require moving an Auxiliary Water Supply System (AWSS) hydrant, the project sponsor at the direction of the San Francisco Planning Department and SF Port staff shall conduct additional study to determine if it contributes to the historic significance of the AWSS. If the element is determined to be a contributing feature of the AWSS, the project sponsor shall work with the San Francisco Planning	LTSM

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Environmental Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<p>Department’s preservation staff and SF Port staff along with San Francisco Fire Department and San Francisco Public Works as needed to determine a location where the contributing AWSS hydrant could be reinstalled to preserve the historic relationships and functionality that are character-defining features of the AWSS. Generally, hydrants shall be reinstalled near the corner or the intersection from where they were removed. Any hydrant found not to contribute to the significance of the AWSS could be removed or relocated without diminishing the historic integrity of the district. Furthermore, the project sponsor in coordination with the San Francisco Planning Department, the San Francisco Port, the San Francisco Fire Department and San Francisco Public Works as needed, will protect existing AWSS facilities remaining in place during implementation of streetscape and street network improvements under the Waterfront Plan.</p> <p>Mitigation Measure M-CR-1b: Best Practices and Construction Monitoring Program for Historic Resources. The project sponsor of a development project using heavy-duty construction equipment onsite or directly adjacent to an historic resource, as determined by department preservation staff or listed in historic inventory maintained by the Port and department preservation staff, shall incorporate into contract specifications a requirement that the general and sub-contractor(s) use all feasible means to protect and avoid damage to onsite and directly adjacent historic resources as identified by the planning department, including, but not necessarily limited to, staging of equipment and materials so as to avoid direct damage, maintaining a buffer zone when possible between heavy equipment and historic resources, and, when applicable, covering the roof of adjacent structures to avoid damage from falling objects. Specifications shall also stipulate that any damage incurred to historic resources as a result of construction activities shall be immediately reported to the ERO. Prior to the start of construction activities, the project sponsor shall submit to the planning department preservation staff for review and approval, a list of measures to be included in contract specifications to avoid damage to historic resources.</p> <p>If damage to a historic resource occurs during construction, the project sponsor shall hire a qualified professional who meets the standards for history, architectural history, or architecture (as appropriate), as set forth by the Secretary of the Interior’s</p>	

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Waterfront Plan EIR Summary

S.3. Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		Professional Qualification Standards (36 CFR, Part 61). Damage incurred to the historic resource shall be repaired to match pre-construction conditions per the Secretary of the Interior’s Standards for the Treatment of Historic Properties in consultation with the qualified professional and planning department preservation staff. If directed by planning department preservation staff, the project sponsor shall engage a qualified preservation professional to undertake a monitoring program to ensure that best practices are being followed. If monitoring is required, the qualified preservation professional shall prepare a monitoring plan to direct the monitoring program that shall be reviewed and approved by planning department preservation staff.	
Impact C-CR-1: The Waterfront Plan, in combination with cumulative projects, could result in a significant cumulative impact on historic resources, as defined in CEQA Guidelines section 15064.5.	S	Mitigation Measures M-CR-1a, M-CR-1b, and M-CR-1c would apply.	LTSM
EIR SECTION 4.C, TRANSPORTATION AND CIRCULATION			
Impact TR-1: Construction under the Waterfront Plan would not require a substantially extended duration or intense activity, and the secondary effects would not create potentially hazardous conditions for people walking, bicycling, driving, or riding transit; or interfere with emergency access or accessibility for people walking or bicycling; or substantially delay public transit.	LTS	No mitigation required.	NA

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Waterfront Plan EIR Summary

S.3. Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		and to ensure that off-site loading activity is considered in the design of new buildings. Applicable projects shall prepare a draft DLOP for review and approval by the planning department, in consultation with the Port and SFMTA, as part of project review and finalized prior to issuance of the first certificate of occupancy. The DLOP shall be written in accordance with any guidelines issued by the planning department.	
Impact TR-7: The Waterfront Plan would not result in a substantial parking deficit.	LTS	No mitigation required.	NA
Impact C-TR-1: The Waterfront Plan, in combination with cumulative projects, would contribute considerably to significant cumulative construction-related transportation impacts.	S	No feasible mitigation measures available.	SU
Impact C-TR-2: The Waterfront Plan, in combination with cumulative projects, would not create potentially hazardous conditions for people walking, bicycling, or driving or for public transit operations.	LTS	No mitigation required.	NA
Impact C-TR-3: The Waterfront Plan, in combination with cumulative projects, would not interfere with accessibility of people walking or bicycling to and from the project area and adjoining areas, or result in inadequate emergency access.	LTS	No mitigation required.	NA

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Environmental Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
<p>Impact C-TR-4: The Waterfront Plan, in combination with cumulative projects, would contribute considerably to significant cumulative public transit delay impacts.</p>	S	<p>Mitigation Measure M-C-TR-4: Implement Measures to Reduce Transit Delay. Consistent with the Waterfront Plan’s new transportation policy 46 (Developing and implementing Port-wide and subarea Transportation Demand Management plans), the Port shall be responsible for preparing a South Beach subarea Transportation Demand Management (TDM) plan to reduce vehicular travel in this subarea and support use of sustainable travel modes. Strategies to reduce vehicular travel in this subarea shall include but not limited to:</p> <ul style="list-style-type: none"> • Land use/transportation coordination, such as parking demand management, SFMTA coordination, multi-modal marketing, education, and outreach programs; and • TDM requirements generally consistent with the Planning Commission’s Standards for TDM Program (TDM Program Standards) for the project sponsors of subsequent leasing and new development (development project) in this subarea that meet the applicability criteria of planning code section 169.3, TDM Program. The Planning Department shall consider applying a 10 percent greater target points requirement than that set forth in the TDM Program Standards to a development project based on if the development project would result in cumulatively considerable delay to the 10 Townsend route, and feasibility of additional TDM measures. Such TDM measures to meet the target points could include those in the TDM Program Standards, or other TDM measures determined appropriate by the SFMTA and the Planning Department. <p>The Port shall prepare the subarea TDM plan in coordination with the Planning Department and the SFMTA, and the Port shall finalize the plan for implementation within two years of the final approval and certification of the Waterfront Plan EIR or prior to City approval of subsequent leasing and new development in the subarea that meet the applicability criteria of planning code section 169.3, whichever is later. A Port-wide TDM plan that includes South Beach subarea TDM details shall satisfy this requirement.</p>	SUM

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Waterfront Plan EIR Summary

S.3. Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
Impact C-TR-5: The Waterfront Plan, in combination with cumulative projects, would not cause substantial additional vehicle miles traveled or substantially induce automobile travel.	LTS	No mitigation required.	NA
Impact C-TR-6: The Waterfront Plan, in combination with cumulative projects, would contribute considerably to significant cumulative loading impacts.	S	Mitigation Measure M-TR-6 would apply.	SUM
Impact C-TR-7: The Waterfront Plan, in combination with cumulative projects, would not result in significant cumulative parking impacts.	LTS	No mitigation required	NA
EIR SECTION 4.D, NOISE AND VIBRATION			
Impact NO-1: Construction under the Waterfront Plan could generate a substantial temporary or increase in ambient noise levels in the Plan area in excess of standards	S	<p>Mitigation Measure M-NO-2a: Protection of Adjacent Buildings/Structures and Vibration Monitoring during Construction. Prior to issuance of any demolition or building permit, the project sponsor shall submit a project-specific Pre-construction Survey and Vibration Management and Monitoring Plan for approval to the Environmental Review Officer (ERO). The plan shall identify all feasible means to avoid damage to potentially affected buildings. The project sponsor shall ensure that the following requirements of the Pre-construction Survey and Vibration Management and Monitoring Plan are included in contract specifications, as necessary.</p> <p><i>Pre-construction Survey.</i> Prior to the start of any ground-disturbing activity, the project sponsor shall engage a consultant to undertake a pre-construction survey of potentially affected buildings. If potentially affected buildings and/or structures are not potentially historic, a structural engineer or other professional with similar</p>	LTSM

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S.3. Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<p>professional with similar qualifications) and, in the case of potentially affected historic buildings/structures, a qualified historic preservation professional, shall establish a maximum vibration level that shall not be exceeded at each building/structure on adjacent properties, based on existing conditions, character-defining features, soil conditions, and anticipated construction practices (common standards are a peak particle velocity [PPV] of 0.25 inch per second for historic and some old buildings, a PPV of 0.3 inch per second for older residential structures, and a PPV of 0.5 inch per second for new residential structures and modern industrial/commercial buildings).</p> <ul style="list-style-type: none"> • <i>Vibration-Generating Equipment.</i> The plan shall identify all vibration-generating equipment to be used during construction (including, but not limited to: site preparation, clearing, demolition, excavation, shoring, foundation installation, and building construction). • <i>Alternative Construction Equipment and Techniques.</i> The plan shall identify potential alternative equipment and techniques that could be implemented if construction vibration levels are observed in excess of the established standard (e.g., drilled shafts [caissons] could be substituted for driven piles, if feasible, based on soil conditions, or smaller, lighter equipment could be used in some cases). • <i>Pile-Driving Requirements.</i> For projects that would require pile driving, the project sponsor shall incorporate into construction specifications for the project a requirement that the construction contractor(s) use all feasible means to avoid or reduce damage to potentially affected buildings. Such methods may include one or more of the following: <ul style="list-style-type: none"> – Incorporate “quiet” pile-driving technologies into project construction (such as drilled shafts, using sonic pile drivers, auger cast-in-place, or drilled-displacement), as feasible; and/or – Ensure appropriate excavation shoring methods to prevent the movement of adjacent structures. • <i>Buffer Distances.</i> The plan shall identify buffer distances to be maintained based on vibration levels and site constraints between the operation of vibration- 	

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Environmental Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<p>generating construction equipment and the potentially affected building and/or structure to avoid damage to the extent possible.</p> <ul style="list-style-type: none"> • <i>Vibration Monitoring.</i> The plan shall identify the method and equipment for vibration monitoring to ensure that construction vibration levels do not exceed the established standards identified in the plan. <ul style="list-style-type: none"> – Should construction vibration levels be observed in excess of the standards established in the plan, the contractor(s) shall halt construction and put alternative construction techniques identified in the plan into practice, to the extent feasible. – The qualified historic preservation professional (for effects on historic buildings and/or structures) and/or structural engineer (for effects on historic and non-historic buildings and/or structures) shall inspect each affected building and/or structure (as allowed by property owners) in the event the construction activities exceed the vibration levels identified in the plan. – The structural engineer and/or historic preservation professional shall submit monthly reports to the ERO during vibration-inducing activity periods that identify and summarize any vibration level exceedances and describe the actions taken to reduce vibration. – If vibration has damaged nearby buildings and/or structures that are not historic, the structural engineer shall immediately notify the ERO and prepare a damage report documenting the features of the building and/or structure that has been damaged. – If vibration has damaged nearby buildings and/or structures that are historic, the historic preservation consultant shall immediately notify the ERO and prepare a damage report documenting the features of the building and/or structure that has been damaged. – Following incorporation of the alternative construction techniques and/or planning department review of the damage report, vibration monitoring shall recommence to ensure that vibration levels at each affected building and/or structure on adjacent properties are not exceeded. 	

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Waterfront Plan EIR Summary

S.3. Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<ul style="list-style-type: none"> • <i>Periodic Inspections.</i> The plan shall identify the intervals and parties responsible for periodic inspections. The qualified historic preservation professional (for effects on historic buildings and/or structures) and/or structural engineer (for effects on historic and non-historic buildings and/or structures) shall conduct regular periodic inspections of each affected building and/or structure on adjacent properties (as allowed by property owners) during vibration-generating construction activity on the project site. The plan will specify how often inspections shall occur. • <i>Repair Damage.</i> The plan shall also identify provisions to be followed should damage to any building and/or structure occur due to construction-related vibration. The building(s) and/or structure(s) shall be remediated to their pre-construction condition (as allowed by property owners) at the conclusion of vibration-generating activity on the site. For historic resources, should damage occur to any building and/or structure, the building and/or structure shall be restored to its pre-construction condition in consultation with the qualified historic preservation professional and planning department preservation staff. • <i>Vibration Monitoring Results Report.</i> After construction is complete the project sponsor shall submit a final report from the qualified historic preservation professional (for effects on historic buildings and/or structures) and/or structural engineer (for effects on historic and non-historic buildings and/or structures). The report shall include, at a minimum, collected monitoring records, building and/or structure condition summaries, descriptions of all instances of vibration level exceedance, identification of damage incurred due to vibration, and corrective actions taken to restore damaged buildings and structures. The ERO shall review and approve the Vibration Monitoring Results Report. 	
<p>Impact NO-2: Construction under the Waterfront Plan could generate excessive groundborne vibration or groundborne noise levels.</p>	S	<p>Mitigation Measure M-NO-2b: Protection of Vibration-Sensitive Equipment during Construction. Prior to construction, the project sponsor shall designate and make available a community liaison to respond to vibration complaints from building occupants of adjacent recording and TV studios within a minimum of 225 feet of the project site.</p>	LTSM

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Environmental Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<p>Contact information for the community liaison shall be posted in a conspicuous location so that it is clearly visible to building occupants most likely to be disturbed. Through the community liaison, the project sponsor team shall provide notification to property owners and occupants of recording and TV studios at least 10 days prior to construction activities involving equipment that can generate vibration capable of interfering with vibration-sensitive equipment, informing them of the estimated start date and duration of vibration-generating construction activities. Equipment types capable of generating such vibration include a vibratory roller, large bulldozer, or similar equipment, operating within 225 feet of the building. If feasible, the project sponsor team shall identify potential alternative equipment and techniques that could reduce construction vibration levels. For example, alternative equipment and techniques may include use of static rollers instead of vibratory rollers.</p> <p>If concerns prior to construction or complaints during construction related to equipment interference are identified, the community liaison shall work with the project sponsor team and the affected building occupants to resolve the concerns such that the vibration control measures would meet a performance target of the 65 VdB vibration level for vibration-sensitive equipment, as set forth by Federal Transit Administration. To resolve concerns raised by building occupants, the community liaison shall convey the details of the complaint(s) to the project sponsor team, such as who shall implement specific measures to ensure that the project construction meets the performance target of 65 VdB vibration level for vibration-sensitive equipment. The community liaison would then notify building occupants of the measures to be implemented. These measures may include evaluation by a qualified noise and vibration consultant, scheduling certain construction activities outside the hours of operation or recording periods of specific vibration-sensitive equipment if feasible, and/or conducting groundborne vibration monitoring to document that the project can meet the performance target of 65 VdB at specific distances and/or locations. Groundborne vibration monitoring, if appropriate to resolve concerns, shall be conducted by a qualified noise and vibration consultant.</p>	

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Environmental Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
<p>Impact NO-3: Operation of the Waterfront Plan could result in the generation of a substantial temporary or permanent increase in ambient noise levels in the Plan area in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.</p>	S	<p>Mitigation Measure M-NO-3: Noise Analysis and Attenuation. A noise analysis shall be required for new development that includes noise-generating activities or equipment (e.g., heating, ventilation, and air-conditioning equipment; outdoor gathering areas; places of entertainment) when proposed within 900 feet and with direct line-of-sight to noise sensitive receptors. This analysis shall be conducted prior to the first project approval action.</p> <p>This analysis shall include, a site survey to identify potential noise-sensitive uses and include at least one 24-hour noise measurement to determine ambient noise levels throughout the day and nighttime hours.</p> <p>The analysis shall be prepared by persons qualified in acoustical analysis and/or engineering and shall demonstrate with reasonable certainty that the proposed use would not adversely affect nearby noise-sensitive uses, would not substantially increase ambient noise levels, and would not result in a noise level in excess of any applicable standards, such as those in section 2909 of the noise ordinance. All recommendations from the acoustical analysis necessary to ensure that noise sources would meet applicable requirements of the noise ordinance and/or not result in substantial increases in ambient noise levels shall be incorporated into the building design and operations. Should concerns remain regarding potential excessive noise, completion of a detailed noise control analysis (by a person qualified in acoustical analysis and/or engineering), and incorporation of noise reduction measures (including quieter equipment, construction of barriers or enclosures, etc.) into the building design and operations prior to the first project approval action may be required.</p>	LTSM
<p>Impact C-NO-1: Construction under the Waterfront Plan, in combination with cumulative projects, could result in the generation of a substantial temporary or permanent increase in ambient noise levels in excess of standards.</p>	S	Mitigation Measure M-NO-1 would apply.	LTSM

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Environmental Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
Impact C-NO-2: Construction under the Waterfront Plan, in combination with cumulative projects, would not result in the generation of excessive groundborne vibration or groundborne noise levels during construction.	LTS	No mitigation required.	NA
Impact C-NO-3: Operation of the Waterfront Plan, in combination with cumulative projects, could result in the generation of a substantial temporary or permanent increase in ambient noise levels in excess of standards.	S	Mitigation Measure M-NO-3 would apply.	LTSM
EIR SECTION 4.E, AIR QUALITY			
Impact AQ-1: The Waterfront Plan would not conflict with or obstruct implementation of the 2017 Clean Air Plan.	LTS	No mitigation required.	NA
Impact AQ-2: The Waterfront Plan would not result in a cumulatively considerable net increase of any criteria air pollutant for which the project region is in nonattainment under an applicable federal or state ambient air quality standard.	LTS	No mitigation required.	NA

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S.3. Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
<p>Impact AQ-3: The Waterfront Plan would involve construction activities that would result in a cumulatively considerable net increase in any criteria air pollutant for which the project region is in nonattainment status under an applicable federal, state, or regional ambient air quality standard.</p>	<p>S</p>	<p>Mitigation Measure M-AQ-3a: Clean Construction Equipment. The project sponsor shall submit a construction emissions minimization plan to the Port Chief Harbor Engineer, who will then notify the Port Environmental Regulatory Compliance staff and an Environmental Planning Air Quality Specialist for review and approval.</p> <p>The construction emissions minimization plan shall apply to all off-road and in-water marine equipment operating for more than 20 total hours over the entire duration of construction activities. The plan shall detail project compliance with the following requirements as necessary:</p> <ol style="list-style-type: none"> 1. All off-road equipment greater than 25 horsepower shall meet the following requirements: <ol style="list-style-type: none"> a) Where access to grid-powered electricity is reasonably available, portable diesel engines shall be prohibited and electric engines shall be used for concrete/industrial saws, sweepers/scrubbers, aerial lifts, welders, air compressors, fixed cranes, forklifts, and cement and mortar mixers, pressure washers, and pumps. If grid electricity is not available, propane or natural gas generators shall be used if feasible. Diesel engines shall only be used if grid electricity is not available and propane or natural gas generators cannot meet the electrical demand; b) All other off-road equipment shall have engines that meet or exceed either U.S. Environmental Protection Agency (U.S. EPA) or California Air Resources Board (CARB) Tier 4 Interim or Final off-road emission standards; 2. All in-water marine equipment greater than 100 horsepower shall have engines that meet or exceed U.S. EPA or CARB Tier 3 Marine Engine emission standards; 3. Any other best available technology that reduces emissions offered at the time that future projects are reviewed may be included in the construction emissions minimization plan (e.g., alternative fuel sources, etc.). 4. Exceptions to requirements 1 and 2 above may be granted if the project sponsor has submitted information providing evidence that meeting the requirement (1) is technically not feasible, (2) would not produce desired emissions reductions due to expected operating modes, or (3) there is a compelling emergency need to 	<p>SUM</p>

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Environmental Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<p>use equipment that to not meet the engine standards and the sponsor has submitted documentation that the requirements of this exception provision apply. In seeking an exception, the project sponsor shall demonstrate that the project will use the cleanest piece of construction equipment available and feasible and strive to meet a performance standard of average construction emissions of ROG, NO_x, PM_{2.5} below 54 lbs/day, and PM₁₀ emissions below 82 lbs/day.</p> <ol style="list-style-type: none"> 5. The project sponsor shall require the idling time for off-road and on-road equipment be limited to no more than 2 minutes, except as provided in exceptions to the applicable state regulations regarding idling for off-road and on-road equipment. Legible and visible signs shall be posted in multiple languages (English, Spanish, Chinese) in designated queuing areas and at the construction site to remind operators of the 2-minute idling limit. 6. The project sponsor shall require that construction operators properly maintain and tune equipment in accordance with manufacturer specifications. 7. The construction emissions minimization plan shall include estimates of the construction timeline by phase with a description of each piece of off-road and marine equipment required for every construction phase. Off-road and marine equipment descriptions and information may include, but is not limited to, equipment type, equipment manufacturer, equipment identification number, engine model year, engine certification (Tier rating), horsepower, engine serial number, and expected fuel use and type, and hours of operation. 8. The construction emissions minimization plan shall be kept on site and available for review during working hours by any persons requesting it and a legible sign shall be posted at the perimeter of the construction site indicating to the public the basic requirements of the plan and a way to request a copy of the plan. The project sponsor shall provide copies of the construction emissions minimization plan as requested. 9. <i>Reporting.</i> Biannual reports shall be submitted to the Port Chief Harbor Engineer and Port Environmental Regulatory Compliance staff, in addition to an Environmental Planning Air Quality Specialist for review, indicating the 	

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Waterfront Plan EIR Summary

S.3. Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<p>construction phase and equipment information used during each phase including the information required in requirement 7, above.</p> <p>Within six months of the completion of construction activities, the project sponsor shall submit to the Port Chief Harbor Engineer and Port Environmental Regulatory Compliance staff, in addition to an Environmental Planning Air Quality Specialist for review, a final report summarizing construction activities. The final report shall indicate the start and end dates and duration of each construction phase. For each phase, the report shall include detailed information required in requirement 7.</p> <p>10. <i>Certification Statement and On-Site Requirements.</i> Prior to the commencement of construction activities, the project sponsor shall certify (1) compliance with the construction emissions minimization plan, and (2) all applicable requirements of the construction emissions minimization plan have been incorporated into contract specifications.</p> <p>Mitigation Measure M-AQ-3b: Super-Compliant VOC Architectural Coatings during Construction. The project sponsor shall use super-compliant VOC architectural coatings during construction for all interior spaces and shall include this requirement on plans submitted for review by the Port engineering division. “Super-Compliant” refers to paints that meet the more stringent regulatory limits in South Coast Air Quality Management District rule 1113, which requires a limit of 10 grams VOC per liter (http://www.aqmd.gov/home/regulations/compliance/architectural-coatings/super-compliant-coatings).</p>	
<p>Impact AQ-4: The Waterfront Plan would result in operational activities that would result in a cumulatively considerable net increase in any criteria air pollutant for which the project region is in nonattainment status under an applicable federal, state, or regional ambient air quality standard.</p>	S	<p>Mitigation Measure M-AQ-4a: Educate Residential and Commercial Tenants Concerning Low-VOC Consumer Products. Prior to receipt of any building permit and every 5 years thereafter, the project sponsor shall develop electronic correspondence to be distributed by email or posted on site annually to tenants of the project that encourages the purchase of consumer products and paints that are better for the environment and generate less volatile organic compound emissions. The correspondence shall encourage environmentally preferable purchasing and shall include contact information and links to SF Approved (https://www.sfapproved.org/).</p>	SUM

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		<p>Mitigation Measure M-AQ-4b: Reduce Operational Emissions. Subsequent projects shall implement the following additional measures to reduce operational criteria air pollutant emissions:</p> <ol style="list-style-type: none"> 1. For any proposed refrigerated warehouses or large (greater than 20,000 square feet) retailers, provide electrical hook-ups for diesel trucks with Transportation Refrigeration Units (TRU) at the loading docks. 2. Encourage the use of trucks equipped with TRUs that meet U.S. Environmental Protection Agency Tier 4 emission standards. 3. Prohibit TRUs from operating at loading docks for more than 30 minutes by posting signs at each loading dock presenting this TRU limit. 4. All newly constructed loading docks that are on a commercial or industrial property, and can accommodate trucks with TRUs shall be equipped with electric vehicle (EV) charging equipment for heavy-duty trucks. This measure does not apply to temporary street parking for loading or unloading. 5. Require that all future tenants have a plan to convert their vehicle fleet(s) to zero emission vehicles (ZEVs) no later than 2040. This would be a condition of all leases at the project site. 6. Prohibit trucks from idling for more than 2 minutes by posting “no idling” signs at the site entry point, at all loading locations, and throughout the project site. 7. Use super-compliant VOC architectural coatings in maintaining buildings. “Super-Compliant” refers to paints that meet the more stringent regulatory limits in South Coast Air Quality Management District rule 1113, which requires a limit of 10 grams VOC per liter (http://www.aqmd.gov/home/regulations/compliance/architectural-coatings/super-compliant-coatings). 8. Other measures that become available and are shown to effectively reduce criteria air pollutant emissions on site or off site if emission reductions are realized within the air basin. Measures to reduce emissions on site are preferable to off-site emissions reductions. <p>Mitigation Measure M-AQ-4c: Best Available Control Technology for Projects with Diesel Generators and Fire Pumps. The project applicant shall implement the</p>	

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S.3. Summary of Impacts and Mitigation Measures

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		<p>following measures. These features shall be submitted to the Port Chief Harbor Engineer and Port Environmental Regulatory Compliance staff, in addition to an Environmental Planning Air Quality Specialist for review and approval, and shall be included on the project drawings submitted for the construction-related permit(s) or on other documentation submitted to the San Francisco Planning Department prior to the issuance of any building permits:</p> <ol style="list-style-type: none"> 1. All diesel generators and fire pumps shall have engines that meet or exceed California Air Resources Board Tier 4 Final emission standards (California Code of Regulations title 13, section 2423). 2. Non-diesel-fueled emergency generator technology (e.g., battery technology) shall be installed if it is commercially available, subject to the review and approval of the City fire department for safety purposes, and is demonstrated to reduce criteria pollutant emissions. 3. Permanent stationary emergency diesel backup generators shall have an annual maintenance testing limit of 20 hours, subject to any further restrictions as may be imposed by Bay Area Air Quality Management District (air district) in its permitting process. Additional restrictions limiting the hours per year that generators may be tested may also be required, as determined necessary by the San Francisco Planning Department. 4. For each new diesel backup generator or fire pump permit submitted for a project, including any associated generator pads, engine specifications shall be submitted to the San Francisco Planning Department for review and approval prior to issuance of a permit for the generator or fire pump from the Port Chief Harbor Engineer. Once operational, all diesel backup generators shall be maintained in good working order for the life of the equipment and any future replacement of the diesel backup generators or fire pumps shall be required to be consistent with these emissions specifications. The operator of the facility at which the generator or fire pump is located shall maintain records of the testing schedule for each diesel backup generator and fire pump for the life of that diesel backup generator and fire pump and provide this information for review to the planning department within three months of requesting such information. 	

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Waterfront Plan EIR Summary

S.3. Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<p>completed for the project. The purpose of the Truck Route Plan is to route trucks on streets that are located as far from offsite sensitive receptors as possible, while still maintaining the operational goals of the project. The Truck Route Plan must include route restrictions, truck calming, truck parking, and truck delivery restrictions to minimize exposure of nearby sensitive receptors to truck exhaust and fugitive particulate emissions.</p> <p>Prior to the commencement of operational activities, the project sponsor shall certify (1) compliance with the Truck Route Plan, and (2) all applicable requirements of the Truck Route Plan have been incorporated into tenant contract specifications.</p>	
<p>Impact AQ-6: The Waterfront Plan would not result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.</p>	LTS	No mitigation required.	NA
<p>Impact C-AQ-1: The Waterfront Plan, in combination with cumulative projects, would result in exposure of sensitive receptors to substantial levels of fine particulate matter (PM_{2.5}) and toxic air contaminants under cumulative conditions.</p>	S	Mitigation Measures M-AQ-3a, M-AQ-4b through M-AQ-4d, and M-AQ-5a through M-AQ-5c would apply.	SUM
<p>Impact C-AQ-2: The Waterfront Plan, in combination with cumulative projects, would not combine with other sources of odors that would adversely affect a substantial number of people.</p>	LTS	No mitigation required.	NA

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Waterfront Plan EIR Summary

S.3. Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<p>are both evident and identifiable, and be replicated and spaced throughout the growing season to accurately determine what plants exist on the site. If no special-status plants are identified, no further action is required to avoid or minimize impacts to these species.</p> <p>If special-status plants are encountered in the work area, they should be avoided. If they cannot be avoided, the Port shall, in coordination with USFWS and/or CDFW (as applicable based on plant status), avoid plants through project design, protect plants from construction activities through the use of exclusion fencing and signage, or minimize impacts to plant populations, relocate plants to other suitable habitat nearby, or harvest seed, as appropriate to the particular species.</p> <p>Prior to construction, staging areas shall be identified that avoid impacts to special-status plants identified, and construction exclusion fencing shall be used to define the work area and minimize disturbance to these areas. The fencing shall be maintained through the construction phase and monitored on a weekly basis during construction to ensure protection of special-status plants and their habitat.</p> <p>If avoidance is not feasible, rare plants and their seeds shall be salvaged and relocated, and habitat restoration shall be provided to replace any destroyed special-status plant occurrences at a minimum 1:1 ratio (i.e., no net loss) or as specified by resource agencies based on area of lost habitat. Compensation for loss of special-status plant populations shall include the restoration or enhancement of temporarily impacted areas, and management of restored areas. Restoration or reintroduction shall be located on-site where feasible. At a minimum, the restoration areas shall meet the following performance standards by the fifth year:</p> <ol style="list-style-type: none"> a. The compensation area shall be at least the same size as the impact area. b. Vegetation cover and composition in special-status plant restoration areas shall emulate existing reference populations. c. Monitoring shall demonstrate the continued presence of rare plants in the restoration area. d. Invasive species cover shall be less than or equal to the invasive species cover in the impact area. 	

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		Additionally, restored populations shall have greater than the number of individuals of the impacted population, in an area greater than or equal to the size of the impacted population, for at least 3 consecutive years without irrigation, weeding, or other manipulation of the restoration site. The Habitat Monitoring Plan to be prepared in accordance with Mitigation Measure M-BI-4, Avoidance of Pickleweed Mat Sensitive Natural Community, shall include the above monitoring requirements and success criteria.	
Impact BI-2: The Waterfront Plan could have a substantial adverse effect, either directly, indirectly, or through habitat modifications, on nesting bird or bat species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or USFWS (nesting birds, special-status bats).	S	<p>Mitigation Measure M-BI-1a would apply.</p> <p>Mitigation Measure M-BI-2a: Nesting Bird Protection Measures. Mitigation Measure M-BI-2a applies to new development projects that include removal of trees or vegetation, major tree trimming, demolition of buildings, or use of heavy equipment (e.g., earthwork, demolition) that could disturb nests or nesting birds. Nesting birds and their nests shall be protected during construction by use of the following measures:</p> <ol style="list-style-type: none"> 1. A qualified wildlife biologist shall conduct pre-construction nesting surveys during the avian nesting breeding season (approximately February 15 to September 15) within 7 days prior to construction. Surveys shall be performed for the project area, vehicle and equipment staging areas, and suitable habitat within 250 feet to locate any active passerine (perching bird) nests and within 500 feet to locate any active raptor (bird of prey) nests. 2. If active nests are located during the pre-construction nesting bird surveys, the qualified wildlife biologist shall evaluate if the schedule of construction activities could affect the active nests and the following measures shall be implemented based on their determination: <ol style="list-style-type: none"> a. If construction is not likely to affect the active nest, construction may proceed without restriction. b. If it is determined that construction may affect the active nest, the qualified biologist shall establish a no-disturbance buffer around the nest(s) and all project work would halt within the buffer until a qualified biologist determines the nest is no longer in use. Typically, these buffer distances are 	LTSM

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S.3. Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<p>up to 250 feet for passerines and 500 feet for raptors; however, the buffers may be adjusted downward for some species, or if an obstruction, such as a building, is within line-of-sight between the nest and construction activities.</p> <p>c. Modifying nest buffer distances, allowing certain construction activities within the buffer, and/or modifying construction methods in proximity to active nests shall be done at the discretion of the qualified biologist and in coordination with the Port. Necessary actions to remove or relocate an active nest(s) shall be coordinated with the Port.</p> <p>d. Any work that must occur within established no-disturbance buffers around active nests shall be monitored by a qualified biologist. If adverse effects in response to project work within the buffer are observed and could compromise the nest, work within the no-disturbance buffer(s) shall halt until the nest occupants have fledged.</p> <p>e. Any birds that begin nesting within the project area and survey buffers amid construction activities shall be assumed to be habituated to construction-related or similar noise and disturbance levels and no work exclusion zones shall be established around active nests in these cases; however, should birds nesting nearby begin to show disturbance associated with construction activities, no-disturbance buffers shall be established as determined by the qualified wildlife biologist.</p> <p>Mitigation Measure M-BI-2b: Avoidance and Minimization Measures for Bats. A qualified biologist (as defined by CDFW³) who is experienced with bat surveying techniques (including auditory sampling methods), behavior, roosting habitat, and identification of local bat species shall be consulted prior to demolition or building relocation activities or tree work to conduct a pre-construction habitat assessment of the project area (focusing on buildings to be demolished or relocated) to characterize potential bat habitat and identify potentially active roost sites. No further action is required should the pre-construction habitat assessment not</p>	

³ CDFW defines credentials of a *qualified biologist* within permits or authorizations issued for a project. Typical qualifications include a minimum of four years of academic training leading to a degree and a minimum of 2 years of experience conducting surveys for each species that may be present within the project area.

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		<p>buildings or structures, establishing exclusionary work buffers while the roost is active (e.g., 100-foot no-disturbance buffer), or other compensatory mitigation.</p> <p>5. The qualified biologist shall be present during building demolition, relocation, or tree work if potential bat roosting habitat or active bat roosts are present. Buildings and trees with active roosts shall be disturbed only under clear weather conditions when precipitation is not forecast for three days and when daytime temperatures are at least 50 degrees Fahrenheit.</p> <p>6. The demolition or relocation of buildings containing or suspected to contain bat roosting habitat or active bat roosts shall be done under the supervision of the qualified biologist. When appropriate, buildings shall be partially dismantled to significantly change the roost conditions, causing bats to abandon and not return to the roost, likely in the evening and after bats have emerged from the roost to forage. Under no circumstances shall active maternity roosts be disturbed until the roost disbands at the completion of the maternity roosting season or otherwise becomes inactive, as determined by the qualified biologist.</p> <p>7. Trimming or removal of existing trees with potential bat roosting habitat or active (non-maternity or hibernation) bat roost sites shall follow a two-step removal process (which shall occur during the time of year when bats are active, according to a) above and, depending on the type of roost and species present, according to c) above).</p> <p>a. On the first day and under supervision of the qualified biologist, tree branches and limbs not containing cavities or fissures in which bats could roost shall be cut using chainsaws.</p> <p>b. On the following day and under the supervision of the qualified biologist, the remainder of the tree may be trimmed or removed, either using chainsaws or other equipment (e.g., excavator or backhoe).</p> <p>c. All felled trees shall remain on the ground for at least 24 hours prior to chipping, off-site removal, or other processing to allow any bats to escape, or be inspected once felled by the qualified biologist to ensure no bats remain within the tree and/or branches.</p>	

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<p>Impact BI-3: The Waterfront Plan could have a substantial adverse effect, either directly, indirectly, or through habitat modifications, on steelhead, chinook salmon, green sturgeon, or marine mammal species, which are identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW, NMFS, or USFWS.</p>	<p>S</p>	<p>Mitigation Measure M-BI-3: Fish and Marine Mammal Protection during Pile Driving. If required by the National Marine Fisheries Service (NMFS), a sound attenuation monitoring plan shall be prepared to reduce impacts to fish and marine mammals. The plan shall incorporate the following best management practices subject to modification in the NMFS-approved plan:</p> <ul style="list-style-type: none"> • In-water pile driving shall be conducted within the established environmental work window between June 1 and November 30, designed to avoid potential impacts to fish species. • To the extent feasible vibratory pile drivers shall be used for the installation of all support piles. Vibratory pile driving shall be conducted following the U.S. Army Corps of Engineers “Proposed Procedures for Permitting Projects that will Not Adversely Affect Selected Listed Species in California.” U.S. Fish and Wildlife Service and NMFS completed section 7 consultation on this document, which establishes general procedures for minimizing impacts to natural resources associated with projects in or adjacent to jurisdictional waters. • A soft start technique to impact hammer pile driving shall be implemented, at the start of each work day or after a break in impact hammer driving of 30 minutes or more, to give fish and marine mammals an opportunity to vacate the area. • If during the use of an impact hammer, established NMFS pile driving thresholds are exceeded, a bubble curtain or other sound attenuation method as described in the NMFS-approved sound attenuation monitoring plan shall be utilized to reduce sound levels below the criteria described above. If NMFS sound level criteria are still exceeded with the use of attenuation methods, a NMFS-approved biological monitor shall be available to conduct surveys before and during pile driving to inspect the work zone and adjacent waters for marine mammals. The monitor shall be present as specified by the NMFS during impact pile driving and ensure that: <ul style="list-style-type: none"> – The safety zones established in the sound monitoring plan for the protection of marine mammals are maintained. 	<p>LTSM</p>

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		<ul style="list-style-type: none"> - Work activities are halted when a marine mammal enters a safety zone and resumed only after the animal has been gone from the area for a minimum of 15 minutes. • Alternatively, the project sponsors may consult with NOAA directly and submit evidence to their satisfaction of the Environmental Review Officer of NOAA consultation. In such case, the project shall comply with NOAA recommendations and/or requirements. 	
<p>Impact BI-4: The Waterfront Plan could have a substantial adverse effect on the pickleweed mat sensitive natural community.</p>	S	<p>Mitigation Measure M-BI-1a would apply.</p> <p>Mitigation Measure M-BI-4: Avoidance of Pickleweed Mat Sensitive Natural Community. Prior to the start of construction in any area where a pickleweed mat community exists, the Port shall consult with the Planning Department to determine whether this mitigation measure shall be implemented as presented, or modified based on site and construction details of the subsequent project. The Port shall retain a qualified biologist (i.e., a biologist experienced at identifying coastal saltmarsh vegetation) to clearly delineate the extent of pickleweed mat community within 20 feet of the project work area. Pickleweed mat shall be protected from the work area by environmentally sensitive area fencing, which shall be maintained throughout the construction period. A qualified biologist shall oversee the delineation and installation of fencing. Excavation, vehicular traffic, staging of materials, and all other project-related activity shall be located outside of the environmentally sensitive area.</p> <p>If the pickleweed mat community cannot be avoided, any temporarily affected areas shall be restored to pre-construction conditions or better at the conclusion of construction activities that occur within 20 feet of the retained pickleweed mat in accordance with CDFW and regional board permits. Compensation for permanent impacts on the sensitive natural community shall be provided at a 1:1 or greater ratio, or as specified by USACE, regional board, and/or CDFW. If impacts to prior mitigation sites occur, resource agencies may require a greater ratio (e.g., 2:1 or higher). Compensation for loss of pickleweed mat may be in the form of permanent on-site or off-site creation, restoration, enhancement, or preservation of habitat. To</p>	LTSM

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		<p>that end, the restoration sites shall, at a minimum, meet the following performance standards by the fifth year after restoration:</p> <ol style="list-style-type: none"> 1. Native vegetation cover shall be at least 70 percent of the baseline native vegetation cover in the impact area. 2. No more cover by invasive species shall be present than in the baseline/impact area. <p>Restoration shall be detailed in a Habitat Mitigation and Monitoring Plan, which shall be developed before the start of construction and in coordination with permit applications and/or conditions. At a minimum, the Plan shall include:</p> <ol style="list-style-type: none"> 1. Name and contact information for the property owner of the land on which the mitigation will take place; 2. Identification of the water source for supplemental irrigation, if needed; 3. Identification of depth to groundwater; 4. Topsoil salvage and storage methods for areas that support special-status plants; 5. Site preparation guidelines to prepare for planting, including coarse and fine grading; 6. Plant material procurement, including assessment of the risk of introduction of plant pathogens through the use of nursery-grown container stock vs. collection and propagation of site-specific plant materials, or use of seeds; 7. A planting plan outlining species selection, planting locations, and spacing for each vegetation type to be restored; 8. Planting methods, including containers, hydroseed or hydromulch, weed barriers, and cages, as needed; 9. Soil amendment recommendations, if needed; 10. An irrigation plan, with proposed rates (in gallons per minute), schedule (i.e., recurrence interval), and seasonal guidelines for watering; 	

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		<p>11. A site protection plan to prevent unauthorized access, accidental damage, and vandalism;</p> <p>12. Weeding and other vegetation maintenance tasks and schedule, with specific thresholds for acceptance of invasive species;</p> <p>13. Performance standards by which successful completion of mitigation can be assessed relative to a relevant baseline or reference site, and by which remedial actions will be triggered;</p> <p>14. Success criteria that shall include the minimum performance standards described above;</p> <p>15. Monitoring methods and schedule;</p> <p>16. Reporting requirements and schedule (e.g., annual reporting);</p> <p>17. Adaptive management and corrective actions to achieve the established success criteria; and</p> <p>18. An educational outreach program to inform operations and maintenance departments of local land management and utility agencies of the mitigation purpose of restored areas to prevent accidental damages.</p> <p>The Habitat Mitigation and Monitoring Plan and all field documentation, prepared in coordination with the appropriate regulatory agencies, shall be submitted to a designee from the Port for review and approval prior to the issuance of any demolition, grading, or building permit for construction that would occur within 20 feet of the pickleweed mat sensitive natural community.</p>	
<p>Impact BI-5: The Waterfront Plan would not have a substantial adverse effect the eelgrass bed sensitive natural community.</p>	<p>NI</p>	<p>No mitigation required.</p>	<p>NA</p>

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<p>Impact BI-6: The Waterfront Plan could have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal) through direct removal, filling, hydrological interruption, or other means.</p>	S	<p>Mitigation Measure M-BI-1a would apply.</p> <p>Mitigation Measure M-BI-6: Avoidance of Impacts on Wetlands and Waters. The Port and its contractors for the specific construction activity to be undertaken shall minimize impacts on waters of the United States and waters of the state, including wetlands, by implementing the following measures:</p> <ul style="list-style-type: none"> • The proposed project shall be designed to avoid, to the extent practical, work within wetlands and/or waters under the jurisdiction of USACE, regional board, and CDFW. If applicable, permits or approvals shall be sought from the above agencies, as required. Where wetlands or other water features must be disturbed, the minimum area of disturbance necessary for construction shall be identified and the area outside avoided. • Before the start of construction within 50 feet of any wetlands and drainages, appropriate measures shall be taken to ensure protection of the wetland from construction runoff or direct impact from equipment or materials, such as the installation of a silt fence, and signs indicating the required avoidance shall be installed. No equipment mobilization, grading, clearing, or storage of equipment or machinery, or similar activity, shall occur until a qualified biologist has inspected and approved the fencing installed around these features. The construction contractor for the specific construction activity to be undertaken shall ensure that the temporary fencing is maintained until construction activities are complete. No construction activities, including equipment movement, storage of materials, or temporary spoils stockpiling, shall be allowed within the fenced areas protecting wetlands. • Where disturbance to jurisdictional wetlands or waters cannot be avoided, any temporarily affected jurisdictional wetlands or waters shall be restored to pre-construction conditions or better at the end of construction, in accordance with the requirements of USACE, regional board, and CDFW permits. Compensation for permanent impacts on wetlands or waters shall be provided at a 1:1 ratio, or as agreed upon by CDFW, USACE, and regional board. Compensation for loss of wetlands may be in the form of permanent on-site or off-site creation, restoration, enhancement, or preservation of habitat. To that end, the 	LTSM

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Waterfront Plan EIR Summary

S.3. Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		restoration or compensation sites shall, at a minimum, meet the following performance standards by the fifth year after restoration: 1) Wetlands restored or constructed as federal wetlands meet the applicable federal criteria for jurisdictional wetlands, and wetlands restored or constructed as state wetlands meet the state criteria for jurisdictional wetlands. 2) No more cover by invasive species shall be present than in the baseline/impact area pre-project. Restoration and compensatory mitigation activities shall be described in the habitat mitigation and monitoring plan prescribed by Mitigation Measure M-BI-4, Avoidance of Impacts on Pickleweed Mat Sensitive Natural Community.	
Impact BI-7: The Waterfront Plan could interfere substantially with the movement of a native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.	S	Mitigation Measures M-BI-2a and M-BI-3 would apply.	LTSM
Impact BI-8: The Waterfront Plan would not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.	LTS	No mitigation required.	NA
Impact C-BI-1: The Waterfront Plan, in combination with cumulative projects, would not result in significant construction-related or operational cumulative impacts on biological resources.	LTS	No mitigation required.	NA

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Table S-2 Summary of Impacts of the Waterfront Plan Identified in the Initial Study

Environmental Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
INITIAL STUDY SECTION E.1, LAND USE AND PLANNING			
Impact LU-1: The Waterfront Plan would not physically divide an established community.	LTS	No mitigation required.	NA
Impact LU-2: The Waterfront Plan would not cause a significant physical environmental impact due to a conflict with any applicable land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.	LTS	No mitigation required.	NA
Impact C-LU-1: The Waterfront Plan, in combination with cumulative projects, would not result in a significant cumulative impact related to land use and planning.	LTS	No mitigation required.	NA
INITIAL STUDY SECTION E.3, POPULATION AND HOUSING			
Impact PH-1: The Waterfront Plan would not induce substantial unplanned population growth beyond that projected by regional forecasts, either directly or indirectly.	LTS	No mitigation required.	NA

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Waterfront Plan EIR Summary

S.3. Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
<p>Impact PH-2: The Waterfront Plan would not displace substantial numbers of existing people or housing units, necessitating the construction of replacement housing outside of the Plan area.</p>	LTS	No mitigation required.	NA
<p>Impact C-PH-1: The Waterfront Plan, in combination with cumulative projects, would not result in a significant cumulative impact related to population and housing.</p>	LTS	No mitigation required.	NA
INITIAL STUDY SECTION E.3, CULTURAL RESOURCES			
<p>Impact CR-2: The Waterfront Plan could cause a substantial adverse change in the significance of an archeological resource.</p>	S	<p>Mitigation Measure M-CR-2a: Procedures for Accidental Discovery of Archeological Resources. The following mitigation measure shall be implemented for any projects for which the preliminary archeological review conducted by qualified San Francisco Planning Department archeological staff identifies the potential for significant archeological impacts. All plans and reports prepared by the qualified archeologist (hereinafter, “project archeologist”), as specified herein and in the subsequent measures, 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.</p> <p><i>ALERT Sheet.</i> The project sponsor shall distribute the Planning Department archeological resource “ALERT” sheet to the project prime contractor; to any project subcontractor (including demolition, excavation, grading, foundation, pile driving, etc. firms); or utilities firm involved in soils-disturbing activities within the project site. Prior to any soils-disturbing activities being undertaken, each contractor is responsible for ensuring that the “ALERT” sheet is circulated to all field personnel, including machine operators, field crew, pile drivers, supervisory personnel, etc. The project sponsor shall provide the Environmental Review Officer (ERO) with a signed affidavit from the responsible parties (prime contractor,</p>	LTSM

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Waterfront Plan EIR Summary

S.3. Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<p>may require the project sponsor to implement specific treatment measures to address impacts to the resource. Treatment measures might include preservation in situ of the archeological resource (the preferred mitigation; see below); an archeological monitoring program; an archeological testing program; archeological data recovery; and/or an archeological interpretation program, as detailed below. If an archeological interpretive, monitoring, and/or testing program are required, these shall be consistent with the Environmental Planning Division guidelines for such programs and shall be implemented immediately in accordance with the archeological monitoring and testing protocols set forth in Mitigation Measures M-CR-2b, Archeological Monitoring; M-CR-2c, Archeological Testing; and/or M-CR-2d, Submerged or Deeply Buried Resources, as detailed in the Waterfront Plan EIR MMRP. The ERO may also require that the project sponsor immediately implement a site security program if the archeological resource is at risk from vandalism, looting, or other damaging actions. In addition, the ERO shall notify any tribal representatives who responded to the project tribal cultural resources notification and requested to be notified of the discovery of Native American archeological resources and to coordinate on the treatment of archeological and tribal cultural resources.</p> <ul style="list-style-type: none"> • <i>Archeological Site Records.</i> At the conclusion of assessment, the project archeologist shall prepare an archeological site record or primary record (DPR 523 series) for each resource evaluated as significant or potentially significant. In addition, a primary record shall be prepared for any Native American isolate. Each such record shall be accompanied by a map and GIS location file. Records shall be submitted to the department for review as attachments to the archeological resources report (see below) and once approved by the ERO, to the Northwest Information Center. • <i>Submerged Paleosols.</i> Should a submerged paleosol be identified the project archeologist shall extract and process samples for dating, flotation for paleobotanical analysis, and other applicable special analyses pertinent to identification of possible cultural soils and for environmental reconstruction, irrespective of whether cultural material is present. • <i>Preservation-in-Place Consideration.</i> Should a significant archeological resource be discovered during construction or during archeological testing or monitoring, preservation in place is the preferred treatment option. The ERO shall consult with the project sponsor and, for Native American archeological resources, with the tribal 	

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		<p>representative(s), if requested, to consider (1) the feasibility of permanently preserving the resource in place and (2) whether preservation in place would be effective in preserving both the archeological values and (if applicable) the tribal values represented. If based on this consultation the ERO determines that preservation-in-place would be both feasible and effective, based on this consultation, then the project archeologist, in consultation with the tribal representative, if a Native American archeological resource, shall prepare a Cultural Resources Preservation Plan (CRPP). For Native American archeological resources, the CRPP shall explicitly take into consideration the cultural significance of the tribal cultural resource to the tribes. Preservation options may include measures such as design of the project layout to place open space over the resource location; foundation design to avoid the use of pilings or deep excavations in the sensitive area; a plan to expose and conserve the resource and include it in an on-site interpretive exhibit; and/or establishment of a permanent preservation easement. The project archeologist shall submit a draft CRPP to the department and the tribes for review and approval, and the Port/project sponsor shall ensure that the approved plan is implemented during and after construction. If, based on this consultation, the ERO determines that preservation in place is infeasible, archeological data recovery and public interpretation of the resource shall be carried out, as detailed below. The ERO in consultation with the project archeologist shall also determine if additional treatment is warranted, which may include additional testing and/or construction monitoring.</p> <ul style="list-style-type: none"> • <i>Coordination with Descendant Communities.</i> On discovery of an archeological site associated with descendant Native Americans, Chinese, or other potentially interested descendant group, the project archeologist shall contact an appropriate representative of the descendant group and the ERO. The representative of the descendant group shall be offered the opportunity to monitor archeological field investigations of the site and to offer recommendations to the ERO regarding appropriate archeological treatment of the site and data recovered from the site, and, if applicable, any interpretative treatment of the site. The project archeologist shall provide a copy of the Archeological Resources Report (ARR) to the representative of the descendant group. • <i>Compensation.</i> Tribal representatives or other descendant community representatives for archeological resources or tribal cultural resources, who participate in the project, shall be compensated for time invested in the preparation or review of plans, documents, 	

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Waterfront Plan EIR Summary

S.3. Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<p>artwork, etc., as well as for archeological monitoring undertaken in fulfillment of the requirements of this mitigation measure, similarly to other consultants and experts employed for subsequent projects under the Waterfront Plan. The ERO, Port/project sponsor and project archeologist, as appropriate, shall work with the tribal representative or other descendant community representatives to identify the appropriate scope of consultation work.</p> <p><i>Archeological Data Recovery Program.</i> The project archeologist shall prepare an Archeological Data Recovery Plan (ADRP) if all three of the following apply: (1) a potentially significant resource is discovered, (2) preservation in place is not feasible, and (3) the ERO determines that archeological data recovery is warranted. When the ERO makes such a determination, the project archeological consultant, project sponsor, ERO and, for tribal cultural archeological resources, the tribal representative, if requested, shall consult on the scope of the data recovery program. The project archeologist shall prepare a draft ADRP and submit it to the ERO for review and approval. If the time needed for preparation and review of a comprehensive ADRP would result in a significant construction delay, the scope of data recovery may instead be agreed upon in consultation between the project archeologist and the ERO and documented by the project archeologist in a memo to the ERO. The ADRP/memo shall identify how the proposed data recovery program will preserve the significant information the archeological resource is expected to contain. That is, the ADRP/memo will identify what scientific/historic 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 historic property that could be adversely affected by the proposed project. Destructive data recovery methods shall not be applied to portions of the archeological resource that would not otherwise be disturbed by construction if nondestructive methods are practical.</p> <p>If archeological data recovery is required, the archeological data recovery program 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 may be extended beyond four weeks only if such a suspension is the only feasible means to reduce to a less-than-</p>	

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		<p>significant level potential effects on a significant archeological resource as defined in CEQA Guidelines section 15064.5(a) and (c).</p> <p>The ADRP shall include the following elements:</p> <ul style="list-style-type: none"> • 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. • 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. • Public Interpretation: Description of potential types of interpretive products and locations of interpretive exhibits based on consultation with project sponsor • 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. <p>The project archeologist shall implement the archeological data recovery program upon approval of the ADRP/memo by the ERO.</p> <p><i>Coordination of Archeological Data Recovery Investigations.</i> In cases in which the same resource has been or is being affected by another project for which data recovery has been conducted, is in progress, or is planned, the following measures shall be implemented to maximize the scientific and interpretive value of the data recovered from both archeological investigations:</p> <ul style="list-style-type: none"> • In cases where neither investigation has not yet begun, both archeological consultants and the ERO shall consult on coordinating and collaboration on archeological research design, data recovery methods, analytical methods, reporting, curation and interpretation to ensure consistent data recovery and treatment of the resource. 	

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Environmental Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<ul style="list-style-type: none"> In cases where archeological data recovery investigation is already under way or has been completed for a prior project, the archeological consultant for the subsequent project shall consult with the prior archeological consultant, if available; review prior treatment plans, findings and reporting; and inspect and assess existing archeological collections/inventories from the site prior to preparation of the archeological treatment plan for the subsequent discovery, and shall incorporate prior findings in the final report of the subsequent investigation. The objectives of this coordination and review of prior methods and findings will be to identify refined research questions; determine appropriate data recovery methods and analyses; assess new findings relative to prior research findings; and integrate prior findings into subsequent reporting and interpretation. <p><i>Treatment of Human Remains and Funerary Objects.</i> If human remains or suspected human remains are encountered during construction, the contractor and project sponsor shall ensure that ground-disturbing work within 50 feet of the remains is halted immediately and shall arrange for the protection in place of the remains until appropriate treatment and disposition have been agreed upon and implemented in accordance with this section. The treatment of any human remains and funerary objects discovered during any soils disturbing activity shall comply with applicable state laws, including Health and Safety Code section 7050.5 and Public Resources Code section 5097.98. Upon determining that the remains are human, the project archeologist shall immediately notify the Medical Examiner of the City and County of San Francisco of the find. The archeologist shall also immediately notify the ERO and the project sponsor of the find. In the event of the Medical Examiner’s determination that the human remains are Native American in origin, the Medical Examiner will notify the California State Native American Heritage Commission (NAHC) within 24 hours. The NAHC will immediately appoint and notify a Most Likely Descendant (MLD). The MLD will complete his or her inspection of the remains and make recommendations or preferences for treatment within 48 hours of being granted access to the site.</p> <p>If the remains cannot be permanently preserved in place, the Port shall consult with the MLD and may consult with the project archeologist, project sponsor and the ERO on recovery of the remains and any scientific treatment alternatives. The landowner shall then make all reasonable efforts to develop a Burial Agreement (Agreement) with the MLD, as expeditiously as possible, for the treatment and disposition, with appropriate dignity, of human remains</p>	

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S.3. Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<p>tribe, of Native American tribal representatives, and the interpretive materials shall include an acknowledgement that the project is located upon traditional Ohlone lands. For interpretation of a tribal cultural resource, the interpretive program may include a combination of artwork, preferably by local Native American artists, educational panels or other informational displays, a plaque, or other interpretative elements including digital products that address local Native people’s experience and the layers of history. As feasible, and where landscaping is proposed, the interpretive effort may include the use and the interpretation of native and traditional plants incorporated into the proposed landscaping.</p> <p>The project archeological consultant shall submit the CRPIP and drafts of any interpretive materials that are subsequently prepared to the ERO for review and approval. The project sponsor shall ensure that the CRPIP is implemented prior to occupancy of the project.</p> <p><i>Archeological Resources Report.</i> If significance resources are encountered, the project archeologist shall submit a confidential draft Archeological Resources Report (ARR) to the ERO that evaluates the California Register significance of any discovered archeological resource, describes the archeological and historic research methods employed in the archeological program(s) undertaken and the results and interpretation of analyses, and discusses curation arrangements.</p> <p>Once approved by the ERO, the project archeologist shall distribute the approved ARR as follows: copies that meet current information center requirements at the time the report is completed (presently, an electronic copy of the report and of each resources record in pdf format and, if available, GIS shapefiles of the project site and of the boundaries and locations of any recorded resources) to the California Archeological Site Survey Northwest Information Center (NWIC), and a copy of the transmittal of the approved ARR to the NWIC to the ERO; one bound hardcopy of the ARR, along with digital files that include an unlocked, searchable PDF version of the ARR, GIS shapefiles of the site and feature locations, 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, via USB or other stable storage device, to the department environmental planning division of the planning department; and, if a descendant group was consulted, a digital or hard copy of the ARR to the descendant group, depending on their preference.</p>	

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		<p>including machine operators, field crew, pile drivers, supervisory personnel, etc., have received an “Alert” wallet card that summarizes stop work requirements and provides necessary contact information for the project archeologist, project sponsor and the ERO. The project archeologist shall repeat the training at intervals during construction, as determined necessary by the ERO, including when new construction personnel start work and prior to periods of soil disturbing work when the project archeologist will not be on site.</p> <p>Should any indication of an archeological resource be encountered during any soils-disturbing activity of the project in the absence of the project archeologist, the project sponsor shall immediately notify the project archeologist, and shall immediately suspend any soils-disturbing activities in the vicinity of the discovery until the project archeologist has inspected the find and, in consultation with the ERO as needed, has determined what additional measures should be undertaken.</p> <p><i>Tribal Cultural Resources Sensitivity Training.</i> In addition to and concurrently with the archeological awareness training, for sites at which the ERO has determined that there is the potential for the discovery of Native American archeological resources, and if requested by a tribe pursuant to the department’s tribal cultural resources notification process, the Port shall ensure that a Native American representative is afforded the opportunity to provide a Native American cultural resources sensitivity training to all construction personnel.</p> <p><i>General Specifications.</i> The archeological consultant shall develop and undertake an archeological monitoring program as specified herein. In addition, the consultant shall be available to conduct an archeological testing and/or data recovery program if required to address archeological discoveries or the assessed potential for archeological discoveries, pursuant to this measure.</p> <p>The project archeologist’s work shall be conducted in accordance with this measure at the direction of the ERO. All plans and reports prepared by the project archeologist 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.</p> <p>The project sponsor shall ensure that the project archeologist or designee is empowered to halt soil disturbing activity in the vicinity of a potential archeological find and that work shall remain halted until the discovery has been assessed and a treatment determination made, as detailed below.</p>	

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S.3. Summary of Impacts and Mitigation Measures

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		<p>discovery, including the collection of soil samples and artifactual/ ecofactual material, as needed to assess potential significance and integrity. Once this initial assessment has been made, the project archeologist shall consult with the ERO on the results of the assessment. If the resource is assessed as potentially significant, the Port/ project sponsor shall ensure that soil disturbance remains halted at the discovery location until appropriate treatment has been determined in consultation with the ERO and implemented, as detailed below.</p> <p><i>Archeological Monitoring Plan.</i> The archeological monitoring plan, minimally, shall include the following provisions:</p> <ul style="list-style-type: none"> • Project description: Description of all anticipated soil disturbing activities, with locations and depths of disturbance. These may include foundation and utility demolition, hazardous soils remediation, site grading, shoring excavations, piles or soil improvements, and foundation, elevator, car stacker, utility and landscaping excavations. Project plans and profiles shall be included as needed to illustrate the locations of anticipated soil disturbance. • Site-specific environmental and cultural context: Pre-contact and historic environmental and cultural setting of the project site as pertinent to potential Native American use and historic period development; any available information pertaining to subsequent soil disturbance as pertains to potential survival of archeological resources, strata in and depths at which they might be found. As appropriate based on the scale and scope of the project, the AMP should include maps (e.g., USCS 1869; Sanborn fire insurance maps) that depict the historic and environmental setting and changes in the project site, as a basis for predicting resource types that might be encountered and their potential locations. An overlay of the project site on the City’s Native American archeological sensitivity model mapping should be included, as should the locations of all known archeological sites within ¼ mile of the project site. • Analysis of anticipated resources or resource types that might be encountered and at what locations and depths, based on known resources in the vicinity, the site’s predevelopment setting and development history, and the anticipated depth and extent of project soil disturbances. • Proposed scope of archeological monitoring, including soil-disturbing activities/ disturbance depths to be monitored. 	

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Environmental Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<ul style="list-style-type: none"> ● Synopsis of discovery procedures, ERO and Native American consultation requirements upon making a discovery; burial treatment procedures; and reporting and curation requirements, consistent with the other specifications of this measure. <p><i>Resource Evaluation and Treatment Determination.</i> If an archeological deposit or feature is encountered during construction, the archeological monitor shall redirect soil disturbing demolition/ excavation/ piling/ construction crews and heavy equipment activity in the vicinity away from the find. 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 project sponsor shall ensure that pile driving is halted until an appropriate evaluation of the resource has been made.</p> <p>The project archeologist shall document the find, and make a reasonable effort to assess its identity, integrity, and significance of the encountered archeological deposit through, sampling or testing as needed. The project sponsor shall make provisions to ensure that the project archeologist can safely enter the excavation, if feasible.</p> <p>If upon examination the project archeologist determines the find appears to be a potentially significant archeological resource, the project archeologist shall present the findings of this assessment to the ERO. The project sponsor shall ensure that the find is protected until the ERO has been consulted and has determined appropriate subsequent treatment in consultation with the project archeologist and the treatment has been implemented, as detailed below.</p> <p>All Native American archeological deposits, irrespective of level of disturbance, shall be assumed to be significant until and unless determined otherwise in consultation with the ERO. If a Native American archeological deposit is encountered, the project archeologist shall obtain the services of a Native American tribal representative to participate in any future archeological monitoring, assessment or data recovery activities that may affect that resource. In addition, the ERO shall notify any tribal representatives who requested to be notified of the discovery of Native American archeological resources in response to the project notification, to coordinate on the treatment or archeological and tribal cultural resources. Further the project archeologist shall offer a Native American representative the opportunity to monitor any subsequent soil disturbing activity that could affect the find.</p>	

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		<p><i>Submerged Paleosols.</i> Should a submerged paleosol be identified, the project archeologist shall extract and process samples for dating, flotation for paleobotanical analysis, and other applicable special analyses pertinent to identification of possible cultural soils and for environmental reconstruction, irrespective of whether cultural material is present.</p> <p><i>Archeological Site Records.</i> At the conclusion of assessment of any discovered resources, the project archeologist shall prepare an archeological site record or primary record (DPR 523 series) for each resource evaluated as significant or potentially significant. In addition, a primary record shall be prepared for any Native American isolate. Each such record shall be accompanied by a map and GIS location file. Records shall be submitted to the department for review as attachments to the archeological resources report (see below) and once approved by the ERO, to the Northwest Information Center.</p> <p><i>Preservation-in-Place Consideration.</i> Should a significant archeological resource be discovered during construction or during archeological monitoring, preservation in place is the preferred treatment option. The ERO shall consult with the project sponsor and, for Native American archeological resources, with the tribal representative(s) if requested to consider (1) the feasibility of permanently preserving the resource in place and (2) whether preservation in place would be effective in preserving both the archeological values and (if applicable) the tribal values represented. If based on this consultation the ERO determines that preservation-in-place would be both feasible and effective, then the project archeologist, in consultation with the tribal representative if a Native American archeological resource, shall prepare a Cultural Resources Preservation Plan (CRPP). For Native American archeological resources, the CRPP shall explicitly take into consideration the cultural significance of the tribal cultural resource to the tribes. Preservation options may include measures such as design of the project layout to place open space over the resource location; foundation design to avoid the use of pilings or deep excavations in the sensitive area; a plan to expose and conserve the resource and include it in an on-site interpretive exhibit; and/or establishment of a permanent preservation easement. The project archeologist shall submit a draft CRPP to the department and the tribes for review and approval, and the Port shall ensure that the approved plan is implemented during and after construction. If, based on this consultation, the ERO determines that preservation in place is infeasible, archeological data recovery and public interpretation of the resource shall be carried out, as detailed below. The</p>	

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Environmental Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<p>ERO in consultation with the project archeologist shall also determine if additional treatment is warranted, which may include additional testing and/or construction monitoring.</p> <p><i>Coordination with Descendant Communities.</i> On discovery of an archeological site associated with descendant Native Americans, Chinese, or other potentially interested descendant group, the project archeologist shall contact an appropriate representative of the descendant group and the ERO. The representative of the descendant group shall be offered the opportunity to monitor archeological field investigations of the site and to offer recommendations to the ERO regarding appropriate archeological treatment of the site and data recovered from the site, and, if applicable, any interpretative treatment of the site. The project archeologist shall provide a copy of the Archeological Resources Report (ARR) to the representative of the descendant group.</p> <p><i>Compensation.</i> Tribal representatives or other descendant community representatives for archeological resources or tribal cultural resources who participate in the project shall be compensated for time invested in the preparation or review of plans, documents, artwork, etc., as well as for archeological monitoring undertaken in fulfillment of the requirements of this mitigation measure, similarly to other consultants and experts employed for subsequent projects under the Waterfront Plan. The ERO, Port/project sponsor and project archeologist, as appropriate, shall work with the tribal representative or other descendant community representatives to identify the appropriate scope of consultation work.</p> <p><i>Archeological Data Recovery Program.</i> The project archeologist shall prepare an Archeological Data Recovery Plan (ADRP) if all three of the following apply: (1) a potentially significant resource is discovered, (2) preservation in place is not feasible, and (3) the ERO determines that archeological data recovery is warranted. When the ERO makes such a determination, the project archeologist, project sponsor, ERO and, for tribal cultural archeological resources, the tribal representative, if requested, shall consult on the scope of the data recovery program. The project archeologist shall prepare a draft ADRP and submit it to the ERO for review and approval. If the time needed for preparation and review of a comprehensive ADRP would result in a significant construction delay, the scope of data recovery may instead be agreed upon in consultation between the project archeologist and the ERO and documented by the project archeologist in a memo to the ERO. The ADRP/memo shall identify how the proposed data recovery program will preserve the significant information the archeological</p>	

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Environmental Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<p>resource is expected to contain; that is, the ADRP/memo will identify what scientific/historic 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 historic property that could be adversely affected by the proposed project. Destructive data recovery methods shall not be applied to portions of the archeological resource that would not otherwise be disturbed by construction if nondestructive methods are practical.</p> <p>The ADRP shall include the following elements:</p> <ul style="list-style-type: none"> • Field Methods and Procedures. Descriptions of proposed field strategies, procedures, and operations. • Cataloguing and Laboratory Analysis. Description of selected cataloguing system and proposed types of analyses to be conducted based on anticipated material types. • Discard and deaccession policy. Description of and rationale for field and post-field discard and deaccession policies. • Security measures. Recommended security measures to protect the archeological resource from vandalism, looting, and accidental damage. • Final report. Description of report format and distribution. • Public interpretation. Description of potential types of interpretive products and locations of interpretive exhibits based on consultation with the project sponsor. • 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. <p>The project archeologist shall implement the archeological data recovery program upon approval of the ADRP/memo by the ERO.</p> <p><i>Coordination of Archeological Data Recovery Investigations.</i> In cases in which the same resource has been or is being affected by another project for which data recovery has been conducted, is in progress, or is planned, the following measures shall be implemented, to maximize the scientific and interpretive value of the data recovered from both archeological investigations:</p>	

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		<p>unassociated funerary objects. If the MLD agrees to scientific analyses of the remains and/or associated or unassociated funerary objects, the archeological consultant shall retain possession of the remains and associated or unassociated funerary objects until completion of any such analyses, after which the remains and associated or unassociated funerary objects shall be reinterred or curated as specified in the Agreement.</p> <p>If the remains cannot be permanently preserved in place, the Port shall consult with the MLD and may consult with the project archeologist, project sponsor and the ERO on recovery of the remains and any scientific treatment alternatives. The landowner shall then make all reasonable efforts to develop a Burial Agreement (Agreement) with the MLD, as expeditiously as possible, for the treatment and disposition, with appropriate dignity, of human remains and funerary objects (as detailed in CEQA Guidelines section 15064.5(d)). Per Public Resources Code section 5097.98(c)(1), the Agreement shall address, as applicable and to the degree consistent with the wishes of the MLD, the appropriate excavation, removal, recordation, scientific analysis, custodianship prior to reinternment or curation, and final disposition of the human remains and funerary objects. If the MLD agrees to scientific analyses of the remains and/or funerary objects, the archeological consultant shall retain possession of the remains and funerary objects until completion of any such analyses, after which the remains and funerary objects shall be reinterred or curated as specified in the Agreement.</p> <p>Both parties are expected to make a concerted and good faith effort to arrive at a Burial Agreement. However, if the Port and the MLD are unable to reach an Agreement on scientific treatment of the remains and/or funerary objects, the ERO, in consultation with the Port shall ensure that the remains and/or funerary objects are stored securely and respectfully until they can be reinterred on the project site, with appropriate dignity, in a location not subject to further or future subsurface disturbance, in accordance with the provisions of State law.</p> <p>Treatment of historic-period human remains and/or funerary objects discovered during any soil-disturbing activity shall be in accordance with protocols laid out in the project archeological treatment document, and other relevant agreements established between the project sponsor, Medical Examiner and the ERO. The project archeologist shall retain custody of the remains and associated materials while any scientific study scoped in the treatment</p>	

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		<p>document is conducted and the remains shall then be curated or respectfully reinterred by arrangement on a case-by case-basis.</p> <p><i>Cultural Resources Public Interpretation Plan and Land Acknowledgement.</i> If a significant archeological resource is identified, the project archeologist shall prepare a Cultural Resources Public Interpretation Plan (CRPIP). The CRPIP shall describe the interpretive product(s), locations or distribution of interpretive materials or displays, the proposed content and materials, the producers or artists of the displays or installation, and a long-term maintenance program.</p> <p>If the resource to be interpreted is a tribal cultural resource, the department shall notify Native American tribal representatives that public interpretation is being planned. The CRPIP shall be prepared in consultation with and developed with the participation, if requested by a tribe, of Native American tribal representatives, and the interpretive materials shall include an acknowledgement that the project is located upon traditional Ohlone lands. For interpretation of a tribal cultural resource, the interpretive program may include a combination of artwork, preferably by local Native American artists, educational panels or other informational displays, a plaque, or other interpretative elements including digital products that address local Native people’s experience and the layers of history. As feasible, and where landscaping is proposed, the interpretive effort may include the use and the interpretation of native and traditional plants incorporated into the proposed landscaping.</p> <p>The project archeological consultant shall submit the CRPIP and drafts of any interpretive materials that are subsequently prepared to the ERO for review and approval. The project sponsor shall ensure that the CRPIP is implemented prior to occupancy of the project.</p> <p><i>Archeological Resources Report.</i> 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. If significant resources were found, the report shall also describe any archeological testing and data recovery efforts and results, and evaluation of the California Register and tribal significance of any discovered archeological resource. It shall also describe the research design, archeological and historic research methods employed, analytical results and interpretations, and if applicable, curation arrangements. Daily monitoring logs and formal site recordation forms (CA DPR523 series) shall be attached to the ARR as an appendix.</p>	

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		<p>Once approved by the ERO, the project archeologist shall distribute the approved ARR as follows: copies that meet current information center requirements at the time the report is completed (presently, an electronic copy of the report and of each resources record in pdf format and, if available, GIS shapefiles of the project site and of the boundaries and locations of any recorded resources) to the California Archeological Site Survey Northwest Information Center (NWIC), and a copy of the transmittal of the approved ARR to the NWIC to the ERO; one (1) bound hardcopy of the ARR, along with digital files that include an unlocked, searchable PDF version of the ARR, GIS shapefiles of the site and feature locations, 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, via USB or other stable storage device, to the department environmental planning division of the planning department; and, if a descendant group was consulted, a digital or hard copy of the ARR to the descendant group, depending on their preference.</p> <p><i>Curation.</i> Significant archeological collections and paleoenvironmental samples of future research value shall be permanently curated at an established curatorial facility. The facility shall be selected in consultation with the ERO. Upon submittal of the collection for curation the Port or project sponsor or archeologist shall provide a copy of the signed curatorial agreement to the ERO.</p> <p>Mitigation Measure M-CR-2c: Archeological Testing Program. If required based on the outcome of preliminary archeological review conducted by qualified San Francisco Planning Department archeological staff, the Port/ project sponsor shall retain the services of a qualified archeologist (hereinafter “project archeologist”), to develop and implement an archeological testing program and to address any archeological discoveries, as detailed below, to avoid and mitigate any potential substantial adverse effects from the proposed action on significant archeological resources found during construction.</p>	

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		<p>American archeological resources in response to the project notification, to coordinate on the treatment or archeological and tribal cultural resources.</p> <p><i>Tribal Cultural Resources Sensitivity Training.</i> In addition to and concurrently with the archeological awareness training, for sites at which the ERO has determined that there is the potential for the discovery of Native American archeological resources, and if requested by a tribe pursuant to the department’s tribal cultural resources notification process, the Port shall ensure that a Native American representative is afforded the opportunity to provide a Native American cultural resources sensitivity training to all construction personnel.</p> <p><i>General Specifications.</i> The archeological consultant shall develop and 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 to address archeological discoveries or the assessed potential for archeological discoveries, pursuant to this measure.</p> <p>The project archeologist’s work shall be conducted in accordance with this measure at the direction of the ERO. All plans and reports prepared by the project archeologist 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.</p> <p>The project sponsor shall ensure that the project archeologist or designee is empowered to halt soil disturbing activity in the vicinity of a potential archeological find and that work shall remain halted until the discovery has been assessed and a treatment determination made, as detailed below.</p> <p>Archeological testing 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 section 15064.5(a)(c).</p> <p><i>Archeological Testing Program.</i> The archeological consultant shall develop and 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 to address archeological discoveries or the assessed potential for archeological discoveries, pursuant to this measure. The purpose of the archeological testing program will be to</p>	

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		<p>determine to the extent possible the presence or absence of archeological resources in areas of project soil disturbance and to identify and to evaluate whether any archeological resource encountered on the site constitutes an historic resource under CEQA.</p> <p><i>Archeological Testing Plan (ATP).</i> The project archeologist shall consult with the ERO reasonably prior to the commencement of any project-related soils disturbing activities to determine the appropriate scope of archeological testing. The archeological testing program shall be conducted in accordance with an approved ATP, prepared by the project archeologist consistent with the approved scope of work. The ATP shall be submitted first and directly to the ERO for review and comment and shall be considered a draft subject to revision until final approval by the ERO. Project-related soils disturbing activities shall not commence until the testing plan has been approved and any testing scope to occur in advance of construction has been completed. The project archeologist shall implement the testing as specified in the approved ATP prior to and/or during construction.</p> <p>The ATP, minimally, shall include the following:</p> <ul style="list-style-type: none"> ● Project description: Description of all anticipated soil disturbing activities, with locations and depths of disturbance. These may include foundation and utility demolition, hazardous soils remediation, site grading, shoring excavations, piles or soil improvements, and foundation, elevator, car stacker, utility and landscaping excavations. Project plans and profiles shall be included as needed to illustrate the locations of anticipated soil disturbance. ● Site-specific environmental and cultural context: Pre-contact and historic environmental and cultural setting of the project site as pertinent to potential Native American use and historic period development, any available information pertaining to subsequent soil disturbance as pertains to potential survival of archeological resources, and strata in and depths at which they might be found, such as stratigraphic and water table data from prior geotechnical testing. As appropriate based on the scale and scope of the project, the ATP should include maps (e.g., USCS 1869; Sanborn fire insurance maps) that depict the historic and environmental setting and changes in the project site as a basis for predicting resource types that might be encountered and their potential locations. An overlay of the project site on the City’s Native American archeological sensitivity model mapping should 	

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		<p>be included, as should the locations of all known archeological sites within 0.25 mile of the project site.</p> <ul style="list-style-type: none"> • Brief research design: scientific/historic research questions applicable to the expected resource(s), what data classes potential resources may be expected to possess, and how the expected data classes would address the applicable research questions. • Analysis of anticipated resources or resource types that might be encountered and at what locations and depths, based on known resources in the vicinity, the site’s predevelopment setting and development history, and the anticipated depth and extent of project soil disturbances. • Proposed scope of archeological testing and rationale: testing methods to be used (e.g., coring, mechanical trenching, manual excavation, or combination of methods); locations and depths of testing in relation to anticipated project soil disturbance; strata to be investigated; any uncertainties on stratigraphy that would affect locations or depths of tests and might require archeological monitoring of construction excavations subsequent to testing. • Resource documentation and significance assessment procedures. ERO and Native American consultation requirements upon making a discovery; pre-data recovery assessment process, consistent with the specifications of this measure • Standard text on burial treatment procedures; and • Reporting and curation requirements. <p><i>Archeological Testing Results Memo.</i> Irrespective of whether archeological resources are discovered, the archeological consultant shall submit a written summary of the findings to the ERO at the completion of the archeological testing program. The findings report/memo shall describe each resource, provide an initial assessment of the integrity and significance of encountered archeological deposits encountered during testing, and provide recommendations for subsequent treatment of any resources encountered.</p> <p><i>Resource Evaluation and Treatment Determination.</i> If an archeological deposit or feature is encountered during testing or subsequent construction soil disturbance, the project archeologist shall redirect soil disturbing demolition/ excavation/ piledriving/ construction crews and heavy equipment activity in the vicinity away from the find. If in the case of pile</p>	

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		<p>driving activity (foundation, shoring, etc.), the archeological monitor has cause to believe that the pile driving activity may affect an archeological resource, the project sponsor shall ensure that pile driving is halted until an appropriate evaluation of the resource has been made.</p> <p>The project archeologist shall document the find, and make a reasonable effort to assess its identity, integrity, and significance of the encountered archeological deposit through, sampling or testing as needed. The project sponsor shall make provisions to ensure that the project archeologist can safely enter the excavation, if feasible.</p> <p>If upon examination the project archeologist determines the find appears to be a potentially significant archeological resource, the project archeologist shall present the findings of this assessment to the ERO. The project sponsor shall ensure that the find is protected until the ERO has been consulted and has determined appropriate subsequent treatment in consultation with the project archeologist and the treatment has been implemented, as detailed below.</p> <p>All Native American archeological deposits, irrespective of level of disturbance, shall be assumed to be significant until and unless determined otherwise in consultation with the ERO. If a Native American archeological deposit is encountered, the project archeologist shall obtain the services of a Native American tribal representative to participate in any future archeological monitoring, assessment or data recovery activities that may affect that resource. In addition, the ERO shall notify any tribal representatives who requested to be notified of the discovery of Native American archeological resources in response to the project notification, to coordinate on the treatment or archeological and tribal cultural resources. Further the project archeologist shall offer a Native American representative the opportunity to monitor any subsequent soil disturbing activity that could affect the find.</p> <p><i>Submerged Paleosols.</i> Should a submerged paleosol be identified, the project archeologist shall extract and process samples for dating, flotation for paleobotanical analysis, and other applicable special analyses pertinent to identification of possible cultural soils and for environmental reconstruction, irrespective of whether cultural material is present.</p> <p><i>Archeological Site Records.</i> At the conclusion of assessment of any discovered resources, the project archeologist shall prepare an archeological site record or primary record (DPR 523 series) for each resource evaluated as significant or potentially significant. In addition, a</p>	

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		<p>primary record shall be prepared for any Native American isolate. Each such record shall be accompanied by a map and GIS location file. Records shall be submitted to the department for review as attachments to the archeological resources report (see below) and once approved by the ERO, to the Northwest Information Center.</p> <p><i>Preservation-in-Place Consideration.</i> Should a significant archeological resource be discovered during construction or during archeological testing or monitoring, preservation in place is the preferred treatment option. The ERO shall consult with the project sponsor and, for Native American archeological resources, with the tribal representative(s) if requested, to consider (1) the feasibility of permanently preserving the resource in place and (2) whether preservation in place would be effective in preserving both the archeological values and (if applicable) the tribal values represented. If, based on this consultation, the ERO determines that preservation-in-place is determined to be both feasible and effective, then the project archeologist, in consultation with the tribal representative if a Native American archeological resource, shall prepare a Cultural Resources Preservation Plan (CRPP). For Native American archeological resources, the CRPP shall explicitly address the cultural significance of the tribal cultural resource to the tribes. Preservation options may include measures such as redesign of the project layout to place open space over the resource location; foundation design to avoid the use of pilings or deep excavations in the sensitive area; a plan to expose and conserve the resource and include it in an on-site interpretive exhibit; and/or establishment of a permanent preservation easement. The project archeologist shall submit a draft CRPP to the department and the tribes for review and approval, and the Port/project sponsor shall ensure that the approved plan is implemented during and after construction. If, based on consultation, the ERO determines that preservation in place is infeasible, archeological data recovery and public interpretation of the resource shall be carried out as detailed below. The ERO in consultation with the project archeologist shall also determine if additional treatment is warranted, which may include additional testing and/or construction monitoring.</p> <p><i>Coordination with Descendant Communities.</i> On discovery of an archeological site associated with descendant Native Americans, Chinese, or other potentially interested descendant group, the project archeologist shall contact an appropriate representative of the descendant group and the ERO. The representative of the descendant group shall be offered the opportunity to monitor archeological field investigations of the site and to offer</p>	

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		<p>recommendations to the ERO regarding appropriate archeological treatment of the site and data recovered from the site, and, if applicable, any interpretative treatment of the site. The project archeologist shall provide a copy of the Archeological Resources Report (ARR) to the representative of the descendant group.</p> <p><i>Compensation.</i> Tribal representatives or other descendant community representatives for archeological or tribal cultural resources who participate in the project shall be compensated for time invested in the preparation or review of plans, documents, artwork, etc., as well as for archeological monitoring undertaken in fulfillment of the requirements of this mitigation measure, similarly to other consultants and experts employed for subsequent projects under the Waterfront Plan. The ERO, Port/project sponsor and project archeologist, as appropriate, shall work with the tribal representative or other descendant community representatives to identify the appropriate scope of consultation work.</p> <p><i>Archeological Data Recovery Program.</i> the project archeologist shall prepare an Archeological Data Recovery Plan (ADRP) if all three of the following apply: (1) a potentially significant resource is discovered, (2) preservation in place is not feasible, and (3) the ERO determines that archeological data recovery is warranted. When the ERO makes such a determination, the project archeologist, project sponsor, ERO and, for tribal cultural archeological resources, the tribal representative, shall coordinate on the scope of the data recovery program, if requested. The archeological consultant shall prepare a draft ADRP and submit it to the ERO for review and approval. If the time needed for preparation and review of a comprehensive ADRP would result in a significant construction delay, the scope of data recovery may instead be agreed upon in consultation between the project archeologist and the ERO and documented by the project archeologist in a memo to the ERO. The ADRP/memo shall identify how the proposed data recovery program will preserve the significant information the archeological resource is expected to contain; that is, the ADRP/memo will identify what scientific/historic 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 historic property that could be adversely affected by the proposed project. Destructive data recovery methods shall not be applied to portions of the archeological</p>	

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		<p>resource that would not otherwise be disturbed by construction if nondestructive methods are practical.</p> <p>The ADRP shall include the following elements:</p> <ul style="list-style-type: none"> • Field Methods and Procedures: Descriptions of proposed field strategies, procedures, and operations. • Cataloguing and Laboratory Analysis: Description of selected cataloguing system and proposed types of analyses to be conducted based on anticipated material types. • Discard and deaccession policy: Description of and rationale for field and post-field discard and deaccession policies. • Security measures: Recommended security measures to protect the archeological resource from vandalism, looting, and accidental damage. • Final report: Description of proposed report format and distribution of results. • Public interpretation: Description of potential types of interpretive products and locations of interpretive exhibits based on consultation with the project sponsor. • 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. <p>The project archeologist shall implement the archeological data recovery program upon approval of the ADRP/memo by the ERO.</p> <p><i>Coordination of Archeological Data Recovery Investigations.</i> In cases in which the same resource has been or is being affected by another project for which data recovery has been conducted, is in progress, or is planned, the following measures shall be implemented to maximize the scientific and interpretive value of the data recovered from both archeological investigations:</p> <ul style="list-style-type: none"> • In cases where neither investigation has not yet begun, both project archeologists and the ERO shall consult on coordinating and collaboration on archeological research design, data recovery methods, analytical methods, reporting, curation and interpretation to ensure consistent data recovery and treatment of the resource. 	

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		<ul style="list-style-type: none"> ● In cases where archeological data recovery investigation is already under way or has been completed for a prior project, the project archeologist for the subsequent project shall consult with the prior project archeologist, if available; review prior treatment plans, findings and reporting; and inspect and assess existing archeological collections/inventories from the site prior to preparation of the archeological treatment plan for the subsequent discovery, and shall incorporate prior findings in the final report of the subsequent investigation. The objectives of this coordination and review of prior methods and findings will be to identify refined research questions; avoid redundant work and maximize the benefits of additional data recovery; determine appropriate data recovery methods and analyses; assess new findings relative to prior research findings; and integrate prior findings into subsequent reporting and interpretation. <p><i>Treatment of Human Remains and Funerary Objects.</i> The treatment of human remains and funerary objects discovered during any soil-disturbing activity shall comply with applicable State and federal laws. This shall include immediate notification of the Medical Examiner of the City and County of San Francisco. The ERO also shall be notified immediately upon the discovery of human remains. In the event of the Medical Examiner’s determination that the human remains are Native American remains, the Medical Examiner shall notify the California State Native American Heritage Commission, which will appoint a Most Likely Descendant (MLD). The MLD will complete his or her inspection of the remains and make recommendations or preferences for treatment within 48 hours of being granted access to the site (Public Resources Code section 5097.98(a)).</p> <p>The project sponsor and ERO shall make all reasonable efforts to develop a Burial Agreement (“Agreement”) with the MLD, as expeditiously as possible, for the treatment and disposition, with appropriate dignity, of human remains and associated or unassociated funerary objects (as detailed in CEQA Guidelines section 15064.5(d)). The Agreement shall take into consideration the appropriate excavation, removal, recordation, scientific analysis, custodianship, curation, and final disposition of the human remains and associated or unassociated funerary objects. If the MLD agrees to scientific analyses of the remains and/or associated or unassociated funerary objects, the archeological consultant shall retain possession of the remains and associated or unassociated funerary objects until completion</p>	

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		<p>of any such analyses, after which the remains and associated or unassociated funerary objects shall be reinterred or curated as specified in the Agreement.</p> <p>If the remains cannot be permanently preserved in place, the Port shall consult with the MLD and may consult with the project archeologist, project sponsor and the ERO on recovery of the remains and any scientific treatment alternatives. The landowner shall then make all reasonable efforts to develop a Burial Agreement (Agreement) with the MLD, as expeditiously as possible, for the treatment and disposition, with appropriate dignity, of human remains and funerary objects (as detailed in CEQA Guidelines section 15064.5(d)). Per Public Resources Code section 5097.98(c)(1), the Agreement shall address, as applicable and to the degree consistent with the wishes of the MLD, the appropriate excavation, removal, recordation, scientific analysis, custodianship prior to reinternment or curation, and final disposition of the human remains and funerary objects. If the MLD agrees to scientific analyses of the remains and/or funerary objects, the archeological consultant shall retain possession of the remains and funerary objects until completion of any such analyses, after which the remains and funerary objects shall be reinterred or curated as specified in the Agreement.</p> <p>Both parties are expected to make a concerted and good faith effort to arrive at a Burial Agreement. However, if the Port and the MLD are unable to reach an Agreement on scientific treatment of the remains and/or funerary objects, the ERO, in consultation with the Port shall ensure that the remains and/or funerary objects are stored securely and respectfully until they can be reinterred on the project site, with appropriate dignity, in a location not subject to further or future subsurface disturbance, in accordance with the provisions of state law.</p> <p>Treatment of historic-period human remains and/or funerary objects discovered during any soil-disturbing activity shall be in accordance with protocols laid out in the project archeological treatment document, and other relevant agreements established between the project sponsor, Medical Examiner and the ERO. The project archeologist shall retain custody of the remains and associated materials while any scientific study scoped in the treatment document is conducted and the remains shall then be curated or respectfully reinterred by arrangement on a case-by case-basis.</p> <p><i>Cultural Resources Public Interpretation Plan and Land Acknowledgement.</i> If a significant archeological resource is identified, the project archeologist shall prepare a Cultural</p>	

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S.3. Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<p>Center (NWIC), and a copy of the transmittal of the approved ARR to the NWIC to the ERO; one bound hardcopy of the ARR, along with digital files that include an unlocked, searchable PDF version of the ARR, GIS shapefiles of the site and feature locations, 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, via USB or other stable storage device, to the department environmental planning division of the planning department; and, if a descendant group was consulted, a digital or hard copy of the ARR to the descendant group, depending on their preference.</p> <p><i>Curation.</i> Significant archeological collections and paleoenvironmental samples of future research value shall be permanently curated at an established curatorial facility. The facility shall be selected in consultation with the ERO. Upon submittal of the collection for curation the Port of project sponsor or archeologist shall provide a copy of the signed curatorial agreement to the ERO.</p> <p>Mitigation Measure M-CR-2d: Treatment of Submerged and Deeply Buried Resources. This measure applies to projects that would include multiple subgrade stories or entail the use of piles, soil improvements or other deep foundations in landfill areas within former creeks, bay marshes or waters of the bay that may be sensitive for submerged or buried historic or Native American archeological resources as determined in the preliminary archeological review prepared by the department; and/or in the event of the discovery of a submerged or deeply buried resource during archeological testing or soil-disturbing construction activities. This measure shall be applied in conjunction with Waterfront Plan Mitigation Measures M-CR-2a, Accidental Discovery, and/or M-CR-2b, Archeological Monitoring Program, and/or M-CR-2c, Archeological Testing Program, and all relevant provisions of those measures shall be implemented in addition to the provisions of this measure, as detailed below.</p> <p>The following measures additional shall be undertaken upon discovery of a potentially significant deeply buried or submerged resource to minimize significant effects from deep project excavations, soil improvements, pile construction, or construction of other deep foundation systems, in cases where the ERO has determined through consultation with the sponsor, and with tribal representatives as applicable, that preservation in place—the preferred mitigation—is not a feasible or effective option. Note that limiting impacts to a</p>	

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Environmental Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<p>buried or submerged deposit to pile driving or soil improvements shall not be construed as representing preservation in place.</p> <p><i>Treatment Determination.</i> If the resource cannot feasibly or adequately be preserved in place, in situ documentation and/or archeological data recovery shall be conducted, consistent with the provisions of Mitigation Measures M-CR-2a, Accidental Discovery; M-CR-2b, Archeological Monitoring Program; and M-CR-2c, Archeological Testing Program, as detailed in the Waterfront Plan EIR MMRP. However, by definition, such resources sometimes are located deeper than the maximum anticipated depth of project mass excavations, such that the resource would not be exposed for investigation, and/or under water or may otherwise pose substantial access, safety or other logistical constraints for data recovery; or the cost of providing archeological access to the resource may demonstrably be prohibitive.</p> <p>In such cases, where physical documentation and data recovery will be limited by the constraints identified above, the ERO, project sponsor, project archeologist, and tribal representative if requested, shall consult to explore alternative documentation and treatment options to be implemented in concert with any feasible archeological data recovery. The appropriate treatment elements, which would be expected to vary with the type of resource and the circumstances of discovery, shall be identified by the ERO based on the results of consultation from among the measures listed below. Additional treatment options may be developed and agreed upon through consultation if it can be demonstrated that they would be equally or more effective in recovering or amplifying the value of the data recovered from physical investigation of the affected resources by addressing applicable archeological research questions and in disseminating those data and meaningfully interpreting the resource to the public.</p> <p>Potential treatment measure options listed below are applicable to both Native American archeological deposits and features, and historic maritime resources. Each treatment measure or a combination of these treatment measures, in concert with any feasible standard data recovery methods applied as described above, would be effective in mitigating significant impacts to submerged and buried resources. However, some measures are more applicable to one type of resource than the other; to a specific construction method; to the specific circumstances of discovery; and to the stratigraphic position of the resource. The ERO, in consultation with the project archeologist and project sponsor, shall identify which of</p>	

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S.3. Summary of Impacts and Mitigation Measures

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		<p>these measures that, individually or in combination, will be applicable and effective in recovering sufficient data, enhancing the research value of the data recovery, meaningfully interpreting the resource to the public, or otherwise effectively mitigating the loss of data or associations that will result from project construction. Multiple treatment measures shall be adopted in combination, as needed to adequately mitigate data loss and, as applicable, impacts to tribal cultural values, as determined in consultation with the ERO and, as applicable, tribal representatives.</p> <p>Additional treatment options may be considered and shall be adopted, subject to ERO approval, if it can be demonstrated that they would provide data relevant to the understanding and interpretation of the resource on the project site or to the affected class of resources (e.g., rare submerged and deeply buried Native American archeological resources of Early or Middle Holocene age); or that would otherwise enhance the scientific or historic research value of any data recovered directly from the resource; and/or would enhance public interpretation of the resource, as detailed below.</p> <p><i>Treatment Program Memo.</i> The project archeologist shall document the results of the treatment program consultation with respect to the agreed upon scope of treatment in a treatment program memo, for ERO review and approval. Upon approval by the ERO, the project sponsor shall ensure that treatment program is implemented prior to and during subsequent construction, as applicable. Reporting, interpretive, curation and review requirements are the same as delineated under the other cultural resources mitigation measures that are applicable to the project, as noted above. The project sponsor shall be responsible for ensuring the implementation of all applicable mitigation measures, as identified in the treatment program memo.</p> <p><i>Potential Treatment Measures.</i></p> <ul style="list-style-type: none"> • <i>Remote Archeological Documentation.</i> Where a historic feature cannot be recovered or adequately documented in place by the archeologist due to size, bulk or inaccessibility, the archeologist shall conduct all feasible remote documentation methods, such as 3-D photography using a remote access device, remote sensing (e.g., ground-penetrating radar with a low-range [150 or 200 MHz] antenna), or other appropriate technologies and methods, to accurately document the resource and its context. As noted, the project sponsor and contractor shall support remote archeological documentation as needed, 	

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		<p>such as by assisting with equipment access (e.g., drone, lights and camera or laser scanner mounted on backhoe); providing personnel qualified to enter the excavation to assist with documentation; and accommodating training of construction personnel by the project archeologist so that they can assist in measuring or photographing the resource from inside the excavation in cases when the archeologist cannot be allowed to enter.</p> <ul style="list-style-type: none"> ● <i>Modification of Contractor’s Excavation Methods.</i> As needed to prevent damage to the resource before it has been documented; to assist in exposure and facilitate observation and documentation; and potentially to assist in data recovery; at the request of the ERO the project sponsor shall consult with the project archeologist and the ERO to identify modifications to the contractor’s excavation and shoring methods. Examples include improved dewatering during excavation; use of a smaller excavator bucket or toothless bucket; discontinuing immediate offhaul of spoils and providing a location where spoils can be spread out and examined by the archeologist prior to being offhauled; and phasing or benching of deep excavations to facilitate observation and/or deeper archeological trenching. ● <i>Data Recovery through Open Excavation.</i> If the project will include mass excavation to the depth of the buried/submerged deposit, archeological data recovery shall include manual (preferred) or controlled mechanical sampling of the deposit. If project construction would not include mass excavation to the depth of the deposit but would impact the deposit through deep foundation systems or soil improvements, the ERO and the project sponsor shall consult to consider whether there are feasible means of providing direct archeological access to the deposit (for example, excavation of portion of the site that overlies the deposit to the subject depth so that a sample can be recovered). The feasibility consideration shall include an estimate of the project cost of excavating to the necessary depth and of providing shoring and dewatering sufficient to allow archeological access to the deposit for manual or mechanical recovery. ● <i>Mechanical Recovery.</i> If site circumstances limit access to the find in situ, the ERO, archeological consultant and project sponsor shall consider the feasibility of mechanically removing the feature or portion of a feature intact for off-site documentation and analysis, preservation and interpretive use. The consultation above shall include consideration as to whether such recovery is logistically feasible and can be 	

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		<p>accomplished without major data loss. The specific means and methods and the type and size of the sample shall be identified, and the recovery shall be implemented if determined feasible by the ERO. The sponsor shall assist with mechanical recovery and transport and curation of recovered materials and shall provide for an appropriate and secure off-site location for archeological documentation and storage as needed.</p> <ul style="list-style-type: none"> <p><i>Salvage of Historic Materials.</i> Samples or sections of historic features that cannot be preserved in place (such a structural members of piers or wharves, sections of wooden sea wall, rail alignments, or historic utility or paving features of particular data value or interpretive interest) shall be tested for contamination and, if not contaminated, shall be salvaged for interpretive use or other reuse. These might include uses such as display of a reconstructed resource; use of timbers or planks for furniture, such as landscape boxes, railings, benches or platforms, and signage structures, and installation of such features in publicly accessible open spaces; or other uses of public interest. Historic wood and other salvageable historic structural material not used for interpretation shall be recovered for reuse, consistent with the San Francisco Ordinance No.27-06, which requires recycling or reuse of all construction and demolition debris material removed from a project. If the project has the potential to encounter such features, the project sponsor shall plan in advance for reuse of salvaged historic materials to the greatest extent feasible, including identification of a location for interim storage and identification of potential users and reuses.</p> <p><i>Data Recovery Using Geoaicheological Cores.</i> If, subsequent to identification and boundary definition of a buried/ submerged resource, it is deemed infeasible to expose the resource for archeological data recovery, geoaicheological coring of the identified deposit shall be conducted at grid intervals of no greater than 5 meters/15 feet. The maximum feasible core diameter shall be used for data recovery coring. However, while geoaicheological coring can provide basic data about a resource (e.g., food sources exploited, date), due to the of the small size of the sample recoverable through geoaicheological coring the recovered sample, even from numerous cores, this method generally cannot recover a sufficient quantity of data to adequate characterize the range of activities that took place at the site. For this reason, if the coring sample constitutes less than 5 percent of the estimated volume of material within the boundaries of the resource that will be directly impacted by project construction, the following additional</p> 	

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S.3. Summary of Impacts and Mitigation Measures

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		period and prehistoric environmental change and human use. Relevant data may also be obtained through geoarcheological coring at accessible sites identified by the ERO through consultation with San Francisco public agencies and private project sponsors.	
Impact CR-3: The Waterfront Plan could disturb human remains, including those interred outside of formal cemeteries.	S	Mitigation Measures M-CR-2a and M-CR-2b, M-CR-2c, or M-CR-2d would apply.	LTSM
Impact C-CR-2: The Waterfront Plan, in combination with cumulative projects, could result in significant cumulative impacts on archeological resources and human remains.	S	Mitigation Measures M-CR-2a, M-CR-2b, M-CR-2c, and/or M-CR-2d would apply.	LTSM
INITIAL STUDY SECTION E.5, TRIBAL CULTURAL RESOURCES			
Impact TCR-1: The Waterfront Plan could result in a substantial adverse change in the significance of an archeological tribal cultural resource.	S	Mitigation Measures M-TCR-1 and M-CR-2a, M-CR-2b, M-CR-2c, and/or M-CR-2d would apply.	LTSM
Impact TCR-2: The Waterfront Plan could result in a substantial adverse change in the significance of a non-archeological tribal cultural resource.	S	Mitigation Measures M-CR-2a, M-CR-2b, M-CR-2c, and/or M-CR-2d would apply. Mitigation Measure M-TCR-1: Tribal Notification and Consultation. <i>Summary.</i> Mitigation Measure M-TCR-1, Tribal Notification and Consultation, requires notification of tribal representatives during project-level environmental review of specified types of subsequent projects detailed below. Notification would provide tribal representatives with the opportunity to consult and provide input on whether a tribal cultural resource is present at the subsequent project site, and on whether the subsequent project as proposed would diminish the cultural value of that tribal cultural resource. Consultation under M-TCR-1	LTSM

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S.3. Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<p>Association of the Ramaytush Ohlone and other Ohlone interested parties list. The notification would be conducted during project-level environmental review of the types of subsequent projects specified above. The notification shall include a description of the subsequent project, location, anticipated depth and extent of soil disturbance necessary for construction, and information on changes to public access, removal or addition of native planting or habitat, and any proposed public interpretation as relevant; the conclusions of the preliminary archeological review regarding potential impacts to Native American archeological tribal cultural resources; anticipated next steps, including proposed archeological identification and/or treatment for archeological tribal cultural resources; an invitation to consult on the project; and a timeline for requesting consultation, which is within 30 days after receipt of a notification.</p> <p>For subsequent projects for which the planning department’s preliminary archeological review identifies potential impacts to a Native American archeological tribal cultural resource, the notification will also include the conclusions of the preliminary archeological review regarding potential impacts to Native American archeological resources, and measures proposed to address archeological impacts, as described in Section E.4, Cultural Resources.</p> <p><i>Consultation.</i> Tribal representatives who request consultation shall be afforded the opportunity to provide input on potential impacts to tribal cultural resources and measures to mitigate such impacts. The aim of consultation is to ensure that tribal representatives are afforded the opportunity to provide meaningful input into project design, to provide input into the treatment of archeological tribal cultural resources, and to appropriately acknowledge and reflect tribal cultural heritage and values in the design and siting of open space elements, plantings, and interpretive materials.</p> <p>For subsequent projects affecting Native American archeological resources, the consultation shall afford tribal representatives who respond to the notification the opportunity to provide input on potential impacts to Native American archeological resources that are tribal cultural resources, and measures to mitigate archeological impacts, including Mitigation Measures M-CR-2a, Procedures for Accidental Discovery of Archeological Resources for Projects Involving Soil Disturbance; M-CR-2b, Archeological Monitoring; M-CR-2c, Archeological Testing; and/or M-CR-2d, Treatment of Submerged and Deeply Buried Resources, as determined applicable</p>	

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		<p>by the ERO as described in Section E.4. These measures in regard to archeological tribal cultural resources require that tribal representative be afforded the opportunity to consult on development of archeological investigation plans, to participate in implementation of such plans as they relate to tribal cultural resources, and to recommend that cultural resources awareness training programs for construction workers include Native American tribal representatives and specific training on the treatment of Native American archeological and tribal cultural resources, if requested. These measures also identify preservation in place, if feasible as determined by the ERO, as the preferred treatment of resources that are known or are discovered during archeological investigations or during construction and require that tribal representatives be offered the opportunity to consult on preservation in place determinations and plans, if requested. In addition, these measures require that tribal representatives be offered meaningful opportunities to participate in the development of public interpretive materials that address Native American archeological and tribal cultural resources, and that these materials include acknowledgement that the project is located on traditional Ohlone lands.</p> <p>For subsequent projects as described above, the consultation shall address potential non-archeological project impacts, with the objective of incorporating feasible site design and other measures into the project consistent with Waterfront Plan policies that, based on consultation, would reduce or eliminate these impacts. Feasible site design and other measures will be included in required BCDC and Waterfront Design Advisory Committee review processes to ensure all public access and design features and improvements are cohesive and consistent with waterfront urban design policies in Port and BCDC plans.</p> <p>Site-specific measures that may be identified through consultation and are determined feasible by the ERO and the Port would be implemented by the Port or project sponsor in coordination with planning department staff. These could include, but would not be limited to:</p> <ul style="list-style-type: none"> • For subsequent projects that require pile-driving or deep foundations that extend to buried soils sensitive for Native American occupation, sampling and paleoenvironmental analysis of soils that would be affected by project piles or excavation to evaluate changes to the Native American environmental setting over the 8,000-year period of their occupation of San Francisco. Data obtained through paleoenvironmental analysis may be 	

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		<p>included in interpretive exhibits, including native plantings as part of subsequent projects.</p> <ul style="list-style-type: none"> • Planting and vegetation treatments in publicly accessible open spaces and community gathering areas that emphasize native and/or environmentally sustainable shoreline plants, such as those traditionally gathered and used by the Ohlone. • Public interpretive exhibits, coordinated with other Port interpretive programs, subject to public review by BCDC and Waterfront Design Advisory Committee review processes, that educate the public about and/or reflect tribal cultural heritage and values and address local Native American experience and history. Such interpretation program components should be coordinated with other interpretative programs along the waterfront, to maximize and enhance the value of each interpretive effort. • Public art by local Native American artists. • Public access areas or ensured access to an on-site space within the subsequent project site (such as a community room) that can be made available for gathering events organized by the local Native American community, by arrangement with event space organizers. • Other educational tools and applications identified by tribal representatives. <p>Different or additional project-specific mitigation measures may be identified through Native American consultation if, in consultation between the tribal representative and the ERO, they are determined to be equally as or more effective than the measures identified above in mitigating the specific impact of proposed subsequent projects upon tribal cultural resources.</p> <p>Project-specific mitigation measures applicable to the subsequent project shall be adopted by mutual agreement between the tribal consultants and the department and shall be implemented by the Port/project sponsor. Measures would be implemented during project design, construction, and operations as relevant to ensure that impacts to the values associated with tribal cultural resources are avoided or minimized, as determined feasible by the ERO.</p> <p>The consultation process will determine whether subsequent projects would have impacts on the tribal cultural resource and, if so, the extent of impacts and feasible measures to</p>	

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		mitigate the impacts. The ERO, Port, and project sponsor shall work with the tribal representatives to develop the scope, timeline, and method of delivery as determined by the ERO. Tribal representatives who engage in preparation or review of plans and documents shall be compensated for their work to fulfill their role in carrying out the mitigation requirements as determined through the scoping process described above. If no tribal group requests consultation, but the ERO nonetheless determines that the proposed project may have a potential significant adverse effect on a tribal cultural resource based on prior consultation, the ERO may require implementation of the site-specific measures and treatments listed above, as applicable.	
Impact C-TCR-1: Development under the Waterfront Plan, in combination with cumulative projects, could result in a significant cumulative impact on tribal cultural resources.	S	Mitigation Measures M-TCR-1 and M-CR-2a, M-CR-2b, M-CR-2c, and/or M-CR-2d would apply.	LTSM
INITIAL STUDY SECTION E.9, GREENHOUSE GAS EMISSIONS			
Impact C-GG-1: The Waterfront Plan would generate GHG emissions, but not at levels that would result in a significant impact on the environment or conflict with any policy, plan, or regulation adopted for the purpose of reducing GHG emissions.	LTS	No mitigation required	NA

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INITIAL STUDY SECTION E.10, WIND			
<p>Impact WI-1: The Waterfront Plan could create wind hazards in publicly accessible areas of substantial pedestrian use.</p>	S	<p>Mitigation Measure M-WI-1a: Wind Analysis and Minimization Measures for Subsequent Projects. All projects proposed within the Plan Area that would have a height greater than 85 feet shall be evaluated by a qualified wind expert, in consultation with the San Francisco Planning Department, to determine their potential to result in a new wind hazard exceedance or aggravate an existing wind hazard exceedance (defined as the one-hour wind hazard criterion with a 26 mph equivalent wind speed). If the qualified expert determines that wind-tunnel testing is required due to the potential for a new or worsened wind hazard exceedance, such testing shall be undertaken in coordination with San Francisco Planning Department staff, with results summarized in a wind tunnel report. The buildings tested in the wind tunnel shall incorporate only those wind baffling features that can be shown on plans. Such features must be tested in the wind tunnel and discussed in the wind tunnel report in the order of preference discussed below, with the overall intent being to reduce ground-level wind speeds in areas of substantial use by people walking (e.g., sidewalks, plazas, building entries, etc.):</p> <ol style="list-style-type: none"> 1. <i>Building Massing.</i> New buildings and additions to existing buildings shall be shaped to minimize ground-level wind speeds. Examples of these include setbacks and/or podiums, stepped and/or curved facades, and vertical steps in the massing to help disrupt downwashing flows. 2. <i>Wind Baffling Measures on the Building and on the Project Sponsor’s Private Property.</i> Wind baffling measures shall be included on future buildings and/or on the parcel(s) to disrupt vertical wind flows along tower façades and through the project site. Examples of these may include staggered balcony arrangements on main tower façades, screens, canopies, and/or fins attached to the buildings, covered walkways, colonnades, large-scale art features, landscaping, free standing canopies, and/or wind screens. Solid windscreens have a greater effect at reducing the wind speeds to immediate leeward side of the screens; however, outside of this area of influence, the winds are either unaffected or accelerated. Porous windscreens have less of an impact to the immediate leeward side; however, they have an increased area of influence and are less likely to cause any accelerations of the winds further downwind. 	LTSM

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		<p>Only after documenting all feasible attempts to reduce wind impacts via building massing and wind baffling measures on a building, shall the following be considered:</p> <p>3. <i>Landscaping and/or Wind Baffling Measures in the Public Right-of-Way.</i> Landscaping and/or wind baffling measures shall be installed to slow winds along sidewalks and protect places where people walking are expected to gather or linger. Landscaping and/or wind baffling measures shall be installed on the windward side of the areas of concern (i.e., the direction from which the wind is blowing). Landscaping typically affects winds locally; the larger the tree crown and canopy, the greater the area of influence. Tall, slender trees with little foliage have little to no impact on local winds speeds at ground level because of the height of the foliage above ground. Shorter street trees with larger canopies help reduce winds around them but their influence on conditions farther away is limited. Examples of wind baffling measures may include street art to provide a sheltered area for people to walk and free-standing canopies and wind screens in areas where people walking are expected to gather or linger. If landscaping or wind baffling measures are required as one of the features to mitigate wind impacts, Mitigation Measure M-WS-1b (below) shall also apply:</p> <p>Mitigation Measure M-WI-1b: Maintenance Plan for Landscaping and Wind Baffling Measures in the Public Right-of-Way. If it is determined that a subsequent project could not reduce additional wind hazards via massing or wind baffling measures on the subject building or the developer’s property and therefore landscaping and/or wind baffling features are to be installed in the public right-of-way, the project sponsor for the subsequent project shall prepare a maintenance plan for review and approval by the San Francisco Planning Department to ensure maintenance of the features in perpetuity.</p>	
Impact C-WI-1: The Waterfront Plan, combined with cumulative projects, would not result in significant cumulative impacts related to wind.	LTS	No mitigation required	NA

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INITIAL STUDY SECTION E.11, SHADOW			
Impact SH-1: The Waterfront Plan would not create new shadow that substantially and adversely affects the use and enjoyment of publicly accessible open spaces.	LTS	No mitigation required	NA
Impact C-SH-1: The Waterfront Plan, in combination with cumulative projects, would not result in significant cumulative impacts related to shadow.	LTS	No mitigation required	NA
INITIAL STUDY SECTION E.12, RECREATION			
Impact RE-1: The Waterfront Plan would increase the use of existing neighborhood and regional parks and other recreational facilities, but not to such an extent that substantial physical deterioration of the facilities would occur or be accelerated, or that the construction of new or expanded recreational facilities would be required.	LTS	No mitigation required	NA

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NA = Not Applicable
NI = No impact

LTS = Less-than-significant or negligible impact; no mitigation required
S = Significant

SU = Significant and unavoidable adverse impact, no feasible mitigation
LTSM = Less than significant impact, after mitigation
SUM = Significant and unavoidable adverse impact, after mitigation

Environmental Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
Impact C-RE-1: The Waterfront Plan, in combination with cumulative projects, would increase the use of existing neighborhood and regional parks and other recreational facilities, but not to such an extent that substantial physical deterioration of the facilities would occur or be accelerated, or that the construction of new or expanded recreational facilities would be required.	LTS	No mitigation required	NA

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Waterfront Plan EIR Summary

S.3. Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
INITIAL STUDY SECTION E.13, UTILITIES AND SERVICE SYSTEMS			
<p>Impact UT-1: Sufficient water supplies are available to serve the Waterfront Plan and reasonably foreseeable future development in normal, dry, and multiple dry years unless the Bay Delta Plan Amendment is implemented; in that event the SFPUC may develop new or expanded water supply facilities to address shortfalls in single and multiple dry years, but this would occur with or without implementation of the Waterfront Plan. Impacts related to new or expanded water supply facilities cannot be identified at this time or implemented in the near term; instead, the SFPUC would address supply shortfalls through increased rationing, which could result in significant cumulative effects, but the implementation of the Waterfront Plan would not make a considerable contribution to impacts from increased rationing.</p>	LTS	No mitigation required	NA

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Environmental Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
Impact UT-2: The Waterfront Plan would not require or result in the relocation or construction of new or expanded, water, wastewater treatment, or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects.	LTS	No mitigation required	NA
Impact UT-3: The Waterfront Plan would not generate solid waste in excess of state or local standards or in excess of the capacity of local infrastructure, and would comply with federal, state, and local management and reduction statutes and regulations related to solid waste.	LTS	No mitigation required	NA
Impact C-UT-1: The Waterfront Plan, in combination with cumulative projects, would not result in significant cumulative impacts on utilities and service systems.	LTS	No mitigation required	NA

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Waterfront Plan EIR Summary

S.3. Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
INITIAL STUDY SECTION E.14, PUBLIC SERVICES			
<p>Impact PS-1: The Waterfront Plan would increase the demand for police service or fire protection service but not to such an extent that construction of new or physically altered facilities would be required.</p>	LTS	No mitigation required	NA
<p>Impact PS-2: The Waterfront Plan would not directly or indirectly generate school students and increase enrollment in public schools such that new or physically altered facilities would be required.</p>	LTS	No mitigation required	NA
<p>Impact C-PS-1: The Waterfront Plan, in combination with cumulative projects, would not result in significant cumulative impacts on police, fire, and school district services such that new or physically altered facilities, the construction of which could cause significant environmental impacts, would be required in order to maintain acceptable levels of service.</p>	LTS	No mitigation required	NA

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Environmental Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
INITIAL STUDY SECTION E.16, GEOLOGY AND SOILS			
Impact GE-1: The Waterfront Plan would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving fault rupture, strong seismic ground shaking, or seismically induced ground failure.	LTS	No mitigation required	NA
Impact GE-2: The Waterfront Plan would not result in substantial erosion or loss of topsoil.	LTS	No mitigation required	NA
Impact GE-3: The Waterfront Plan would not be located on a geologic unit or soil that is unstable, or that could become unstable as a result of implementation of the Plan.	LTS	No mitigation required	NA
Impact GE-4: The Waterfront Plan would not create substantial risks to life or property as a result of locating buildings or other features on expansive soils.	LTS	No mitigation required	NA

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Waterfront Plan EIR Summary

S.3. Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
<p>Impact GE-5: The Waterfront Plan would not directly or indirectly destroy a unique geologic feature.</p>	<p>NI</p>	<p>No mitigation required.</p>	<p>NA</p>
<p>Impact GE-6: The Waterfront Plan could directly or indirectly destroy a unique paleontological resource or site.</p>	<p>S</p>	<p>Mitigation Measure M-GE-6a: Unanticipated Discovery of Paleontological Resources during Construction. The following procedures must be undertaken for project construction activities:</p> <ul style="list-style-type: none"> <p><i>Worker Awareness Training.</i> Prior to commencing construction, and ongoing throughout ground disturbing activities (e.g., excavation, utility installation), the project sponsor and/or their designee shall ensure that all project construction workers are trained on the contents of the Paleontological Resources Alert Sheet, as provided by the planning department. The Paleontological Resources Alert Sheet shall be prominently displayed at the construction site during ground disturbing activities for reference regarding potential paleontological resources.</p> <p>In addition, the project sponsor shall inform the contractor and construction personnel of the immediate stop work procedures and other procedures to be followed if bones or other potential fossils are unearthed at the project site. Should new workers that will be involved in ground disturbing construction activities begin employment after the initial training has occurred, the construction supervisor shall ensure that they receive the worker awareness training as described above.</p> <p>The project sponsor shall complete the standard form/affidavit confirming the timing of the worker awareness training to the Environmental Review Officer (ERO). The affidavit shall confirm the project’s location, the date of training, the location of the informational handout display, and the number of participants. The affidavit shall be transmitted to the ERO within 5 business days of conducting the training.</p> <p><i>Paleontological Resource Discoveries.</i> In the event of the discovery of an unanticipated paleontological resource during project construction, ground disturbing activities shall temporarily be halted within 25 feet of the find until the discovery is examined by a qualified paleontologist as recommended by the Society of Vertebrate Paleontology standards (SVP 2010) and Best Practices in Mitigation Paleontology (Murphey et al. 2019).</p> 	<p>LTSM</p>

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Environmental Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<p>Work within the sensitive area shall resume only when deemed appropriate by the qualified paleontologist in consultation with the ERO.</p> <p>The qualified paleontologist shall determine: (1) if the discovery is scientifically significant; (2) the necessity for involving other responsible or resource agencies and stakeholders, if required or determined applicable; and (3) methods for resource recovery. If a paleontological resource assessment results in a determination that the resource is not scientifically important, this conclusion shall be documented in a Paleontological Evaluation Letter to demonstrate compliance with applicable statutory requirements (e.g., Federal Antiquities Act of 1906, CEQA Guidelines section 15064.5, California Public Resources Code chapter 17, section 5097.5, Paleontological Resources Preservation Act 2009). The Paleontological Evaluation Letter shall be submitted to the ERO for review within 30 days of the discovery.</p> <p>If the qualified paleontologist determines that a paleontological resource is of scientific importance, and there are no feasible measures to avoid disturbing this paleontological resource, the qualified paleontologist shall prepare a Paleontological Mitigation Program. The mitigation program shall include measures to fully document and recover the resource of scientific importance. The qualified paleontologist shall submit the mitigation program to the ERO for review and approval within 10 business days of the discovery. Upon approval by the ERO, ground disturbing activities in the project area shall resume and be monitored as determined by the qualified paleontologist for the duration of such activities.</p> <p>The mitigation program shall include: (1) procedures for construction monitoring at the project site; (2) fossil preparation and identification procedures; (3) curation of paleontological resources of scientific importance into an appropriate repository; and (4) preparation of a Paleontological Resources Report (report or paleontology report) at the conclusion of ground disturbing activities. The report shall include dates of field work, results of monitoring, fossil identifications to the lowest possible taxonomic level, analysis of the fossil collection, a discussion of the scientific significance of the fossil collection, conclusions, locality forms, an itemized list of specimens, and a repository receipt from the curation facility. The project sponsor shall be responsible for the preparation and implementation of the mitigation program, in addition to any costs necessary to prepare and identify collected fossils, and for any curation fees charged by the paleontological repository. The paleontology</p>	

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Waterfront Plan EIR Summary

S.3. Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<p>report shall be submitted to the ERO for review within 30 business days from conclusion of ground disturbing activities, or as negotiated following consultation with the ERO.</p> <p>Mitigation Measure M-GE-6b: Paleontological Resource Monitoring Plan during Construction. During the course of implementing Mitigation Measure M-GE-6a, if a significant paleontological resource is encountered, the project sponsor shall engage a qualified paleontologist to develop a site-specific monitoring plan prior to commencing soil-disturbing activities at the project site. The Paleontological Monitoring Plan would determine project construction activities requiring paleontological monitoring based on those likely to affect sediments with moderate sensitivity for paleontological resources. Prior to issuance of any demolition permit, the project sponsor shall submit the Paleontological Resource Monitoring Plan to the ERO for approval.</p> <p>At a minimum, the plan shall include:</p> <ol style="list-style-type: none"> 1. Project Description 2. Regulatory Environment – outline applicable federal, state, and local regulations 3. Summary of Sensitivity Classification(s) 4. Research Methods, including but not limited to: <ol style="list-style-type: none"> 4a. Field studies conducted by the approved paleontologist to check for fossils at the surface and assess the exposed sediments. 4b. Literature Review to include an examination of geologic maps and a review of relevant geological and paleontological literature to determine the nature of geologic units in the project area. 4c. Locality Search to include outreach to the University of California Museum of Paleontology in Berkeley. 5. Results: to include a summary of literature review and finding of potential site sensitivity for paleontological resources; and depth of potential resources if known. 6. Recommendations for any additional measures that could be necessary to avoid or reduce any adverse impacts to recorded and/or inadvertently discovered paleontological resources of scientific importance. Such measures could include: 	

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Waterfront Plan EIR Summary
S.3. Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
INITIAL STUDY SECTION E.17, HYDROLOGY AND WATER QUALITY			
<p>Impact HY-1: The Waterfront Plan could violate water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality, and could conflict with or obstruct implementation of a water quality control plan.</p>	S	<p>Mitigation Measure M-HY-1: Water Quality Best Management Practices for In-Water Work. The project sponsor shall implement water quality best management practices to protect water quality from pollution due to fuels, oils, lubricants, and other harmful materials, as determined in consultation with the Environmental Planning Division of the San Francisco Planning Department based on review of engineering and construction details of project improvements. The Planning Department shall review best management practices detailed in the San Francisco Department of Public Health Pollution Prevention Toolkit for Maritime Industries along with other measures as may be identified to address specific construction details of proposed project improvement to determine the specific mitigation details, which may include:</p> <ul style="list-style-type: none"> • Preparation of a spill prevention control and countermeasure (SPCC) plan to address the emergency cleanup of any hazardous material and will be available on site, which typically includes: <ul style="list-style-type: none"> – Methods to address the emergency cleanup of any hazardous material and what materials will be available on site; – SPCC, hazardous waste, stormwater and other emergency planning requirements; – Measures to prevent spills into the Bay associated with in water fueling, if in water fueling is required on some of the construction barges. Such measures can include: <ul style="list-style-type: none"> ○ Secondary booms and/or pads, depending upon where fueling would take place on the vessel; ○ Secondary containment on the deck of the vessel to contain the petroleum product; ○ Specifying volume of petroleum products that will be on the vessel and evaluating the potential for spills. Absorbent and cleanup materials (such as oil sorbent boom, heavy oil pads, Oil-Dri Absorbent Floor, etc.) of sufficient quantity to clean up potential spill volume shall be provided; and ○ The locations of properly permitted offsite locations where vessels will be fueled. 	LTSM

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Environmental Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<ul style="list-style-type: none"> • Fueling of equipment consistent with proper fuel transfer procedures as per U.S. Coast Guard regulations (33 CFR 156.120 and 33 CFR 155.320), including inspection requirements of spill containment and the fueling location to document that no spills have occurred, or that any spills are cleaned up immediately. • Well-maintained equipment is used to perform the construction work, and equipment maintenance is performed off site when possible. Daily equipment inspections to help prevent leaks or spills. Leaks or spills are best cleaned up when discovered, with proper disposal of cleaning materials; • Precautions to protect listed species, their habitats, and Essential Fish Habitat from construction by-products and pollutants such as demolition debris, construction chemicals, fresh cement, saw-water, or other deleterious materials. Construction will be conducted from both land and water, and care shall be used by equipment operators to control debris so that it does not enter the Bay. • A materials management disposal plan (MMDP) to prevent any debris from falling into the Bay during construction to the maximum extent practicable. The measures identified in the MMDP are commonly based on the Best Available Technology, and may include: <ul style="list-style-type: none"> – During construction, any barges performing the work shall be moored in a position to capture and contain the debris generated during any sub-structure or in-water work. In the event that debris does reach the Bay, personnel in workboats within the work area shall immediately retrieve the debris for proper handling and disposal. All debris shall be disposed of at an authorized upland disposal site; – Measures to ensure that fresh cement or concrete shall not be allowed to enter San Francisco Bay. Construction waste shall be collected and transported to an authorized upland disposal area, and per federal, state, and local laws and regulations; – All hazardous material shall be stored upland in storage trailers and/or shipping containers designed to provide adequate containment. Short-term laydown of hazardous materials for immediate use shall be permitted with the same anti-spill precautions; – All construction material, wastes, debris, sediment, rubbish, trash, fencing, etc., shall be removed from the site once the proposed project is completed and transported to 	

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Waterfront Plan EIR Summary

S.3. Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		an authorized disposal area, in compliance with applicable federal, state, and local laws and regulations; <ul style="list-style-type: none"> - Construction material shall be covered every night and during any rainfall event (if there is one); - Construction crews shall reduce the amount of disturbance within the project site to the minimum necessary to accomplish the project; and - Measures to prevent saw water from entering the Bay. 	
Impact HY-2: The Waterfront Plan would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Plan may impede sustainable groundwater management of the basin or conflict with a sustainable groundwater management plan.	LTS	No mitigation required.	NA
Impact HY-3: The Waterfront Plan would not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner that would result in substantial erosion, siltation, or flooding on or off site.	LTS	No mitigation required.	NA

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Environmental Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
Impact HY-4: The Waterfront Plan would not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner that would create or contribute runoff water, which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.	LTS	No mitigation required.	NA
Impact HY-5: The Waterfront Plan would not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner that would impede or redirect flood flows.	LTS	No mitigation required.	NA
Impact HY-6: The Waterfront Plan would not risk release of pollutants due to project inundation.	LTS	No mitigation required.	NA

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Waterfront Plan EIR Summary

S.3. Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
<p>Impact C-HY-1: The Waterfront Plan, in combination with cumulative projects, would not result in a significant cumulative impact on hydrology and water quality.</p>	LTS	No mitigation required	NA
INITIAL STUDY SECTION E.18, HAZARDS AND HAZARDOUS MATERIALS			
<p>Impact HZ-1: The Waterfront Plan would not create a significant hazard through the routine transport, use, or disposal of hazardous materials.</p>	LTS	No mitigation required	NA
<p>Impact HZ-2: The Waterfront Plan would not create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. In addition, subsequent projects could occur on sites identified on the list of hazardous materials sites compiled pursuant to Government Code section 65962.5, but compliance with regulations would ensure that impacts remain less than significant.</p>	LTS	No mitigation required	NA

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Environmental Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
Impact HZ-3: The Waterfront Plan would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.	LTS	No mitigation required	NA
Impact HZ-4: The Waterfront Plan would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.	LTS	No mitigation required	NA
Impact C-HZ-1: The Waterfront Plan, in combination with cumulative projects, would not result in a significant cumulative impact related to hazards and hazardous materials.	LTS	No mitigation required	NA
INITIAL STUDY SECTION E.19, MINERAL RESOURCES			
Impact MI-1: The Waterfront Plan would have no impact on mineral resources.	NA	No mitigation required	NA

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Waterfront Plan EIR Summary

S.3. Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
<p>Impact C-MI-1: The Waterfront Plan, in combination with cumulative projects, would not result in a significant cumulative impact related to hazards and hazardous materials.</p>	NA	No mitigation required	NA
INITIAL STUDY SECTION E.20, ENERGY			
<p>Impact EN-1: The Waterfront Plan would not result in wasteful, inefficient, or unnecessary consumption of energy resources during construction or operation; or conflict with or obstruct a state or local plan for renewable energy or energy efficiency.</p>	LTS	No mitigation required	NA
<p>Impact C-EN-1: The Waterfront Plan, in combination with cumulative projects, would not result in significant cumulative impacts related to the wasteful, inefficient, or unnecessary consumption of energy resources or conflict with or obstruct a state or local plan for renewable energy or energy efficiency.</p>	LTS	No mitigation required	NA

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S.4 Summary of Project Alternatives

CEQA Guidelines section 15126.6(a) states that an EIR must describe and evaluate a reasonable range of alternatives to a project that would feasibly attain most of the project's basic objectives but avoid or substantially lessen any identified significant adverse environmental effects of the project. An EIR is not required to consider every conceivable alternative to a project or alternatives that are infeasible. Rather, it must consider a reasonable range of potentially feasible alternatives that will foster informed decision-making and public participation.

Chapter 6, Alternatives, of this Draft EIR presents the alternatives analysis as required by CEQA for the Waterfront Plan. The discussion includes the methodology used to select alternatives to the Waterfront Plan for detailed CEQA analysis, with the intent of developing potentially feasible alternatives that could avoid or substantially lessen the significant impacts identified while still meeting most of the project's basic objectives. Based on the screening process, the following alternatives were selected for detailed analysis in this Draft EIR:

- Alternative A: No Project Alternative
- Alternative B: Lower Growth Alternative

Detailed descriptions of Alternatives A and B and summaries of their impacts are presented below.

S.4.1 Alternative A: No Project Alternative

DESCRIPTION OF ALTERNATIVE

The No Project Alternative considered in this Draft EIR represents what would reasonably be expected to occur in the foreseeable future if the updated policies in the Waterfront Plan, including the creation of Waterfront Special Use District (SUD) 4 and the associated amendments to the general plan, planning code, zoning map, or San Francisco Bay Conservation and Development Commission (BCDC) San Francisco Waterfront Special Area Plan, are not implemented.

The No Project Alternative (Alternative A) assumes that without implementation of the Waterfront Plan there would be no additional increase in housing units or employment in the Plan area beyond the background growth projected to occur.⁹ The growth projections for Alternative A with the background growth include the addition by 2050 of approximately 6,280 housing units and 13,060 residents (about 4 percent less than with implementation of the updated Waterfront Plan) and approximately 15,490 jobs (about 51 percent less than with implementation of the updated Waterfront Plan). These assumptions reflect development allowed under existing zoning.

SUMMARY OF IMPACTS

As is the case with the Waterfront Plan, under the No Project Alternative, physical development in the Plan area would be subject to required compliance with applicable zoning and height and bulk requirements, and required adherence to applicable area-specific and citywide policies and development standards. In addition,

⁹ Background growth between 2020 to 2050 without the Waterfront Plan includes larger, long-term development projects within the Waterfront Plan area (Mission Rock and Pier 70 SUDs) that have completed CEQA documentation and have been approved. The background growth includes approximately 6,280 residential units and 15,490 jobs.

new development would undergo project-level CEQA review, as applicable, to determine whether it would result in significant environmental effects. While background growth under the No Project Alternative could result in environmental effects, none of the environmental effects attributable to implementation of the Waterfront Plan identified in this Draft EIR, including significant impacts related to transportation and air quality, would occur under the No Project Alternative.

S.4.2 Alternative B: Lower Growth Alternative

DESCRIPTION OF ALTERNATIVE

Alternative B, the Lower Growth Alternative, assumes the Waterfront Plan results in a lower amount of infill development for various piers and Port properties than the amount of development assumed and analyzed in Chapter 4, Environmental Setting, Impacts, and Mitigation Measures, of this Draft EIR. The growth projections for the Waterfront Plan reflect a maximum estimate of land use assumptions to provide a conservative analysis in this Draft EIR. However, there are many variables that influence the type and magnitude of development and investments that occur on Port properties, including real estate market cycles, construction costs, structural condition and repair requirements, regulatory requirements, and community engagement. Alternative B assumes a lower amount of development than under the Waterfront Plan as a result of excluding Diverse Use Policies 24, 25, 27, and 29 from the Waterfront Plan. These are policies targeted to increase certainty and financial feasibility of structural repair and rehabilitation of Embarcadero Historic District bulkheads and piers. This would result in lower growth projections that assume fewer properties are developed or rehabilitated than what could occur with implementation of Diverse Use Policies 24, 25, 27, and 29 in the Waterfront Plan. Alternative B assumes that some Embarcadero Historic District pier structures would be financially infeasible to repair or rehabilitate and would be vacated due to structural deterioration and closed pursuant to Port Building Code requirements, and that fewer piers in the Embarcadero Historic District would be rehabilitated and seismically improved to allow public use of facilities and so would be occupied by less-intensive land uses. Piers 26 and 28 are assumed to remain in light industrial use and would not be rehabilitated. Piers 30–32, 33, 35, 38, and 54 are assumed to be vacated due to structural deterioration and closed pursuant to Port Building Code requirements. Alternative B also assumes that Waterfront Plan Diverse Use Policy 36 is excluded from the Waterfront Plan, which would result in a lower amount of development on seawall lots within the Plan area west of The Embarcadero. Alternative B assumes that Seawall Lot 314 (located at Bay Street and The Embarcadero) and Seawall Lot 321 (located at Green Street and The Embarcadero) would remain as surface parking lots. Alternative B assumes that Seawall Lot 330 (located at Bryant Street and The Embarcadero) is developed as a residential building constructed to full building height and bulk limits, which is a less-intensive use than the combination of residential, hotel, and retail uses assumed in the analysis of the Waterfront Plan. The lower growth projections for Alternative B include the addition by 2050 of approximately 260 housing units and 540 residents (similar to the Waterfront Plan) and approximately 2,060 jobs (about 42 percent less than with the Waterfront Plan). Details about the growth projections for Alternative B are included in Appendix C of this Draft EIR.

SUMMARY OF IMPACTS

The Lower Growth Alternative assumes the Waterfront Plan would result in a lower amount of infill development for various piers and Port properties than the amount of development assumed and analyzed in Chapter 4 Environmental Setting, Impacts, and Mitigation Measures, of this Draft EIR. The Lower Growth Alternative also assumes fewer piers in the Embarcadero Historic District would be rehabilitated and

seismically improved to allow public use of facilities, and so would be occupied by less intensive land uses. This reduction of development would reduce the already less-than-significant (with mitigation) impacts identified in this Draft EIR. Under the Lower Growth Alternative, the magnitude of significant impacts related to transportation and air quality identified in this Draft EIR would be reduced but would remain significant and unavoidable with mitigation. Consequently, the Lower Growth Alternative would result in similar, albeit reduced, impacts as compared to the Waterfront Plan due to the reduced extent of physical development that could occur under the Plan.

S.5 Comparison of the Waterfront Plan and Alternatives

Table S-3 summarizes the ability of each of alternatives to meet the objectives of the Waterfront Plan. **Table S-4** presents a summary comparison of the impacts of the Waterfront Plan and the alternatives.

Table S-3 Summary of Ability of Alternatives to Meet Project Objectives

Objectives	Alternative A: No Project Alternative	Alternative B: Lower Growth Alternative
1. Approve amendments to the Waterfront Plan to incorporate updated information, goals, policies, and objectives developed through a public process that describe public and Port Commission values, to provide policy direction for projects, investments, and stewardship programs that protect and improve properties and resources owned and managed by the Port of San Francisco.	No	Yes
2. Preserve and enhance diverse maritime uses and operations by providing for the current and future needs of cargo shipping, cruise, ferry and water taxis, excursion boats, fishing, ship repair, berthing, harbor services, recreational boating, and other water-dependent activities, consistent with Proposition H approved by San Francisco voters in 1990.	Yes, but less than the Waterfront Plan	Yes, but less than the Waterfront Plan due to reduction in development
3. Complete, enhance, and activate the Port’s network of parks, public access, and natural areas along the 7.5-mile Bay shoreline to provide recreational, social, and open space benefits for residents and visitors of all races, ages, and abilities, including historically marginalized communities.	No	Partially due to reduction in development
4. Support a vibrant urban waterfront with commercial and industrial businesses, and public-oriented entertainment, civic, cultural, and recreational activities that respect maritime needs, activate waterfront parks, and equitably serve and attract visitors of all races, ages, and economic means.	Yes, but less than the Waterfront Plan	Yes, but less than the Waterfront Plan due to reduction in development
5. Ensure that new public and private investments stimulate waterfront revitalization and resilience improvements and support a financially secure Port enterprise, equitably providing new jobs and economic opportunities, revenues, public amenities, and other public trust benefits for the diverse residents of San Francisco and California.	No	Partially due to reduction in development

Waterfront Plan EIR Summary

S.5. Comparison of the Waterfront Plan and Alternatives

Objectives	Alternative A: No Project Alternative	Alternative B: Lower Growth Alternative
6. Design waterfront projects that highlight visual and physical connections to the city and San Francisco Bay, promote rehabilitation of Port maritime historic and cultural resources, and respect the character of adjacent neighborhoods.	Yes, but less than the Waterfront Plan	Yes, but less than the Waterfront Plan due to reduction in development
7. Ensure that the waterfront is accessible and safe for all users through sustainable transportation that serves the needs of workers, neighbors, visitors, and Port maritime and tenant operations.	No	Partially due to reduction in development
8. Limit the impacts of climate change, improve the ecology of the Bay and its environs, and ensure healthy waterfront neighborhoods by meeting the highest standards for environmental sustainability, stewardship, and justice.	No	Partially due to reduction in development
9. Strengthen Port resilience to hazards and promote adaptation to climate change and rising tides through equitable investments to protect community, ecological, and economic assets and services along its 7.5-mile waterfront.	No	Partially due to reduction in development
10. Strengthen Port public engagement to increase understanding of Port and community needs, including the needs of historically marginalized communities of color, in lease and project approval processes, and to promote public agency partnerships to align policies and regulations to achieve waterfront projects and programs for the benefit of San Francisco and California.	No	Partially due to reduction in development

Table S-4 Comparison of Environmental Impacts of the Waterfront Plan to Impacts of the Alternatives

Impacts	Waterfront Plan	Alternative A: No Project Alternative	Alternative B: Lower Growth Alternative
LAND USE AND PLANNING			
Impact LU-1: The Waterfront Plan would not physically divide an established community.	Less than significant (LTS)	Similar to the Waterfront Plan (LTS)	Similar to the Waterfront Plan (LTS)
Impact LU-2: The Waterfront Plan would not cause a significant physical environmental impact due to a conflict with any applicable land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
Impact C-LU-1: The Waterfront Plan, in combination with cumulative projects, would not result in a significant cumulative impact related to land use and planning.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
AESTHETICS			
Impact AE-1: The Waterfront Plan would not have a substantial adverse effect on a scenic vista, damage scenic resources, degrade the existing visual character or quality of public views of the site or its surroundings, or conflict with applicable zoning and other regulations governing scenic quality.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
Impact AE-2: The Waterfront Plan would not create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
Impact C-AE-1: The Waterfront Plan, in combination with cumulative projects, would not result in a significant cumulative impact on aesthetics.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
POPULATION AND HOUSING			
Impact PH-1: The Waterfront Plan would not induce substantial unplanned population growth beyond that projected by regional forecasts, either directly or indirectly.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
Impact PH-2: The Waterfront Plan would not displace substantial numbers of existing people or housing units, necessitating the construction of replacement housing outside of the Plan area.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)

Waterfront Plan EIR Summary

S.5. Comparison of the Waterfront Plan and Alternatives

Impacts	Waterfront Plan	Alternative A: No Project Alternative	Alternative B: Lower Growth Alternative
Impact C-PH-1: The Waterfront Plan, in combination with cumulative projects, would not result in a significant cumulative impact related to population and housing.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
CULTURAL RESOURCES			
Impact CR-1: The Waterfront Plan could cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines section 15064.5.	Less than significant with mitigation (LTSM)	Similar to the Waterfront Plan (LTSM)	Similar to the Waterfront Plan (LTSM)
Impact CR-2: The Waterfront Plan could cause a substantial adverse change in the significance of an archeological resource.	Less than significant with mitigation (LTSM)	Less than the Waterfront Plan (LTSM)	Less than the Waterfront Plan (LTSM)
Impact CR-3: The Waterfront Plan could disturb human remains, including those interred outside of formal cemeteries.	Less than significant with mitigation (LTSM)	Less than the Waterfront Plan (LTSM)	Less than the Waterfront Plan (LTSM)
Impact C-CR-1: The Waterfront Plan, in combination with cumulative projects, could result in a significant cumulative impact on historic resources, as defined in CEQA Guidelines section 15064.5.	Less than significant (LTS)	Less than the Waterfront Plan (LTSM)	Less than the Waterfront Plan (LTSM)
Impact C-CR-2: The Waterfront Plan, in combination with cumulative projects, could result in significant cumulative impacts on archeological resources and human remains.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
TRIBAL CULTURAL RESOURCES			
Impact TCR-1: The Waterfront Plan could result in a substantial adverse change in the significance of a tribal cultural resource, as defined in Public Resource Code section 21074.	Less than significant with mitigation (LTSM)	Less than the Waterfront Plan (LTSM)	Less than the Waterfront Plan (LTSM)
Impact C-TCR-1: The Waterfront Plan, in combination with cumulative projects, could result in a significant cumulative impact on tribal cultural resources.	Less than significant with mitigation (LTSM)	Less than the Waterfront Plan (LTSM)	Less than the Waterfront Plan (LTSM)

Impacts	Waterfront Plan	Alternative A: No Project Alternative	Alternative B: Lower Growth Alternative
TRANSPORTATION AND CIRCULATION			
Impact TR-1: Construction under the Waterfront Plan would not require a substantially extended duration or intense activity, and the secondary effects would not create potentially hazardous conditions for people walking, bicycling, driving, or riding transit; or interfere with emergency access or accessibility for people walking or bicycling; or substantially delay public transit.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
Impact TR-2: The Waterfront Plan would not create potentially hazardous conditions for people walking, bicycling, or driving or for public transit operations.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
Impact TR-3: The Waterfront Plan would not interfere with accessibility of people walking or bicycling to and from the project area and adjoining areas, or result in inadequate emergency access.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
Impact TR-4: The Waterfront Plan would not substantially delay public transit.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
Impact TR-5: The Waterfront Plan would not cause substantial additional vehicle miles traveled or substantially induce automobile travel.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
Impact TR-6: The Waterfront Plan could result in commercial vehicle and/or passenger loading deficit, and the secondary effects could create potentially hazardous conditions for people walking, bicycling, or driving; or substantially delay public transit.	Significant and unavoidable with mitigation (SUM)	Less than the Waterfront Plan (SUM)	Less than the Waterfront Plan (SUM)
Impact TR-7: The Waterfront Plan would not result in a substantial parking deficit.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
Impact C-TR-1: The Waterfront Plan, in combination with cumulative projects, could contribute considerably to significant cumulative construction-related transportation impacts.	Significant and unavoidable (SU)	Less than the Waterfront Plan (SU)	Less than the Waterfront Plan (SU)
Impact C-TR-2: The Waterfront Plan, in combination with cumulative projects, would not create potentially hazardous conditions for people walking, bicycling, or driving or for public transit operations.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)

Waterfront Plan EIR Summary

S.5. Comparison of the Waterfront Plan and Alternatives

Impacts	Waterfront Plan	Alternative A: No Project Alternative	Alternative B: Lower Growth Alternative
Impact C-TR-3: The Waterfront Plan, in combination with cumulative projects, would not interfere with accessibility of people walking or bicycling to and from the project area and adjoining areas, or result in inadequate emergency access.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
Impact C-TR-4: The Waterfront Plan, in combination with cumulative projects, could contribute considerably to significant cumulative public transit delay impacts.	Significant and unavoidable with mitigation (SUM)	Less than the Waterfront Plan (SUM)	Less than the Waterfront Plan (SUM)
Impact C-TR-5: The Waterfront Plan, in combination with cumulative projects, would not cause substantial additional vehicle miles traveled or substantially induce automobile travel.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
Impact C-TR-6: The Waterfront Plan, in combination with cumulative projects, could contribute considerably to significant cumulative loading impacts.	Significant and unavoidable with mitigation (SUM)	Less than the Waterfront Plan (SUM)	Less than the Waterfront Plan (SUM)
Impact C-TR-7: The Waterfront Plan, in combination with cumulative projects, would not result in significant cumulative parking impacts.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
NOISE			
Impact NO-1: Construction under the Waterfront Plan could generate a substantial temporary or increase in ambient noise levels in the Plan area in excess of standards.	Less than significant with mitigation (LTSM)	Less than the Waterfront Plan (LTSM)	Less than the Waterfront Plan (LTSM)
Impact NO-2: Construction under the Waterfront Plan could generate excessive groundborne vibration or groundborne noise levels.	Less than significant with mitigation (LTSM)	Less than the Waterfront Plan (LTSM)	Less than the Waterfront Plan (LTSM)
Impact NO-3: Operation of the Waterfront Plan could result in the generation of a substantial temporary or permanent increase in ambient noise levels in the Plan area in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.	Less than significant with mitigation (LTSM)	Less than the Waterfront Plan (LTSM)	Less than the Waterfront Plan (LTSM)
Impact C-NO-1: Construction under the Waterfront Plan, in combination with cumulative projects, could result in the generation of a substantial temporary or permanent increase in ambient noise levels in excess of standards.	Less than significant with mitigation (LTSM)	Less than the Waterfront Plan (LTSM)	Less than the Waterfront Plan (LTSM)

Impacts	Waterfront Plan	Alternative A: No Project Alternative	Alternative B: Lower Growth Alternative
Impact C-NO-2: Construction under the Waterfront Plan, in combination with cumulative projects, would not result in the generation of excessive groundborne vibration or groundborne noise levels during construction.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
Impact C-NO-3: Operation of the Waterfront Plan, in combination with cumulative projects, could result in the generation of a substantial temporary or permanent increase in ambient noise levels in excess of standards.	Less than significant with mitigation (LTSM)	Less than the Waterfront Plan (LTSM)	Less than the Waterfront Plan (LTSM)
AIR QUALITY			
Impact AQ-1: The Waterfront Plan would not conflict with or obstruct implementation of the 2017 Clean Air Plan.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
Impact AQ-2: The Waterfront Plan would not result in a cumulatively considerable net increase of any criteria air pollutant for which the project region is in nonattainment under an applicable federal or state ambient air quality standard.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
Impact AQ-3: The Waterfront Plan could involve construction activities that could result in a cumulatively considerable net increase in any criteria air pollutant for which the project region is in nonattainment status under an applicable federal, state, or regional ambient air quality standard.	Significant and unavoidable with mitigation (SUM)	Less than the Waterfront Plan (SUM)	Less than the Waterfront Plan (SUM)
Impact AQ-4: The Waterfront Plan could result in operational activities that could result in a cumulatively considerable net increase in any criteria air pollutant for which the project region is in nonattainment status under an applicable federal, state, or regional ambient air quality standard.	Significant and unavoidable with mitigation (SUM)	Less than the Waterfront Plan (SUM)	Less than the Waterfront Plan (SUM)
Impact AQ-5: The Waterfront Plan could result in emissions of fine particulate matter (PM _{2.5}) and toxic air contaminants that could result in exposure of sensitive receptors to substantial pollutant concentrations.	Significant and unavoidable with mitigation (SUM)	Less than the Waterfront Plan (SUM)	Less than the Waterfront Plan (SUM)
Impact AQ-6: The Waterfront Plan would not result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
Impact C-AQ-1: The Waterfront Plan, in combination with cumulative projects, could result in exposure of sensitive receptors to substantial levels of fine particulate matter (PM _{2.5}) and toxic air contaminants under cumulative conditions.	Significant and unavoidable with mitigation (SUM)	Less than the Waterfront Plan (SUM)	Less than the Waterfront Plan (SUM)

Waterfront Plan EIR Summary

S.5. Comparison of the Waterfront Plan and Alternatives

Impacts	Waterfront Plan	Alternative A: No Project Alternative	Alternative B: Lower Growth Alternative
Impact C-AQ-2: The Waterfront Plan, in combination with cumulative projects, would not combine with other sources of odors that would adversely affect a substantial number of people.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
GREENHOUSE GAS EMISSIONS			
Impact C-GG-1: The Waterfront Plan would generate GHG emissions, but not at levels that would result in a significant impact on the environment or conflict with any policy, plan, or regulation adopted for the purpose of reducing GHG emissions.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
WIND			
Impact WI-1: The Waterfront Plan could create wind hazards in publicly accessible areas of substantial pedestrian use.	Less than significant with mitigation (LTSM)	Less than the Waterfront Plan (LTSM)	Less than the Waterfront Plan (LTSM)
Impact C-WI-1: The Waterfront Plan, combined with cumulative projects, would not result in significant cumulative impacts related to wind.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
SHADOW			
Impact SH-1: The Waterfront Plan would not create new shadow that substantially and adversely affects the use and enjoyment of publicly accessible open spaces.	Less than significant (LTS)	Similar to the Waterfront Plan (LTS)	Similar to the Waterfront Plan (LTS)
Impact C-SH-1: The Waterfront Plan, in combination with cumulative projects, would not result in significant cumulative impacts related to shadow.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
RECREATION			
Impact RE-1: The Waterfront Plan would increase the use of existing neighborhood and regional parks and other recreational facilities, but not to such an extent that substantial physical deterioration of the facilities would occur or be accelerated, or that the construction of new or expanded recreational facilities would be required.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)

Impacts	Waterfront Plan	Alternative A: No Project Alternative	Alternative B: Lower Growth Alternative
Impact C-RE-1: The Waterfront Plan, in combination with cumulative projects, would increase the use of existing neighborhood and regional parks and other recreational facilities, but not to such an extent that substantial physical deterioration of the facilities would occur or be accelerated, or that the construction of new or expanded recreational facilities would be required.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
UTILITIES AND SERVICE SYSTEMS			
Impact UT-1: Sufficient water supplies are available to serve the Waterfront Plan and reasonably foreseeable future development in normal, dry, and multiple dry years unless the Bay Delta Plan Amendment is implemented; in that event the SFPUC may develop new or expanded water supply facilities to address shortfalls in single and multiple dry years, but this would occur with or without implementation of the Waterfront Plan. Impacts related to new or expanded water supply facilities cannot be identified at this time or implemented in the near term; instead, the SFPUC would address supply shortfalls through increased rationing, which could result in significant cumulative effects, but the implementation of the Waterfront Plan would not make a considerable contribution to impacts from increased rationing.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
Impact UT-2: The Waterfront Plan would not require or result in the relocation or construction of new or expanded, water, wastewater treatment, or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
Impact UT-3: The Waterfront Plan would not generate solid waste in excess of state or local standards or in excess of the capacity of local infrastructure, and would comply with federal, state, and local management and reduction statutes and regulations related to solid waste.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
Impact C-UT-1: The Waterfront Plan, in combination with cumulative projects, would not result in significant cumulative impacts on utilities and service systems.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
PUBLIC SERVICES			
Impact PS-1: The Waterfront Plan would increase the demand for police service or fire protection service but not to such an extent that construction of new or physically altered facilities would be required.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
Impact PS-2: The Waterfront Plan would not directly or indirectly generate school students and increase enrollment in public schools such that new or physically altered facilities would be required.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)

Waterfront Plan EIR Summary

S.5. Comparison of the Waterfront Plan and Alternatives

Impacts	Waterfront Plan	Alternative A: No Project Alternative	Alternative B: Lower Growth Alternative
Impact C-PS-1: The Waterfront Plan, in combination with cumulative projects, would not result in significant cumulative impacts on police, fire, and school district services such that new or physically altered facilities, the construction of which could cause significant environmental impacts, would be required in order to maintain acceptable levels of service.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
BIOLOGICAL RESOURCES			
Impact BI-1: The Waterfront Plan could have a substantial adverse effect, either directly, indirectly, or through habitat modifications, on a plant species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or USFWS.	Less than significant with mitigation (LTSM)	Less than the Waterfront Plan (LTSM)	Less than the Waterfront Plan (LTSM)
Impact BI-2: The Waterfront Plan could have a substantial adverse effect, either directly, indirectly, or through habitat modifications, on nesting bird or bat species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or USFWS.	Less than significant with mitigation (LTSM)	Less than the Waterfront Plan (LTSM)	Less than the Waterfront Plan (LTSM)
Impact BI-3: The Waterfront Plan could have a substantial adverse effect, either directly, indirectly, or through habitat modifications, on steelhead, chinook salmon, green sturgeon, or marine mammal species, which are identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW, NMFS, or USFWS.	Less than significant with mitigation (LTSM)	Less than the Waterfront Plan (LTSM)	Less than the Waterfront Plan (LTSM)
Impact BI-4: The Waterfront Plan could have a substantial adverse effect on the pickleweed mat sensitive natural community.	Less than significant with mitigation (LTSM)	Less than the Waterfront Plan (LTSM)	Less than the Waterfront Plan (LTSM)
Impact BI-5: The Waterfront Plan would not have a substantial adverse effect the eelgrass bed sensitive natural community.	No impact (NI)	No Impact	No Impact
Impact BI-6: The Waterfront Plan could have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal) through direct removal, filling, hydrological interruption, or other means.	Less than significant with mitigation (LTSM)	Less than the Waterfront Plan (LTSM)	Less than the Waterfront Plan (LTSM)
Impact BI-7: The Waterfront Plan could interfere substantially with the movement of a native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.	Less than significant with mitigation (LTSM)	Less than the Waterfront Plan (LTSM)	Less than the Waterfront Plan (LTSM)
Impact BI-8: The Waterfront Plan would not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)

Impacts	Waterfront Plan	Alternative A: No Project Alternative	Alternative B: Lower Growth Alternative
Impact C-BI-1: The Waterfront Plan, in combination with cumulative projects, would not result in significant construction-related or operational cumulative impacts on biological resources.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
GEOLOGY AND SOILS			
Impact GE-1: The Waterfront Plan would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving fault rupture, strong seismic ground shaking, or seismically induced ground failure.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
Impact GE-2: The Waterfront Plan would not result in substantial erosion or loss of topsoil.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
Impact GE-3: The Waterfront Plan would not be located on a geologic unit or soil that is unstable, or that could become unstable as a result of implementation of the Plan.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
Impact GE-4: The Waterfront Plan would not create substantial risks to life or property as a result of locating buildings or other features on expansive soils.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
Impact GE-5: The Waterfront Plan could directly or indirectly destroy a unique paleontological resource or site.	Less than significant with mitigation (LTSM)	Less than the Waterfront Plan (LTSM)	Less than the Waterfront Plan (LTSM)
Impact C-GE-1: The Waterfront Plan, in combination with cumulative projects, would not result in significant cumulative impacts on geology, soils, or paleontological resources.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
HYDROLOGY AND WATER QUALITY			
Impact HY-1: The Waterfront Plan could violate water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality, and could conflict with or obstruct implementation of a water quality control plan.	Less than significant with mitigation (LTSM)	Less than the Waterfront Plan (LTSM)	Less than the Waterfront Plan (LTSM)
Impact HY-2: The Waterfront Plan would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Plan may impede sustainable groundwater management of the basin or conflict with a sustainable groundwater management plan.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)

Waterfront Plan EIR Summary

S.5. Comparison of the Waterfront Plan and Alternatives

Impacts	Waterfront Plan	Alternative A: No Project Alternative	Alternative B: Lower Growth Alternative
<p>Impact HY-3: The Waterfront Plan would not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner that would result in substantial erosion, siltation, or flooding on or off site.</p>	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
<p>Impact HY-4: The Waterfront Plan would not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner that would create or contribute runoff water, which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.</p>	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
<p>Impact HY-5: The Waterfront Plan would not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner that would impede or redirect flood flows.</p>	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
<p>Impact HY-6: The Waterfront Plan would not risk release of pollutants due to project inundation.</p>	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
<p>Impact C-HY-1: The Waterfront Plan, in combination with cumulative projects, would not result in a significant cumulative impact on hydrology and water quality.</p>	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
HAZARDS AND HAZARDOUS MATERIALS			
<p>Impact HZ-1: The Waterfront Plan would not create a significant hazard through the routine transport, use, or disposal of hazardous materials.</p>	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
<p>Impact HZ-2: The Waterfront Plan would not create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. In addition, subsequent projects could occur on sites identified on the list of hazardous materials sites compiled pursuant to Government Code section 65962.5, but compliance with regulations would ensure that impacts remain less than significant.</p>	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
<p>Impact HZ-3: The Waterfront Plan would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.</p>	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)

Impacts	Waterfront Plan	Alternative A: No Project Alternative	Alternative B: Lower Growth Alternative
Impact HZ-4: The Waterfront Plan would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
Impact C-HZ-1: The Waterfront Plan, in combination with cumulative projects, would not result in a significant cumulative impact related to hazards and hazardous materials.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
MINERAL RESOURCES			
None applicable			
ENERGY			
Impact EN-1: The Waterfront Plan would not result in wasteful, inefficient, or unnecessary consumption of energy resources during construction or operation; or conflict with or obstruct a state or local plan for renewable energy or energy efficiency.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
Impact C-EN-1: The Waterfront Plan, in combination with cumulative projects, would not result in significant cumulative impacts related to the wasteful, inefficient, or unnecessary consumption of energy resources or conflict with or obstruct a state or local plan for renewable energy or energy efficiency.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
AGRICULTURE AND FORESTRY RESOURCES			
None applicable			
WILDFIRE			
None applicable			

S.6 Environmentally Superior Alternative

The CEQA Guidelines require the identification of an environmentally superior alternative to the Waterfront Plan (section 15126.6(e)). Based on the analysis and comparison of the impacts of the alternatives presented above, this subsection identifies Alternative A (No Project Alternative) as the environmentally superior alternative. As described above, Alternative A would substantially lessen the severity of the significant and unavoidable impacts and less-than-significant impacts with mitigation of the Waterfront Plan due to the smaller percentage of growth that would occur within the Plan area. Nonetheless, while it is likely that Alternative A would substantially reduce all of the identified significant and unavoidable impacts and less-than-significant impacts with mitigation related to development under the Waterfront Plan, it cannot be stated with certainty whether Alternative A would avoid all identified impacts because development would continue to occur within the Plan area under this alternative. In addition, Alternative A would not provide planning goals and policies on environmental sustainability, resilience, equity, transportation, and community engagement as provided in the updated Waterfront Plan to guide Port improvements.

CEQA Guidelines section 15126.6(e)(2) provides that if the “no project” alternative is the environmentally superior alternative, the EIR should also identify an environmentally superior alternative among the other alternatives.

As presented in Chapter 6, Alternatives, of this Draft EIR, Alternative B would offer an overall lower level of impact as a result of the reduced development program. Alternative B also would meet or partially meet most of the project objectives of the Waterfront Plan. Therefore, **Alternative B** is the environmentally superior alternative.

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

Based on the comments received on the notice of preparation of an EIR, potential areas of controversy for the Waterfront Plan include:

- Sea-level rise and flooding
- Cumulative impacts
- Consistency of the Waterfront Plan with the San Francisco Bay Plan (Bay Plan) related to aesthetics, land use and planning, transportation, biological resources, public access and recreation, water quality, and climate change
- Impacts of the Waterfront Plan on historic features of existing Port facilities
- Impacts to modes of transportation
- Potential for the Waterfront Plan to negatively affect community health, including contributions to cumulative effects
- Impacts related to increases in artificial lighting, impacts on nesting bird species and habitat, and underwater noise and vibration impacts
- Impacts to public access areas
- Previous hazards and hazardous materials and land use covenants in the Mission Rock neighborhood

CHAPTER 1

INTRODUCTION

This draft environmental impact report (Draft EIR) analyzes potential environmental effects associated with the implementation of the Port of San Francisco 2019 Draft Waterfront Plan (Waterfront Plan or the Plan), which was drafted by the Port of San Francisco (the Port) and published in June 2019 for public review and comment through October 2019. Revisions to the 2019 Draft Waterfront Plan were made to address refinements or public comments raised during the public review process, and the Waterfront Plan was republished in December 2019. The Waterfront Plan is the subject of this Draft EIR.

The Waterfront Plan area (Plan area) is located on properties owned and managed by the Port along the San Francisco waterfront. The Port's properties extend along 7.5 miles of the waterfront, a continuous shoreline from the curved, northeast shore adjacent to Aquatic Park in Fisherman's Wharf to Heron's Head Park near India Basin in the southeast (see **Figure 2-1**, p. 2-2). The Plan area is generally bounded to the north by Hyde Street Pier and Jefferson Street in Fisherman's Wharf, and includes piers and upland properties adjacent to The Embarcadero including Oracle Park; piers and waterfront properties adjacent to Terry A. Francois Boulevard in Mission Bay; and properties generally east of Illinois Street south of Mission Bay to Cargo Way in India Basin.

This Draft EIR analyzes implementation of the Waterfront Plan programmatically within the area delineated on Figure 2-1.

1.A Environmental Review Process

The San Francisco Planning Department (planning department), serving as lead agency responsible for administering the environmental review on behalf of the City and County of San Francisco (City), determined that preparation of an EIR was needed to evaluate potentially significant effects that could result from implementation of the Waterfront Plan. The California Environmental Quality Act (CEQA) requires that before a decision can be made to approve a project (or in this case, a plan) that would result in potential adverse physical effects, an EIR must be prepared that fully describes the environmental effects of the project. An EIR is a public information document for use by governmental agencies and the public to identify and evaluate potential environmental impacts of a project, to identify mitigation measures to lessen or eliminate significant adverse impacts, and to examine feasible alternatives to the project. The information contained in this EIR will be reviewed and considered by the decision-makers prior to a decision to approve, disapprove, or modify the Waterfront Plan.

CEQA requires that the lead agency neither approve nor implement a project unless its significant environmental effects have been reduced to less-than-significant levels, essentially "eliminating, avoiding, or substantially lessening" the expected impact(s), except when certain findings are made.¹⁰ If the lead agency approves a project that would result in the occurrence of significant adverse impacts that cannot be mitigated to less-than-significant levels, the agency must state the reasons for its action in writing, demonstrate that its action is based on the EIR or other information in the record, and adopt a Statement of Overriding

¹⁰ The planning department is the lead agency for the CEQA process, but the San Francisco Port Commission is the approving agency for the Waterfront Plan.

Considerations. A Statement of Overriding Considerations provides substantial evidence of the balance of the economic, legal, social, technological, or other benefits, including region-wide or statewide environmental benefits, of a proposed project against its unavoidable environmental risks when determining whether to approve the project.

1.A.1 Notice of Preparation of an Environmental Impact Report and Public Scoping

In accordance with CEQA Guidelines sections 15063 and 15082, the planning department, as lead agency, published and distributed a Notice of Preparation (NOP) to governmental agencies, organizations, and persons who may have an interest in the Waterfront Plan on August 26, 2020. Publication of the NOP initiated a 30-day public review and comment period that began on August 26, 2020, and ended on September 25, 2020 (see Appendix A). The NOP requested that agencies and interested parties comment on environmental issues that should be addressed in the Draft EIR. A scoping meeting was held on September 9, 2020, to explain the environmental review process for the Waterfront Plan and to provide opportunity to take public comment and concerns related to the Plan's environmental issues. The planning department considered the public comments received at the scoping meeting and prepared an initial study in order to focus the scope of the Draft EIR by assessing which of the Waterfront Plan's environmental topics would not result in significant impacts on the environment. The initial study is included as an appendix to this Draft EIR (see Appendix B). The initial study determined that the Waterfront Plan would not result in significant environmental effects (in some cases, with mitigation identified in the initial study) for the following environmental topics:

- Land Use and Planning
- Population and Housing
- Cultural Resources (archeology only)
- Tribal Cultural Resources
- Greenhouse Gas Emissions
- Wind
- Shadow
- Recreation
- Utilities and Service Systems
- Public Services
- Geology and Soils
- Hydrology and Water Quality
- Hazards and Hazardous Materials
- Mineral Resources
- Energy
- Agricultural and Forestry Resources
- Wildfire

During the review and comment period, comments were submitted to the planning department by interested parties. The planning department has considered the comments made by the public and agencies in preparation of this Draft EIR, as summarized in **Table 1-1**. Comments on the NOP that relate to environmental issues related to potential physical environmental impacts of the Waterfront Plan are addressed and analyzed throughout this Draft EIR and initial study (see Appendix B). The table lists the commenter and in which section of the initial study or Draft EIR each comment is addressed. The scoping comments, as summarized in this table, also indicate areas of controversy known to the lead agency and issues to be resolved, per CEQA Guidelines section 15123.

Table 1-1 Summary of Scoping Comments

Commenter	Summary of Comment	Draft EIR and/or Initial Study Section
AGENCIES		
San Francisco Public Utilities Commission (Craig Freeman, Utility Planning Division, and Anne Roche, Project Management)	<ul style="list-style-type: none"> Describe the relationship, if any, between the Waterfront Plan’s development concepts and actions planned under the Embarcadero Seawall Program. 	<ul style="list-style-type: none"> Chapter 4, Environmental Setting, Impacts, and Mitigation Measures
	<ul style="list-style-type: none"> Include an advisory analysis or disclosure on the effects of sea-level rise on developments contemplated in the Waterfront Plan, including impacts related to sea-level rise-induced raising of groundwater levels, including impacts on below-grade structures (e.g., basements), and note any performance criteria for new sewers in new developments. 	<ul style="list-style-type: none"> Appendix B, Section E.17, Hydrology and Water Quality Appendix B, Section E.13, Utilities and Service Systems
	<ul style="list-style-type: none"> Address flooding impacts including changes in precipitation and groundwater levels due to climate change. 	<ul style="list-style-type: none"> Appendix B, Section E.17, Hydrology and Water Quality
Native American Heritage Commission (Nancy Gonzalez-Lopez, Cultural Resources Analyst)	<ul style="list-style-type: none"> AB 52 and SB 18 tribal consultation procedures. Comment provided mitigation measures to avoid or minimize significant adverse impacts to tribal cultural resources, if feasible. 	<ul style="list-style-type: none"> Section 4.B, Cultural Resources
San Francisco Bay Conservation and Development Commission (BCDC; Shannon Fiala, Planning Manager)	<ul style="list-style-type: none"> Acknowledge and describe BCDC’s jurisdiction and permit authority over the project site. Describe the consistency of the Waterfront Plan with the McAteer-Petris Act, the Bay Plan, BCDC’s Seaport Plan, and the San Francisco Bay Plan Map policies and suggestions. Describe the consistency of the Waterfront Plan with the San Francisco Waterfront Special Area Plan, including a description of the public benefits that would be provided by the Waterfront Plan. Analyze the consistency of the Waterfront Plan with Bay Plan policies including: <ul style="list-style-type: none"> Bay Plan Shoreline Protection policies Bay Plan Dredging policies (if applicable) 	<ul style="list-style-type: none"> Chapter 3, Plans and Policies Appendix B, Section E.17, Hydrology and Water Quality

Chapter 1. Introduction

1.A. Environmental Review Process

Commenter	Summary of Comment	Draft EIR and/or Initial Study Section
	<ul style="list-style-type: none"> - Relevant Bay Plan Water-Related Industry policies - Bay Plan Port policies - Bay Plan Commercial Fishing policies - BCDC’s law and Bay Plan policies regarding fill - Bay Plan Public Trust policies • Analyze consistency of the Waterfront Plan with Bay Plan Policies pertaining to Water Quality. • Address the consistency of the project with Bay Plan Climate Change and Safety of Fills policies and include a discussion of how the Waterfront Plan will encourage development on the waterfront that is designed to adapt to, tolerate, and/or manage sea-level rise and shoreline flooding and to ensure resilience to mid-century sea-level rise projections, and adaptation to end of the century projections. • Sea-level rise analysis should include the mean higher high-water level, the 100-year flood elevation, the mid- and end-of-century sea-level projections, preferably using projections based on the best-available science found in the state’s sea-level rise guidance, anticipated site-specific storm surge effects, and a preliminary assessment of the project’s vulnerability to future flooding and sea-level rise. 	
	<ul style="list-style-type: none"> • Analyze the consistency of the Waterfront Plan with San Francisco Bay Plan (Bay Plan) policies on Appearance, Design, and Scenic Views. 	<ul style="list-style-type: none"> • Section 4.A Aesthetics
	<ul style="list-style-type: none"> • Analyze the consistency of the Waterfront Plan with Bay Plan Transportation Policies. 	<ul style="list-style-type: none"> • Section 4.C Transportation and Circulation
	<ul style="list-style-type: none"> • Examine the potential for the Waterfront Plan to negatively affect community health, including any contributions to cumulative effects. 	<ul style="list-style-type: none"> • Section 4.E Air Quality
	<ul style="list-style-type: none"> • Analyze the consistency of the Waterfront Plan with Bay Plan Policies pertaining to Fish, Other Aquatic Organisms, and Wildlife; Tidal Marshes and Tidal Flats; and Subtidal Areas. • Describe whether any proposed adaptation strategies would have the potential to adversely affect wildlife habitat. 	<ul style="list-style-type: none"> • Section 4.F Biological Resources
	<ul style="list-style-type: none"> • Address the culturally-relevant community outreach and engagement efforts that have been conducted for the Waterfront Plan, identify whether the Waterfront Plan area includes vulnerable communities, and if so, identify any potential disproportionate impacts that could result from the Waterfront Plan. 	<ul style="list-style-type: none"> • Chapter 5 Other CEQA Considerations

Commenter	Summary of Comment	Draft EIR and/or Initial Study Section
	<ul style="list-style-type: none"> Analyze the consistency of the Waterfront Plan with Bay Plan policies regarding Public Access and Recreation. Describe whether any proposed adaptation strategies would have the potential to adversely affect public access areas. 	<ul style="list-style-type: none"> Chapter 3, Plans and Policies Appendix B, Section E.12 Recreation
	<ul style="list-style-type: none"> Discuss the effects, if any, that the Waterfront Plan would have on existing public access or other conditions required in existing BCDC permits within the project area. 	<ul style="list-style-type: none"> Chapter 2, Project Description
California Department of Toxic Substances Control (Sagar Bhatt, Project Manager Site Mitigation and Restoration Program)	<ul style="list-style-type: none"> Address the existence of land use covenants in the Mission Rock Neighborhood and previous hazardous waste and/or hazardous materials that existed in those locations or incorporate the information by reference to the Mission Rock EIR and other appropriate documents. 	<ul style="list-style-type: none"> Appendix B, Section E.18, Hazards and Hazardous Materials
California Department of Fish and Wildlife (Gregg Erickson, Regional Manager Bay Delta Region)	<ul style="list-style-type: none"> Address proposed increases in artificial lighting which may have the potential to significantly and adversely affect biological resources. Address impacts related to glass used for exterior building windows and bird collisions, which can cause bird injury and mortality. Evaluate potential impacts to nesting bird species. Recommend mitigation measures to address potentially significant, direct and indirect impacts on biological resources pertaining to nesting bird surveys and nesting bird buffers. Recommend limiting impacts on sensitive species during in-water construction. Analyze potential impacts of the Waterfront Plan on eelgrass habitat including potential shading impacts from over-water structures. Address potential underwater noise and vibration impacts from pile driving, pile repair, and pile replacement. 	<ul style="list-style-type: none"> Section 4.F Biological Resources
INDIVIDUALS		
David Pilpel	<ul style="list-style-type: none"> Provide videoconference public comment opportunities that do not require an email address. Clarify where and how to access Waterfront Plan-related documents and materials. Add CEQA review process and public meetings related to the Waterfront Plan to the Port’s website. 	<ul style="list-style-type: none"> Chapter 1, Introduction
	<ul style="list-style-type: none"> The project description should be clear, complete, finite, and stable. 	<ul style="list-style-type: none"> Chapter 2, Project Description

Commenter	Summary of Comment	Draft EIR and/or Initial Study Section
	<ul style="list-style-type: none"> Address cumulative impacts of the Waterfront Plan and consider related projects. Cumulative projects should include all related projects, private and public, whether exempt or not exempt from CEQA, and whether approved or not yet approved, but planned within the EIR timeframe. 	<ul style="list-style-type: none"> Chapter 4, Environmental Setting, Impacts, and Mitigation Measures
	<ul style="list-style-type: none"> Address the impacts of the Waterfront Plan on historical features of existing Port facilities. 	<ul style="list-style-type: none"> Appendix B, Section 4.B, Cultural Resources
	<ul style="list-style-type: none"> Address impacts related to the Port and transportation including ferry transit, passenger cruise, rail freight, and truck access. 	<ul style="list-style-type: none"> Section 4.C, Transportation and Circulation
	<ul style="list-style-type: none"> Address impacts related to sea-level rise using a range of reasonable scenarios. 	<ul style="list-style-type: none"> Appendix B, Section E.17, Hydrology and Water Quality
Howard Wong	<ul style="list-style-type: none"> Address opportunities for increased open-air transit including ferries and water taxi. 	<ul style="list-style-type: none"> Section 4.C, Transportation and Circulation

1.A.2 Draft EIR and Initial Study Public Review and Opportunities for Public Participation

The CEQA Guidelines and San Francisco Administrative Code chapter 31 encourage public participation in the planning and environmental review processes. The San Francisco Planning Department provides opportunities for the public to present comments and concerns regarding this Draft EIR and its appendices, including the initial study (see Appendix B). These opportunities include a public review and comment period and a public hearing on the Draft EIR and initial study before the San Francisco Planning Commission.

The Draft EIR and initial study is available for public review and comment on the planning department’s Negative Declarations and EIRs webpage (<https://sfplanning.org/ceqadocs>). A USB or paper copy of the Draft EIR will be mailed upon request. Referenced materials will also be made available for review upon request. Please contact the EIR Coordinator, Sherie George, at CPC.WaterfrontEIR@sfgov.org or 628.652.7558 to make a request.

The public review period for the Draft EIR and initial study is from February 23, 2022, through April 25, 2022. The planning commission will hold a public hearing on this Draft EIR and initial study during the 60-day public review and comment period to solicit public comment on the information presented in this Draft EIR and initial study. The planning commission public hearing will be held on Thursday March 24, 2022, beginning at 1 p.m. or later. Due to the COVID-19 emergency, this hearing may occur in person at San Francisco City Hall or remotely using videoconferencing technology. Additional information may be found on the planning department’s website at www.sfplanning.org.

In addition, governmental agencies, interested organizations, and other members of the public are invited to submit written comments on the adequacy and accuracy of the Draft EIR and initial study during the public review period. Written public comments may be submitted by mail to:

San Francisco Planning Department
Attention: Sherie George, Environmental Coordinator
49 South Van Ness Avenue, Suite 1400
San Francisco, CA 94103

or by email to:

CPC.WaterfrontEIR@sfgov.org

Comments on the Draft EIR are most helpful when they address the environmental analysis itself or suggest specific alternatives and/or additional measures that would better mitigate significant environmental impacts of the Waterfront Plan.

Members of the public are not required to provide personal identifying information when they communicate with the planning commission. All written or oral communications, including submitted personal contact information, may be made available to the public for inspection and copying upon request and may appear on the department's website or in other public documents.

1.A.3 Final EIR and EIR Certification

Following the close of the public review and comment period, the planning department will prepare and publish a document entitled "Responses to Comments on the Draft EIR." This document will contain copies of all written, email, and recorded oral comments received on the Draft EIR as well as the planning department's written responses to substantive comments and any necessary revisions to the Draft EIR. Together, the Draft EIR and the Responses to Comments document will constitute the Final EIR. Not less than 10 days prior to the San Francisco Planning Commission hearing to consider certification of the Final EIR, the planning department will issue the Final EIR to persons commenting on the Draft EIR and to the San Francisco Port Commission that will carry out or approve the Waterfront Plan. During an advertised public meeting, the planning commission will consider the documents and, if found adequate, will certify the Final EIR. Certification of the Final EIR by the commission represents that the document: (1) has been completed in compliance with CEQA; (2) was presented to the San Francisco Planning Commission and the commission reviewed and considered the information contained in the Final EIR prior to taking an approval action on the Waterfront Plan; and (3) reflects the lead agency's independent judgment and analysis.

CEQA requires that lead agencies shall neither approve nor implement a project unless the project implements all feasible mitigation measures that would reduce significant environmental impacts to a less-than-significant level, essentially avoiding or substantially lessening the potentially significant impacts of the project, except when certain findings are made. If an agency approves a project that would result in the occurrence of significant adverse impact(s) that cannot feasibly be mitigated to less-than-significant levels (that is, significant and unavoidable impacts), the agency must state the reasons for its action in writing, demonstrate that even with implementation of all feasible mitigation, the impact would still exceed significance thresholds based on the EIR or other information in the record, and adopt a statement of overriding considerations.

1.A.4 Mitigation Monitoring and Reporting Program

At the time of project approval, CEQA and the CEQA Guidelines require agencies to adopt a mitigation monitoring and reporting program that it has made a condition of project approval in order to mitigate or avoid significant impacts on the environment (CEQA section 21081.6; CEQA Guidelines section 15097). This Draft EIR identifies and presents mitigation measures that would form the basis of such a mitigation monitoring and reporting program.

1.B Purpose of This EIR

This Draft EIR is intended as an informational document that in and of itself does not determine whether the Waterfront Plan or any component of it will be approved. The Draft EIR aids the planning and decision-making process by disclosing the potential for significant adverse impacts. In conformance with CEQA, California Public Resources Code section 21000 et seq., this Draft EIR provides objective information addressing the environmental consequences of the Waterfront Plan and identifies the means of reducing or avoiding its significant impacts where feasible.

The CEQA Guidelines help define the role and expectations of this Draft EIR as follows:

- **Information Document.** An EIR is an informational document that will inform public agency decision-makers and the public of the significant environmental effect(s) of a project, identify feasible ways to avoid or minimize significant effects, and describe reasonable alternatives to the project. The public agency shall consider the information in the EIR along with other information contained in the administrative record (section 15121(a)).
- **Degree of Specificity.** An EIR on an individual development project necessarily will be more detailed in its analysis of the effects of the project than will an EIR on the adoption of a local general plan or a plan like the Waterfront Plan because the effects of the construction and operation of an individual building or buildings can be predicted with greater accuracy than can the effects of a plan for a large geographic area that contains broad parameters that would apply to numerous subsequent individual projects. Therefore, an EIR on a plan should focus on the secondary effects—including likely subsequent development in the Plan area—that can be expected to follow from plan adoption, but the EIR need not be as detailed as an EIR on the specific construction and development projects that might follow (section 15146(b)).
- **Standards for Adequacy of an EIR.** An EIR should be prepared with a sufficient degree of analysis to provide decision-makers with information that enables them to make a decision that intelligently takes account of environmental consequences of the project under consideration. An evaluation of the environmental effects of a proposed plan need not be exhaustive, but the sufficiency of an EIR is to be reviewed in the light of what is reasonably feasible. Disagreement among experts does not make an EIR inadequate, but the EIR should summarize the main points of such disagreement. The courts have looked not for perfection but for adequacy, completeness, and a good faith effort at full disclosure (section 15151).

CEQA Guidelines section 15382 defines a significant effect on the environment as “a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance.” Therefore, in identifying the significant impacts of the Waterfront Plan, this Draft EIR concentrates on its substantial physical effects and on mitigation measures to avoid or reduce those effects.

1.B.1 Program-Level Review of Potential Impacts

This Draft EIR contains analysis at a “program” level pursuant to CEQA Guidelines section 15168 for adoption and implementation of the Waterfront Plan. A program EIR is appropriate for a project that will involve a series of actions that are (1) related geographically, (2) logical parts in a chain of contemplated actions, (3) connected as part of a continuing program, and (4) carried out under the same authorizing statute or regulatory authority and have similar environmental impacts that can be mitigated in similar ways (CEQA Guidelines section 15168). Accordingly, this Draft EIR’s evaluation of the Waterfront Plan is programmatic. Its assessment of potential environmental impacts is based on likely physical changes that would result from implementation of the Waterfront Plan components that would facilitate the Plan’s goals and objectives. CEQA Guidelines section 15168 notes that the use of a program EIR can “ensure consideration of cumulative impacts that might be slighted in a case-by-case analysis; avoid duplicative reconsideration of basic policy considerations; allow the lead agency to consider broad policy alternatives and program-wide mitigation measures at an early time, when the agency has greater flexibility to deal with basic problems or cumulative impacts; and allow reduction in paperwork.”

1.B.2 Analysis Assumptions

This Draft EIR presents a set of reasonable land use assumptions and growth projections (as described in Chapter 2, Project Description, Chapter 4, Environmental Setting, Impacts, and Mitigation Measures, and Appendix C, Land Use Assumptions and Growth Projections Memorandum) pertaining to the overall types and levels of activities that the City and the Port anticipate could result from implementation of the Waterfront Plan as the basis for evaluating the Plan’s environmental impacts. As described further in Chapter 2, amendments to the San Francisco General Plan and San Francisco Planning Code and Zoning Map are proposed to align City planning policies and design review requirements with the Waterfront Plan, as well as amendments to the San Francisco Bay Conservation and Development Commission’s San Francisco Waterfront Special Area Plan. The Draft EIR evaluates these related actions as those that may in some way result in indirect physical changes in the environment and are considered in the evaluation of potential Plan impacts. Pertinent goals, objectives, and policies from the Waterfront Plan are identified in Chapter 2 and are considered in the impact evaluations as applicable.

This Draft EIR bases the analyses of impacts on reasonably conservative assumptions to avoid understating the Waterfront Plan’s overall environmental effects.

1.B.3 Alternatives to the Project

Chapter 5, Alternatives, of this Draft EIR considers a reasonable range of alternatives that would reduce, avoid or eliminate potential impacts of the Waterfront Plan, while still feasibly meeting most of the Plan’s objectives. The two alternatives studied in this Draft EIR include a **No Project Alternative** and a **Lower Growth Alternative**.

1.C Environmental Review of Subsequent Projects

CEQA Guidelines section 15168(c) states that later activities in the program must be examined in light of the program EIR to determine whether an additional environmental document must be prepared as follows:

1. If a later activity would have effects that were not examined in the program EIR, a new initial study would need to be prepared leading to either an EIR or a negative declaration. That later analysis may tier from the program EIR as provided in section 15152.
2. If the agency finds that pursuant to section 15162, no subsequent EIR would be required, the agency can approve the activity as being within the scope of the project covered by the program EIR, and no new environmental document would be required. Whether a later activity is within the scope of a program EIR is a factual question that the lead agency determines based on substantial evidence in the record. Factors that an agency may consider in making that determination include, but are not limited to, consistency of the later activity with the type of allowable land use, overall planned density and building intensity, geographic area analyzed for environmental impacts, and covered infrastructure, as described in the program EIR.
3. An agency shall incorporate feasible mitigation measures and alternatives developed in the program EIR into later activities in the program.
4. Where the later activities involve site specific operations, the agency should use a written checklist or similar device to document the evaluation of the site and the activity to determine whether the environmental effects of the operation were within the scope of the program EIR.
5. A program EIR will be most helpful in dealing with later activities if it provides a description of planned activities that would implement the program and deals with the effects of the program as specifically and comprehensively as possible. With a good and detailed project description and analysis of the program, many later activities could be found to be within the scope of the project described in the program EIR, and no further environmental documents would be required.

Thus, this Draft EIR assumes that subsequent lease, development, and improvement projects (subsequent projects) in the Plan area would be subject to environmental review at such time that those projects are proposed to determine whether or not they would result in physical environmental effects. The analysis of subsequent projects would be based on existing conditions at the site and vicinity, at such time a project is proposed, and would take into account any updated information relevant to the environmental analysis of the subsequent project (e.g., changes to the environmental setting or updated growth forecasts, models).

1.C.1 Projects Consistent with the Development Density in the Waterfront Plan

California Public Resources Code section 21083.3 and CEQA Guidelines section 15183 mandate that projects that are consistent with the development density established by existing zoning, a community plan, or general plan policies for which an EIR was certified shall not require additional environmental review, except as might be necessary to examine whether there are project-specific effects that are peculiar to the project or its site. This streamlines the review of such projects and reduces the need to prepare repetitive environmental studies. Therefore, subsequent projects in the Waterfront Plan area that are determined to be consistent with the development density, or growth projections established in the Waterfront Plan (as described in Chapter 2,

Project Description; Chapter 4, Environmental Setting, Impacts, and Mitigation Measures; and Appendix C, Land Use Assumptions and Growth Projections Memorandum), would be evaluated in accordance with CEQA Guidelines section 15183.

The lead agency, in most cases the planning department, is required to limit its evaluation of a project in accordance with section 15183. This evaluation would examine the environmental effects of the project that:

1. Are peculiar to the project or site on which the project is located;
2. Were not analyzed as significant effects in a prior EIR on the zoning action, general plan, or community plan, with which the project is consistent;
3. Are potentially significant offsite impacts and cumulative impacts that were not discussed in the prior EIR prepared for the general plan, community plan, or zoning action; or
4. Are previously identified significant effects that, as a result of substantial new information that was not known at the time the EIR was certified, are determined to be a more severe adverse impact than that discussed in the prior EIR.

Each subsequent project consistent with the development density (growth projections) established in the Waterfront Plan would be evaluated to determine whether any of the criteria above have been met. This evaluation may include site- and project-specific studies (such as wind tunnel testing or shadow studies), which are appropriately analyzed at the time a specific project is proposed, and when sufficient detail is available to enable such analysis. Section 15183(c) specifies that if an impact is not peculiar to the site or to the proposed project, then an EIR need not be prepared for that project solely on the basis of that impact. In the case that a subsequent project in the Waterfront Plan area may have site-specific impacts not accounted for in this program EIR, a subsequent analysis in a mitigated negative declaration or focused EIR may be required, depending on whether the subsequent project would cause potentially significant impacts. If no such impacts are identified, the subsequent project and applicable mitigation measures identified in this Draft EIR would be exempt from further environmental review, in accordance with Public Resources Code section 21083.3 and CEQA Guidelines section 15183.

1.C.2 Streamlining for Infill Projects

California Public Resources Code section 21094.5 and CEQA Guidelines section 15183.3 provides a streamlined environmental review process for eligible infill projects by limiting the topics subject to review at the project level where the effects of infill development have been previously addressed in a planning-level decision¹¹ or by uniformly applicable development policies.¹² CEQA does not apply to the effects of an eligible infill project under two circumstances. First, if an effect was addressed as a significant effect in a prior EIR¹³ for a planning-level decision, then that effect need not be analyzed again for an individual infill project, even when that effect was not reduced to a less-than-significant level in the prior EIR. Second, an effect need not be analyzed if it was not analyzed in a prior EIR or is more significant than previously analyzed if the lead agency makes a finding that uniformly applicable development policies or standards adopted by the lead agency or a city or county apply to the infill project and would substantially mitigate that effect. Depending on the effects addressed in the prior EIR and the availability of uniformly applicable development policies or standards that apply to the eligible infill project, the streamlined environmental review would range from exemption from environmental review to a narrowed project-specific environmental document.

Pursuant to CEQA Guidelines section 15183.3, an eligible infill project is examined in light of the prior EIR to determine whether the infill project would cause any effects that require additional review under CEQA. The evaluation of an eligible infill project must demonstrate the following:

1. The project satisfies the performance standards of Appendix M of the CEQA Guidelines;
2. The degree to which the effects of the infill project were analyzed in the prior EIR;
3. An explanation of whether the infill project will cause new specific effects¹⁴ not addressed in the prior EIR;
4. An explanation of whether substantial new information shows that the adverse effects of the infill project are substantially more severe than described in the prior EIR; and
5. If the infill project would cause new specific effects or more significant effects¹⁵ than disclosed in the prior EIR, the evaluation must indicate whether uniformly applied development standards would substantially mitigate¹⁶ those effects.

¹¹ Planning-level decision means the enactment of an amendment of a general plan or any general plan element, community plan, specific plan, or zoning code.

¹² Uniformly applicable development policies are policies or standards adopted or enacted by a city or county, or by a lead agency, to reduce one or more adverse environmental effects.

¹³ Prior EIR means the EIR certified for a planning-level decision, as supplemented by any subsequent or supplemental EIRs, negative declarations, or addenda to those documents.

¹⁴ A new specific effect is an effect that was not addressed in the prior EIR and that is specific to the infill project or the infill project site. A new specific effect may result if, for example, the prior EIR stated that sufficient site-specific information was not available to analyze the significance of that effect. Substantial changes in circumstances following certification of a prior EIR may also result in a new specific effect.

¹⁵ More significant means an effect will be substantially more severe than described in the prior EIR. More significant effects include those that result from changes in circumstances or changes in the development density underlying the prior EIR's analysis. An effect is also more significant if substantial new information shows that (1) mitigation measures that were previously rejected as infeasible are, in fact, feasible and such measures are not included in the project; (2) feasible mitigation measures considerably different than those previously analyzed could substantially reduce a significant effect described in the prior EIR but such measures are not included in the project; or (3) an applicable mitigation measure was adopted in connection with a planning level decision, but the lead agency determined that it is not feasible for the infill project to implement that measure.

¹⁶ Substantially mitigate means that the policy or standard will substantially lessen the effect but not necessarily below the levels of significance.

1.D Organization of the Draft EIR

This Draft EIR has been organized as follows:

- **Summary.** This chapter summarizes the Draft EIR by providing a concise overview of the Waterfront Plan, including the project description and requisite approvals, the environmental impacts that would result from implementation of the Waterfront Plan, mitigation measures identified to reduce or avoid these impacts, alternatives to the Waterfront Plan, and areas of controversy and issues to be resolved.
- **Chapter 1, Introduction.** This chapter (above and the contents herein) includes a discussion of the environmental review process, the comments received on the scope of the Draft EIR, opportunities for public participation in the environmental review process, the purpose of this EIR, and the organization of the Draft EIR.
- **Chapter 2, Project Description.** This chapter discusses the project location, project objectives, and project components, including the physical characteristics of the Waterfront Plan such as amendments to the general plan, planning code, and zoning map to create the Waterfront Special Use District 4; and amendments to the San Francisco Bay Conservation Development Commission's San Francisco Waterfront Special Area Plan.
- **Chapter 3, Plans and Policies.** This chapter provides a summary of the plans and policies of local, regional, state, and federal agencies that could be applicable to the Waterfront Plan and identifies if the Waterfront Plan would be inconsistent with any of those plans and policies.
- **Chapter 4, Environmental Setting, Impacts, and Mitigation Measures.** This chapter describes the existing environmental setting and regulatory framework, as well as the direct, indirect and cumulative impacts of the Waterfront Plan. Mitigation measures are identified where feasible to minimize significant environmental effects of the Waterfront Plan. Each environmental topic is discussed in a separate section within this chapter.
- **Chapter 5, Other CEQA Considerations.** This chapter describes any growth inducement that would result from the implementation of the Waterfront Plan, recapitulates the significant environmental effects that cannot be mitigated to less-than-significant levels, identifies significant irreversible changes that would result if the Waterfront Plan is implemented, and presents areas of known controversy and issues left to be resolved.
- **Chapter 6, Alternatives.** This chapter presents alternatives to the Waterfront Plan, including the No Project Alternative and the Lower Growth Alternative.
- **Chapter 7, Report Preparers.** This chapter presents the persons involved in preparing this Draft EIR.
- **Appendices.** Appendices include Appendix A, Notice of Preparation and Comments Received; Appendix B, Initial Study; Appendix C, Growth Projections Memorandum; Appendix D, Waterfront Plan Historic Resources Inventory and Summary Report; Appendix E, Waterfront Plan EIR – Estimation of Proposed Travel Demand; Appendix F, Supporting Documentation for Noise Analysis; Appendix G, Waterfront Plan Air Quality Technical Memorandum and Health Risk Assessment; and Appendix H, Plant and Wildlife Species Lists and Potential to Occur in the Study Area.

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CHAPTER 2

PROJECT DESCRIPTION

2.A Overview

The Port of San Francisco’s proposed 2019 Draft Waterfront Plan (Waterfront Plan) would update and amend the 1997 Waterfront Land Use Plan (1997 Plan), which sets long-term goals and policies to guide the use, management, and improvement of 7.5 miles of properties owned and managed by the Port, from Fisherman’s Wharf to India Basin. The area encompassed by the Waterfront Plan, referred to as the “Plan area,” includes approximately 800 acres (see **Figure 2-1**), and is the same area covered by the 1997 Plan.

The Plan area is generally bounded to the north by Hyde Street Pier and Jefferson Street in Fisherman’s Wharf, and includes piers and upland properties adjacent to The Embarcadero including Oracle Park; piers and waterfront properties adjacent to Terry A. Francois Boulevard in Mission Bay; and properties generally east of Illinois Street south of Mission Bay to Cargo Way in India Basin.

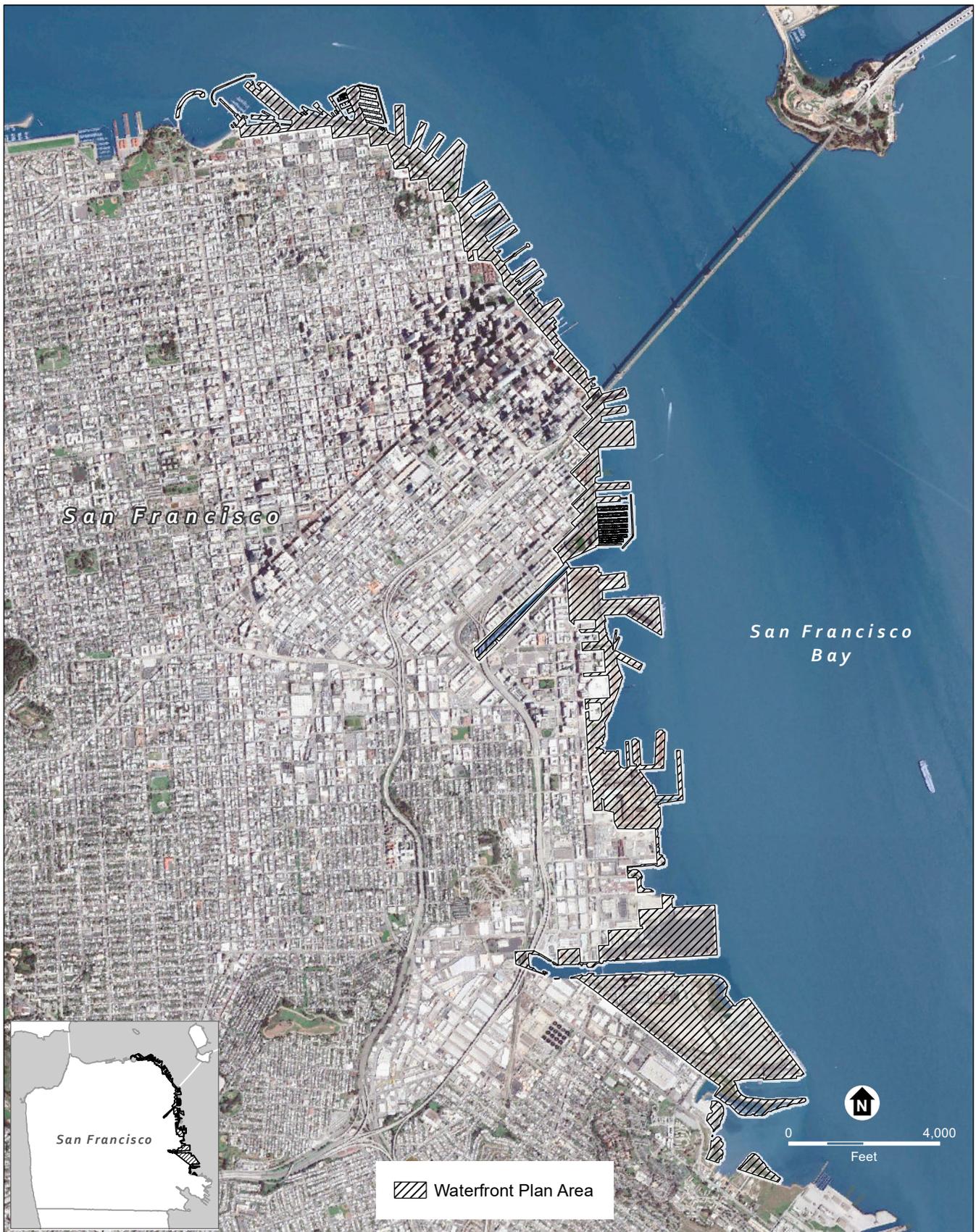
2.B The Waterfront Plan

2.B.1 Plan Vision

The Waterfront Plan seeks to preserve and enhance public use and enjoyment of the waterfront for San Francisco, Bay Area, and California residents. The Waterfront Plan sets forth goals and policies to support a wide range of public objectives to (1) function as a maritime port; (2) host a diversity of activities and people; (3) enhance public access and open space along the waterfront; (4) design quality new development while preserving the waterfront’s historic character; (5) ensure a financially secure Port with economic access for all; (6) ensure accessible and safe transportation and mobility for people and goods; (7) cultivate an environmentally sustainable port to limit the impacts of climate change; (8) strengthen the Port’s resilience to climate change impacts; and (9) strengthen Port partnerships and engagement, with equity and inclusion of communities that historically have been overlooked or excluded in land use and public policy decisions.

2.B.2 Waterfront Plan Background

The Waterfront Plan governs the use, design, and improvement of properties under its jurisdiction, which include historic piers, shoreline, and upland properties. In 1990, San Francisco voters approved Proposition H, which required the Port to produce a “waterfront land use plan” to guide development on Port piers and facilities closest to the San Francisco Bay (the bay). The Port convened a Waterfront Plan Advisory Board to produce a comprehensive plan, resulting in the Port’s first Waterfront Land Use Plan approved by the Port Commission in 1997 (1997 Plan). The 1997 Plan was developed pursuant to Proposition H. The goals and policies in the 1997 Plan have guided the development of new parks, maritime facilities, historic rehabilitation, and development projects on Port properties. Since its adoption in 1997, the Waterfront Plan has guided a transformation that has opened Port piers to the public while maintaining and enhancing maritime operations. The 1997 Plan also has fostered new partnerships and public and private financial investments in integrating maritime industry, commerce, recreation, and neighborhood uses.



SOURCE: Google, 2020; San Francisco Planning Department, 2018; SF Port, 2020; ESA, 2021

Waterfront Plan

FIGURE 2-1
PROJECT LOCATION MAP

Seven goals guided the land use and governance policies in the 1997 Plan:

- A Working Waterfront: meet needs for continued operation of maritime activities on the waterfront;
- A Revitalized Port: acquire new investments to increase jobs, revenues, and amenities;
- A Diversity of Activities and People: host a compelling variety of maritime, commercial, entertainment, civic, open space, recreation, and other waterfront activities;
- Access Along the Waterfront: improved access and quality of the waterfront through a network of parks, plazas, walkways, open spaces; and transportation;
- An Evolving Waterfront: Improvements should preserve the historic character of the waterfront
- Urban Design Worthy of the Waterfront Setting: exemplary design of new developments should highlight visual and physical access to and from the bay while preserving the waterfront’s historic character; and
- Economic Access That Reflects the Diversity of San Francisco: waterfront economic opportunities should be accessible, reflecting the gendered, ethnic, and cultural diversity of San Francisco.

The 1997 Plan has been amended several times. The most comprehensive amendments were approved in 2000 to align the Plan’s policies with the San Francisco Bay Conservation Development Commission (BCDC) San Francisco Waterfront Special Area Plan. In 2015, the Port produced a comprehensive report, the *Waterfront Land Use Plan 1997–2014 Review*, which presented an assessment of land use improvements and changes during the 17 years since the 1997 Plan was adopted.¹⁷ The comprehensive review also identified policy needs and challenges that dictated recommendations for an update of the 1997 Plan. The review findings and recommendations provided the starting point for a three-year planning process by the Waterfront Plan Working Group (supported by seven Advisory Teams), which was charged with developing Port-wide policy recommendations for how best to update the 1997 Plan. The Waterfront Plan Working Group explored various land use, transportation, resilience, and other issues during the planning process, leading to public recommendations about how the Port waterfront should be improved in the future, which was then incorporated in the Draft Waterfront Plan published in June 2019 for public review and comment through October 2019. Revisions to the 2019 Draft Waterfront Plan were made to address refinements or public comment issues raised during the public review process, and the Plan was republished in December 2019, which is the current Waterfront Plan.

2.B.3 Plan Structure

The Waterfront Plan sets forth nine Port-wide primary goals, which are supported by policies that provide direction for managing and improving the waterfront throughout the Port’s 7.5-mile jurisdiction. The Plan then identifies five distinct waterfront subareas, each with their own set of objectives to guide planning, development, leasing, and stewardship within each subarea.¹⁸ The subarea objectives stem from the Plan’s primary goals and policies. The subarea objectives focus on preserving the strengths of each subarea, guiding actions to address remaining or ongoing challenges, and ensuring that waterfront development complements adjacent neighborhoods.

¹⁷ Port of San Francisco, *Waterfront Land Use Plan Review, 1997–2014*, June 2015, <https://sfport.com/waterfront-land-use-plan-review-1997-2014>, accessed August 8, 2020.

¹⁸ The 1997 Plan contained a similar structure but divided Port lands into somewhat different subareas. The primary differences were that the 1997 Plan included a separate subarea for the Ferry Building, which is largely contained within the Waterfront Plan’s Northeast subarea, with the southern portion contained within the Plan’s South Beach subarea. The 1997 Plan also combined South Beach and China Basin into a single subarea. China Basin is now located in the Mission Bay subarea in the Waterfront Plan.

The goals, policies, and objectives function together to guide implementation of the Waterfront Plan. Goals are the broadest, most important aspirations and reflect the Plan's highest priorities. Plan policies are statements of intent, requirements and protocols in greater specificity to guide land use decisions and implementation of waterfront improvements to achieve the Plan's goals and desired outcomes. The subarea objectives provide further site-specific guidance for improvements in defined geographic areas, including Fisherman's Wharf, the Northeast Waterfront, South Beach, Mission Bay, and the Southern Waterfront, consistent with the Plan's goals and policies.

2.C Project Sponsor Objectives

Project objectives define the project's intent, explain the project's underlying purpose, and facilitate the formation of project alternatives evaluated in this Draft EIR. As the project sponsor, the Port seeks to achieve the following objectives:

1. Approve amendments to the Waterfront Plan to incorporate updated information, goals, policies, and objectives developed through a public process that describe public and Port Commission values, to provide policy direction for projects, investments, and stewardship programs that protect and improve properties and resources owned and managed by the Port of San Francisco.
2. Preserve and enhance diverse maritime uses and operations by providing for the current and future needs of cargo shipping, cruise, ferry and water taxis, excursion boats, fishing, ship repair, berthing, harbor services, recreational boating, and other water-dependent activities, consistent with Proposition H approved by San Francisco voters in 1990.
3. Complete, enhance, and activate the Port's network of parks, public access, and natural areas along the 7.5-mile bay shoreline to provide recreational, social, and open space benefits for residents and visitors of all races, ages, and abilities, including historically marginalized communities.
4. Support a vibrant urban waterfront with commercial and industrial businesses, and public-oriented entertainment, civic, cultural, and recreational activities that respect maritime needs, activate waterfront parks, and equitably serve and attract visitors of all races, ages, and economic means.
5. Ensure that new public and private investments stimulate waterfront revitalization and resilience improvements and support a financially secure Port enterprise, equitably providing new jobs and economic opportunities, revenues, public amenities, and other public trust benefits for the diverse residents of San Francisco and California.
6. Design waterfront projects that highlight visual and physical connections to the city and San Francisco Bay, promote rehabilitation of Port maritime historic and cultural resources, and respect the character of adjacent neighborhoods.
7. Ensure that the waterfront is accessible and safe for all users through sustainable transportation that serves the needs of workers, neighbors, visitors, and Port maritime and tenant operations.
8. Limit the impacts of climate change, improve the ecology of the bay and its environs, and ensure healthy waterfront neighborhoods by meeting the highest standards for environmental sustainability, stewardship, and justice.

9. Strengthen Port resilience to hazards and promote adaptation to climate change and rising tides through equitable investments to protect community, ecological, historic, and economic assets and services along its 7.5-mile waterfront.
10. Strengthen Port public engagement to increase understanding of Port and community needs, including the needs of historically marginalized communities of color, in lease and project approval processes, and to promote public agency partnerships to align policies and regulations to achieve waterfront projects and programs for the benefit of San Francisco and California.

2.D Project Location

The Port of San Francisco’s waterfront extends along 7.5 miles of San Francisco Bay. The Plan area is generally bounded to the north by Hyde Street Pier and Jefferson Street in Fisherman’s Wharf, and includes piers and upland properties adjacent to The Embarcadero including Oracle Park; piers and waterfront properties adjacent to Terry A. Francois Boulevard in Mission Bay; and properties generally east of Illinois Street south of Mission Bay to Cargo Way in India Basin (see Figure 2-1, p. 2-2). The Waterfront Plan divides the waterfront into the Northern Waterfront and Southern Waterfront, with five subareas, as shown in **Figure 2-2**. The geographic boundaries and approximate acreage of each subarea is shown in **Table 2-1**.

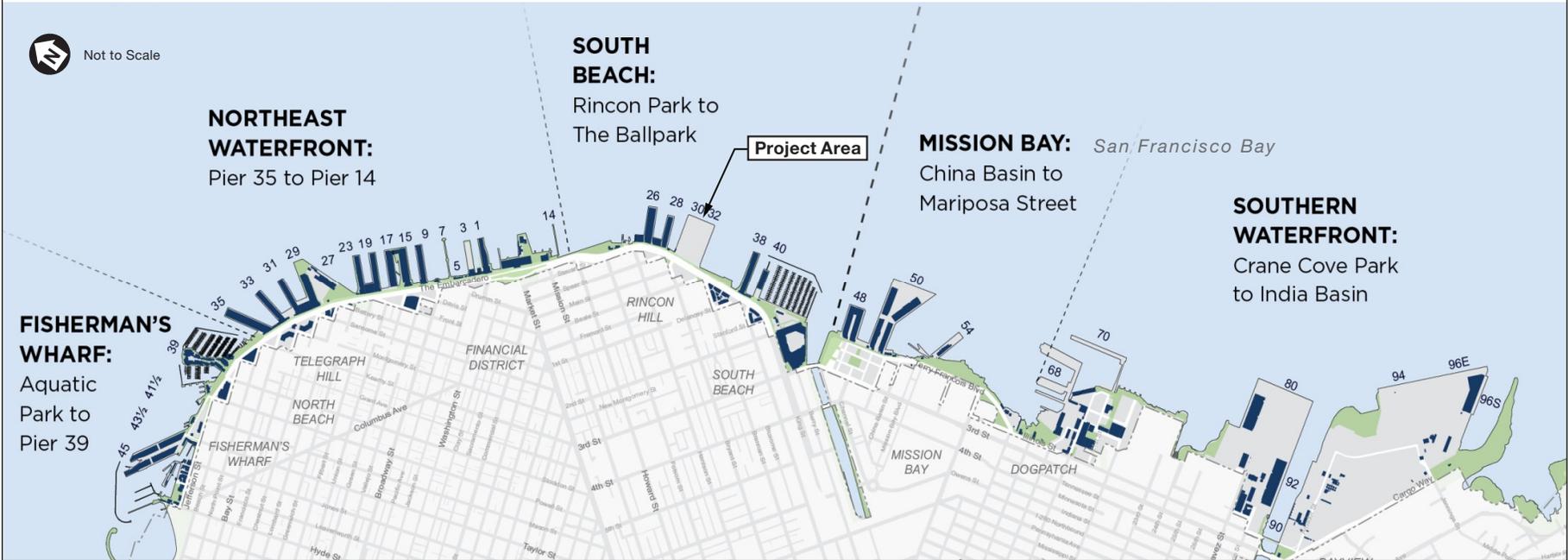
Table 2-1 Waterfront Subareas

Waterfront	Subareas	Geographic Boundaries	Area (acres)
Northern	Fisherman’s Wharf	Aquatic Park to Pier 39	117
	Northeast Waterfront	Pier 35 to Pier 14	73
	South Beach	Rincon Park to Oracle Park	90
Southern	Mission Bay	China Basin to Mariposa Street	102
	Southern Waterfront	Crane Cove Park to India Basin	417

SOURCE: Port of San Francisco and ESA, 2020

2.D.1 The Northern Waterfront Subareas

The three Northern Waterfront subareas: Fisherman’s Wharf, Northeast Waterfront, and South Beach, share a similar architectural character and land use history. The historic finger piers and bulkhead buildings of the Embarcadero Historic District are defining elements that span all three subareas. The subareas in the Northern Waterfront include a transportation network and a pedestrian promenade that begins along Jefferson Street in Fisherman’s Wharf, which connects to The Embarcadero extending through the Northeast and South Beach waterfront subareas and ends at Oracle Park.



SOURCE: Port of San Francisco, Waterfront Plan, June 2019

Waterfront Plan Update

FIGURE 2-2
WATERFRONT PLAN SUBAREAS

FISHERMAN'S WHARF SUBAREA

The approximately 117-acre Fisherman's Wharf subarea extends from the east end of Aquatic Park to the east side of Pier 39, an area of shoreline located roughly between Hyde and Kearny streets (refer to **Figure 2-3**). Current land uses in the Fisherman's Wharf subarea include commercial and industrial fishing, maritime activities, and retail, restaurant, and entertainment uses, including many tourism-related businesses. The commercial fishing industry is centered at Pier 45 where fishing boat operations, fish processing and distribution are based. Other facilities include the 62-berth Hyde Street Fishing Harbor, fishing businesses at Seawall Lots¹⁹ 302 and 303, and fishing vessel berthing in the Inner and Outer Lagoons.

The subarea also includes other maritime activities in addition to fishing, such as ferries and excursions at Piers 41 and 43½, along with the Pier 39 recreational boating marinas and the Aquatic Park swim club docks managed by the San Francisco Recreation and Parks Department (parks department). Commercial waterfront land uses include Pier 39, restaurants, retail, and hotel. Piers 45 and 43 are historic resources within the Embarcadero Historic District, which includes historic finger piers, as well as bulkhead and wharf structures extending from Fisherman's Wharf to Pier 48 in the Mission Bay subarea.

Streets in the vicinity that provide access to the subarea include north-south streets, Van Ness Avenue and Hyde Street, and the east-west Jefferson Street. Pier 39 is accessible via the north-south streets, Powell and Stockton streets, and along The Embarcadero.

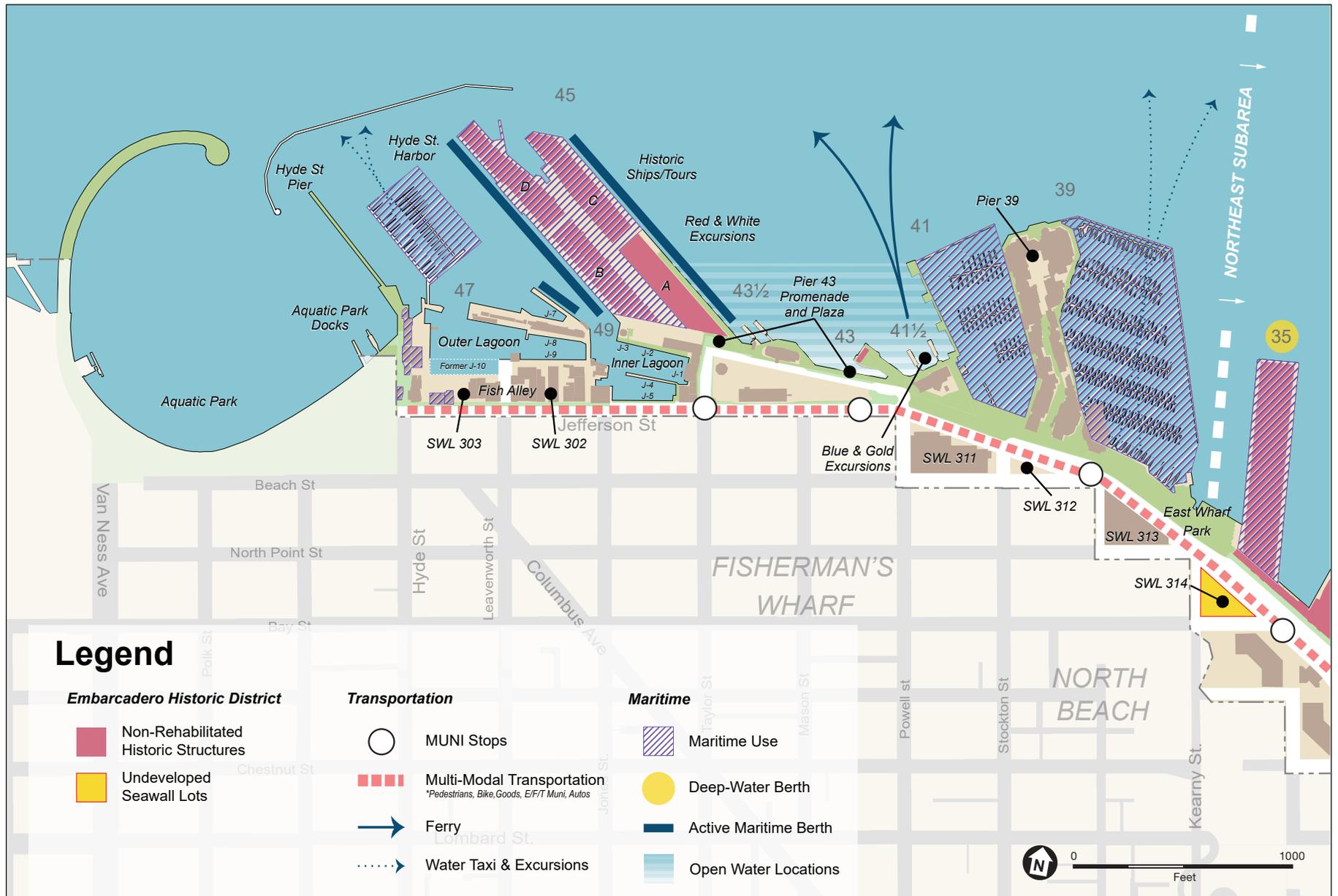
There are a number of public transit routes that provide access to the subarea, including the San Francisco Municipal Railway (Muni) E/F Embarcadero and Market & Wharves lines along The Embarcadero and Jefferson Street, the Powell/Hyde Cable Car line, along with bus routes 19-Polk, 30-Marina, 47-Van Ness, and 39-Coit. Water transportation is provided to Fisherman's Wharf by water taxi service at Hyde Street Fishing Harbor and Pier 39, and by ferry service at Piers 41 and 43½.

The Port's piers and seawall lots in the Fisherman's Wharf subarea are located within two zoning districts, Public (P) and Community Business (C-2), and some seawall lots in C-2 that are also within the Waterfront Special Use Districts (SUDs) 1 and 3. The existing subarea zoning districts are shown in **Figure 2-4**, p. 2-9, and the existing SUDs are shown in **Figure 2-5**, p. 2-10. Port properties in the Fisherman's Wharf subarea are located in a 40X height and bulk district, which limits new buildings to a maximum height of 40 feet (see Figure 2-5). In addition, these properties are within Waterfront SUD 1, and are subject to waterfront design review requirements for major non-maritime development projects. Northeast Waterfront subarea.

NORTHEAST WATERFRONT SUBAREA

The approximately 73-acre Northeast Waterfront extends from Pier 35 to Pier 14 along The Embarcadero, an area located roughly between Kearny Street to the north of The Embarcadero and Howard Street to the south (see **Figure 2-6**, p. 2-11).

¹⁹ A seawall lot is Port jurisdiction on the inland side of The Embarcadero roadway, which generally sits atop a seawall built in the 19th century to create the current shoreline of San Francisco. The seawall lots originally functioned as support areas for the Port's cargo shipping, warehousing, and ferry operations, including some that served as rail facilities.



SOURCE: Port of San Francisco, Waterfront Plan, 2019

Waterfront Plan

FIGURE 2-3
FISHERMAN'S WHARF SUBAREA



SOURCE: Google, 2020; San Francisco Planning Department, 2018; SF Port, 2020; ESA, 2021

Waterfront Plan

FIGURE 2-5
FISHERMAN'S WHARF SUBAREA EXISTING SPECIAL USE
DISTRICTS AND HEIGHT AND BULK DISTRICTS



SOURCE: Port of San Francisco, Waterfront Plan, 2019

Waterfront Plan

FIGURE 2-6
NORTHEAST WATERFRONT SUBAREA

Chapter 2. Project Description

2.D. Project Location

The Northeast Waterfront is part of a former maritime and industrial district that has evolved into a mixed-use neighborhood. Although cargo activities have relocated to the Southern Waterfront, the Northeast Waterfront subarea includes the Port's cruise operations at the Pier 27 James R. Herman Cruise Terminal and at Pier 35, as well as long-term and temporary berthings for a wide variety of vessels. This subarea also supports harbor services, including ferry, bar pilots and tugboat and towboat operations,²⁰ and the Downtown Ferry Terminal, Golden Gate Transit, and Water Taxi transportation services. The Northeast Waterfront includes the Ferry Building, Piers 1–5, and Pier 15, which are Embarcadero Historic District structures that have been rehabilitated for commercial office, retail, restaurant, recreational, and maritime uses. Parks and open spaces in this subarea include the Pier 27 Cruise Terminal Park, Harry Bridges Plaza, Downtown Ferry Terminal Plaza, and Piers 7 and 14, none of which are under the jurisdiction of the parks department.

In addition to The Embarcadero, major streets that provide access to the subarea include Broadway and Bay and Market streets. Public transit serving the subarea includes Muni E Embarcadero and F Market & Wharves historic streetcar lines along The Embarcadero; light rail lines J, K, L, M, N, and T; and bus routes 1 California, 6 Haight/Parnassus, 8 Bayshore, 7X Noriega Express, 14 Mission, 14X Mission Express, 21 Hayes, 31 Balboa, 39 Coit, and 82X Levi Plaza Express. Water transportation is provided to the Northeast Waterfront by water taxi service between Piers 9 and 15, and by ferry service at the Ferry Building. The Ferry Building area also supports BART transbay utilities and public transit service.

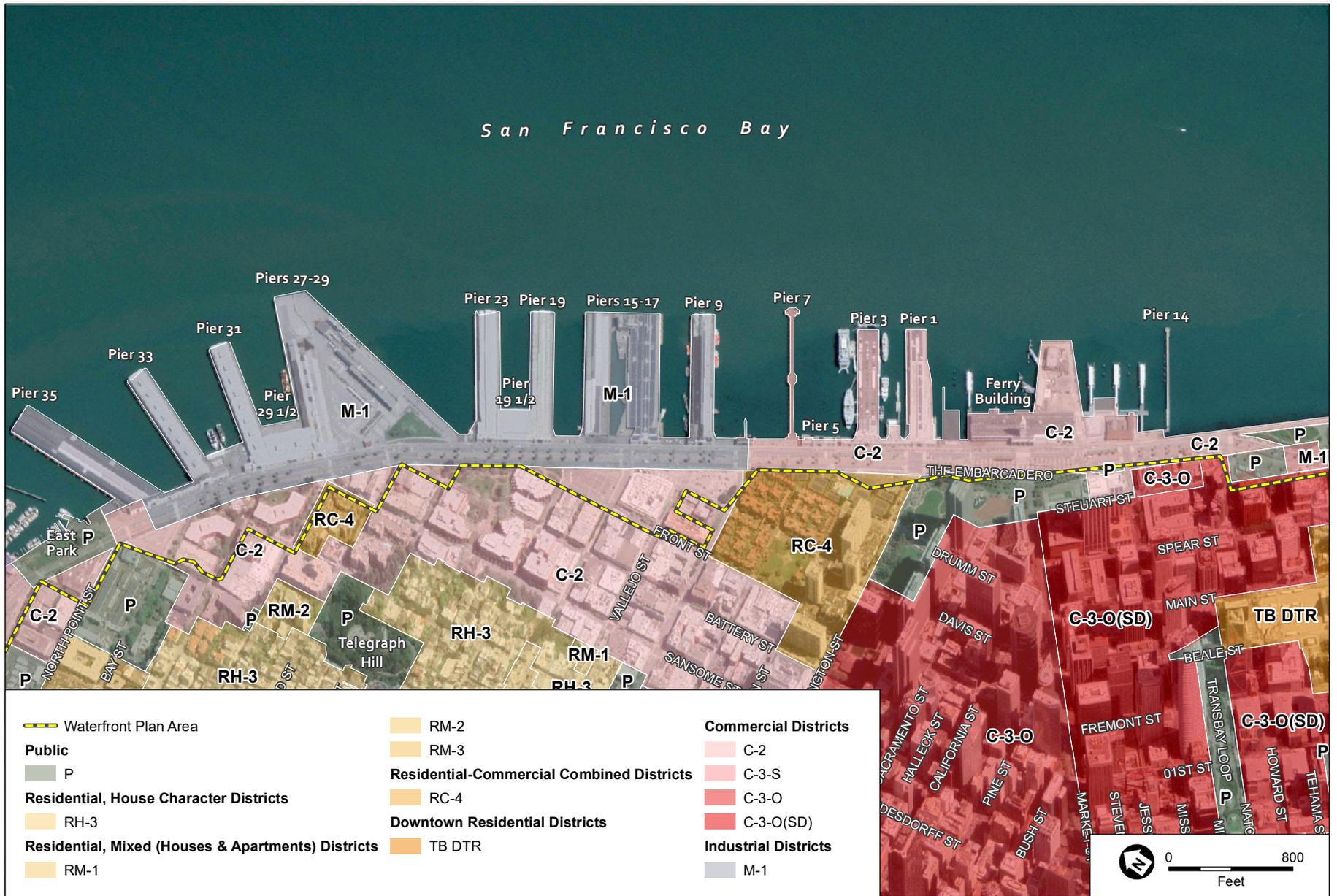
The Port's seawall lots in the Northeast Waterfront are located within two zoning districts—Public (P) and Community Business (C-2). The Port's piers are located within zoning districts M-1 and C-2, as shown in **Figure 2-7**. In addition, pier facilities in this subarea are within Waterfront SUD 1, and Port-owned seawall lots are within Waterfront SUD 3; properties within these SUDs are subject to waterfront design review requirements for major non-maritime development projects (see **Figure 2-8**, p. 2-14). Figure 2-8 shows the height and bulk districts in the Northeastern Waterfront subarea; the majority of the area between North Point Street and Broadway is located in a 40X district, which limits new buildings to a maximum height of 40 feet. Between Broadway and Mission Street in the Ferry Building area, the maximum building height limit is generally 84 feet.

SOUTH BEACH SUBAREA

The approximately 90-acre South Beach subarea extends from Rincon Park to Oracle Park. South Beach is an area along The Embarcadero that is located roughly between Howard Street to the north and King/Third Street to the south (see **Figure 2-9**, p. 2-15).

This subarea is a former heavy industrial maritime area. The current land uses include open space, industrial, mixed-use residential, commercial, and maritime support. San Francisco Fire Department fire boats and a fire station are located at Pier 22½; other piers support vessel layberthing (long-term berthing); Piers 30–32 provides a deepwater berth used as a back-up cruise berth for visiting vessels and emergency response vessels; and South Beach Harbor includes a 700-berth pleasures craft marina, water recreation (e.g., kayak rentals), and water transportation services. Like the Northeast Waterfront and Fisherman's Wharf subareas, the South Beach subarea is a destination for excursion and recreational boating and water recreation, as well as sporting and special events held at Oracle Park. Parks and open spaces in this subarea include Rincon Park, Brannan Street Wharf, South Beach Park, and the PortWalk along Oracle Park. Note that none of these open spaces are under the jurisdiction of the parks department.

²⁰ Bar pilots are ship pilots with special local knowledge who are responsible for piloting large marine vessels from outside the Golden Gate to berths in San Francisco, San Pablo, and Suisun bays and back out to sea.



SOURCE: Google, 2020; San Francisco Planning Department, 2018; SF Port, 2020; ESA, 2021

Waterfront Plan

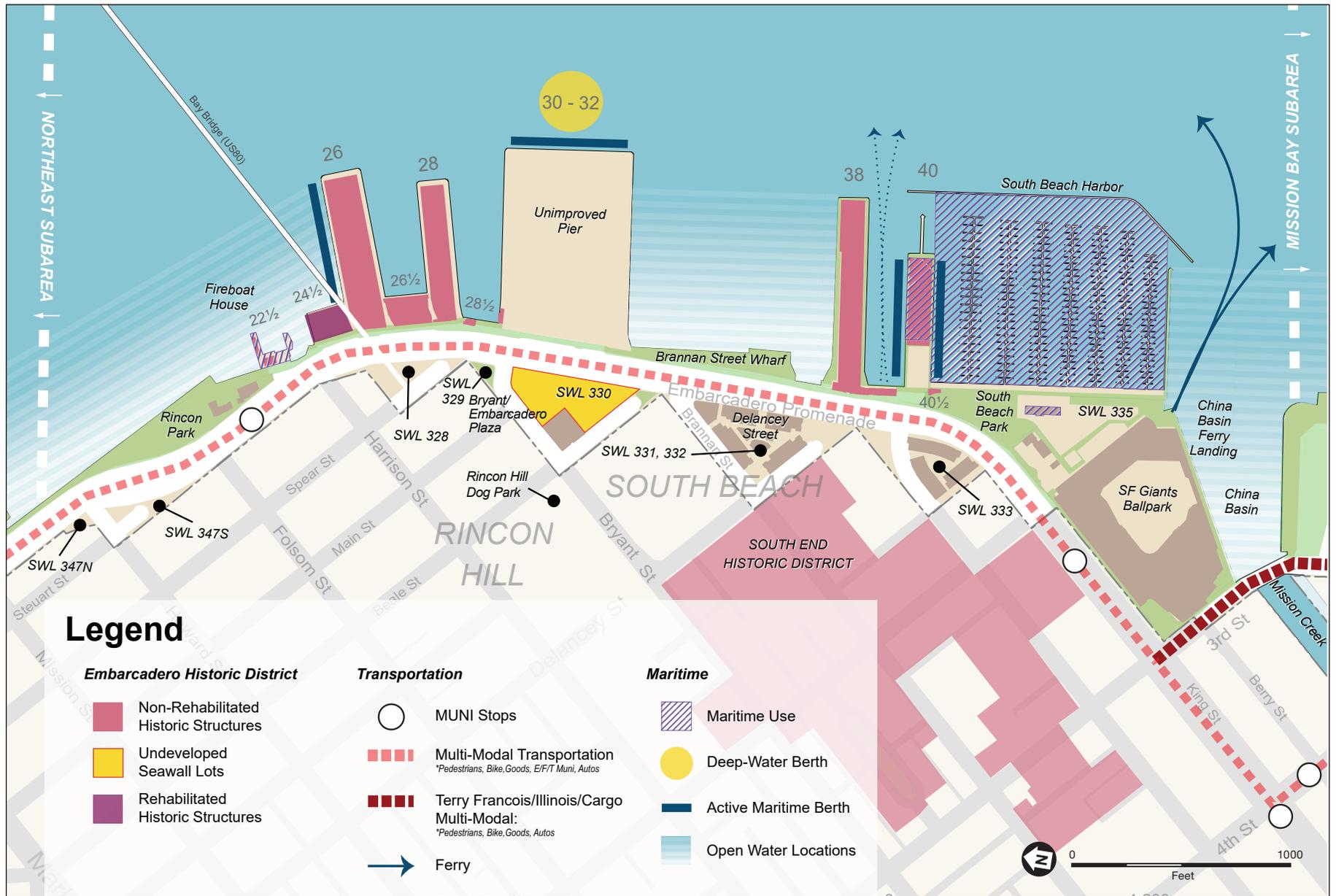
FIGURE 2-7
NORTHEAST WATERFRONT SUBAREA ZONING DISTRICTS



SOURCE: Google, 2020; San Francisco Planning Department, 2018; SF Port, 2020; ESA, 2021

Waterfront Plan

FIGURE 2-8
NORTHEAST WATERFRONT SUBAREA EXISTING SPECIAL USE
DISTRICTS AND HEIGHT AND BULK DISTRICTS



SOURCE: Port of San Francisco, Waterfront Plan, 2019

Waterfront Plan

FIGURE 2-9
SOUTH BEACH SUBAREA

Major streets in the subarea include Howard, Harrison, Bryant, and Brannan streets that intersect with The Embarcadero, and Second and Third streets that intersect with King Street adjacent to Oracle Park. Public transit in the subarea is served by Muni light rail lines N and T, along with bus routes 10-Townsend, 30-Stockton, 30X-Marina Express, 45-Union/Stockton, and 82X-Levi Plaza Express. Water transportation is provided to and from South Beach by water taxi service between Piers 28 and 40, and by ferry service at the China Basin Ferry Landing for special events at Oracle Park.

The Port seawall lots in South Beach are located within three zoning districts—Public (P), Light Industrial (M-1), and South Beach Downtown Residential (SB-DTR). The Port piers are located within M-1, Heavy Industrial (M-2), and Community Business (C-2) zoning districts (see **Figure 2-10**). Pier facilities in this subarea are within Waterfront SUD 1, and Port-owned seawall lots are within Waterfront SUD 3; properties within these SUDs are subject to waterfront design review requirements for major non-maritime development projects (see **Figure 2-11**, p. 2-18). As shown in Figure 2-11, piers in this subarea are located in a 40X height and bulk district, which limits new buildings to a maximum height of 40 feet. The building height limit for seawall lot properties varies between 45 and 105 feet, with a 150-foot height limit for Oracle Park.

2.D.2 The Southern Waterfront Subareas

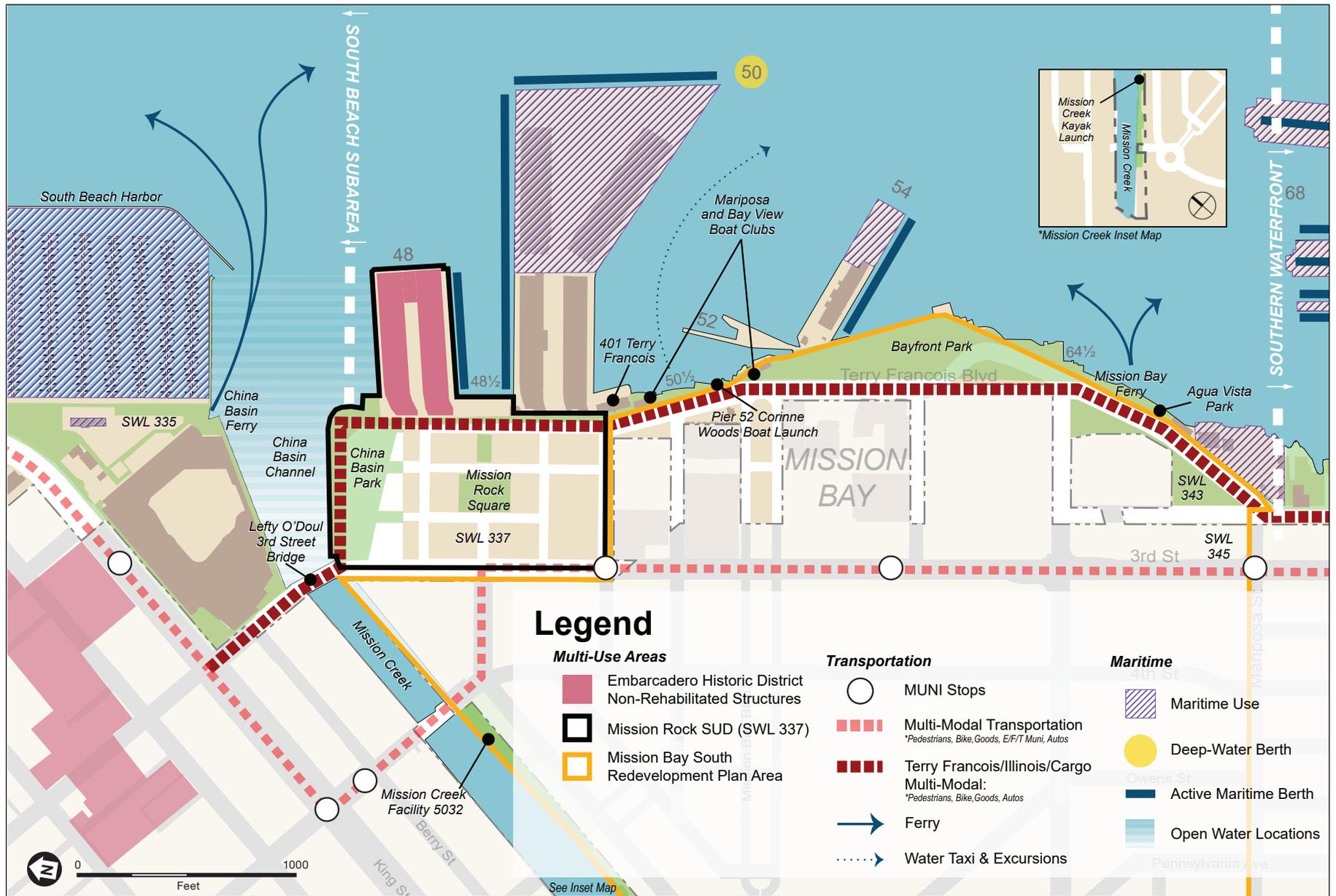
The two Southern Waterfront subareas, Mission Bay and Southern Waterfront, include China Basin/Mission Creek to the north and Port properties that extend south to Heron’s Head Park at India Basin. This geography includes the Blue Greenway network of parks, public access, natural habitat, and water recreation facilities. The Southern Waterfront subareas include a variety of maritime operations including harbor services, ferries and cargo shipping along with waterfront parks and direct bay access; new mixed-use neighborhoods; commercial, residential, and recreational uses; and light industrial activities.

MISSION BAY SUBAREA

The approximately 98-acre Mission Bay subarea extends from China Basin Channel/Mission Creek to the north to Mariposa Street to the south (see **Figure 2-12**, p. 2-19). The Mission Bay South Redevelopment Plan area has been developed by the San Francisco Office of Community Investment and Infrastructure (successor agency to the San Francisco Redevelopment Agency), converting former railyards and industrial lands into a new neighborhood with the University of California, San Francisco (UCSF) Mission Bay campus, UCSF hospital, and biotechnology, commercial, and residential developments, as well as the Chase Center Golden State Warriors’ basketball arena complex. Bayfront Park, created as part of this redevelopment effort, includes some Port shoreline property.

Port properties in the Mission Bay subarea adjacent to the Redevelopment Plan area include China Basin, Pier 52 Corrine Woods Public Boat Launch, and the Terry A. Francois Boulevard public realm. Improvement of these properties have been planned in concert with the Mission Bay redevelopment and the Mission Rock project, which is comprised of Port-owned Seawall Lot 337 and Pier 48.²¹ The Mission Bay subarea also includes Pier 50, which includes the Port’s Maintenance Center, and supports harbor services and light industrial tenants, and layberthing of U.S.

²¹ The Mission Rock project includes a multi-phase, mixed-use development approved by the City that was analyzed in the Seawall Lot 337 and Pier 48 Mixed-Use Project FEIR, certified on October 5, 2017, as part of Case No. 2013.0208E. This document (and all documents cited in this Draft EIR unless otherwise noted) is available for review on the following website: <https://sfplanning.org/resource/permits-my-neighborhood>. Individual files related to environmental review can be accessed by entering the project address into the search box, clicking on the blue dot on the project site, and then clicking on the “Documents” button under the ENV application number on the right side of the screen. Project application materials can be viewed by clicking on the “Documents” button under the PRJ case number. The “Filters” function can be used to search by case number.



SOURCE: Port of San Francisco, Waterfront Plan, 2019

Waterfront Plan

FIGURE 2-12
MISSION BAY SUBAREA

Chapter 2. Project Description

2.D. Project Location

Maritime Administration deepwater vessels. Park, commercial, and maritime boatyard uses occupy Port properties at the south end of the Mission Bay subarea. As part of implementation of the Waterfront Plan, the Port would allow cruise ships to dock at Pier 50, which has shoreside power that can be upgraded to support cruise vessels, as an alternate location to Pier 35, which does not have shoreside power. Allowing cruise ships to dock at Pier 50 would not induce demand nor increase the number of cruise ships docking annually on Port property.

Major streets in the subarea include Terry A. Francois Boulevard along the waterfront and Third, 16th, and Mariposa streets. Public transit in the subarea is served by Muni T Third light rail line, along with the 55 16th Street bus route. Parks and open spaces in this subarea outside of the Mission Rock SUD include Bayfront Park, Agua Vista Park, and Mission Creek Park, none of which are under the jurisdiction of the parks department.

The Port piers and seawall lots in Mission Bay are located within four zoning districts—Public (P), Mission Bay Redevelopment (MB-RA),²² Mission Rock SUD and Mixed Use (MR-MU), and Heavy Industrial (M-2). The existing subarea zoning districts are shown in **Figure 2-13**, and the existing SUDs and height and bulk districts are shown in **Figure 2-14**, p. 2-22. As shown in Figure 2-14, with the exception of the Mission Rock SUD, this subarea is located in a 40X height and bulk district, which limits new buildings to a maximum height of 40 feet.

SOUTHERN WATERFRONT SUBAREA

The approximately 417-acre Southern Waterfront extends from Pier 70 to India Basin, and is located roughly between Mariposa Street and Hunters Point Boulevard (see **Figure 2-15**, p. 2-23). The Southern Waterfront subarea includes a mix of land uses, including the Pier 70 SUD and 20th Street Historic Core rehabilitation project to support commercial, residential, and industrial/Production, Distribution, and Repair (PDR) uses, Blue Greenway parks, and the Port's cargo terminal, maritime and industrial operations.²³ The subarea also includes a portion of the Potrero Power Station SUD, which is between the Pier 70 SUD and Warm Water Cove.²⁴ Other maritime support uses, including harbor services and layberths, are sited in this subarea. Industrial activity in this area is also interspersed with natural habitat, habitat restoration, public access, and water recreation areas.

Major streets in the subarea include Third, Mariposa, Illinois, 20th, 22nd, 24th, 25th, and Cesar Chavez streets, Cargo Way, and Evans Avenue. Public transit in the subarea is served by Muni light rail T line, along with bus routes 19 Polk, 22 Fillmore, 44 O'Shaughnessy, 48 Quintara/24th Street, and 54 Felton. Parks and open spaces in this subarea include China Basin and Bayfront parks, and the Terry A. Francois Boulevard public realm, Crane Cove Park, Warm Water Cove, Bayview Gateway, and Herons Head Park and EcoCenter. (None of these open spaces is under the jurisdiction of the parks department.)

²² MB-RA is a designation on Planning Code Zoning Map ZA-08 that is coterminous with the Mission Bay South and Mission Bay North Redevelopment Areas.

²³ The Pier 70 project includes a multi-phase, mixed-use development approved by the City that was analyzed in the Pier 70 Mixed-Use District Project FEIR, certified on August 24, 2017, as part of Case No. 2014.001272ENV.

²⁴ The Potrero Power Station project includes a multi-phase, mixed-use development approved by the City that was analyzed in the Potrero Power Plant Mixed-Use Project FEIR, certified on January 30, 2020, as part of Case No. 2017-011878ENV.



SOURCE: Google, 2020; San Francisco Planning Department, 2018; SF Port, 2020; ESA, 2021

Waterfront Plan

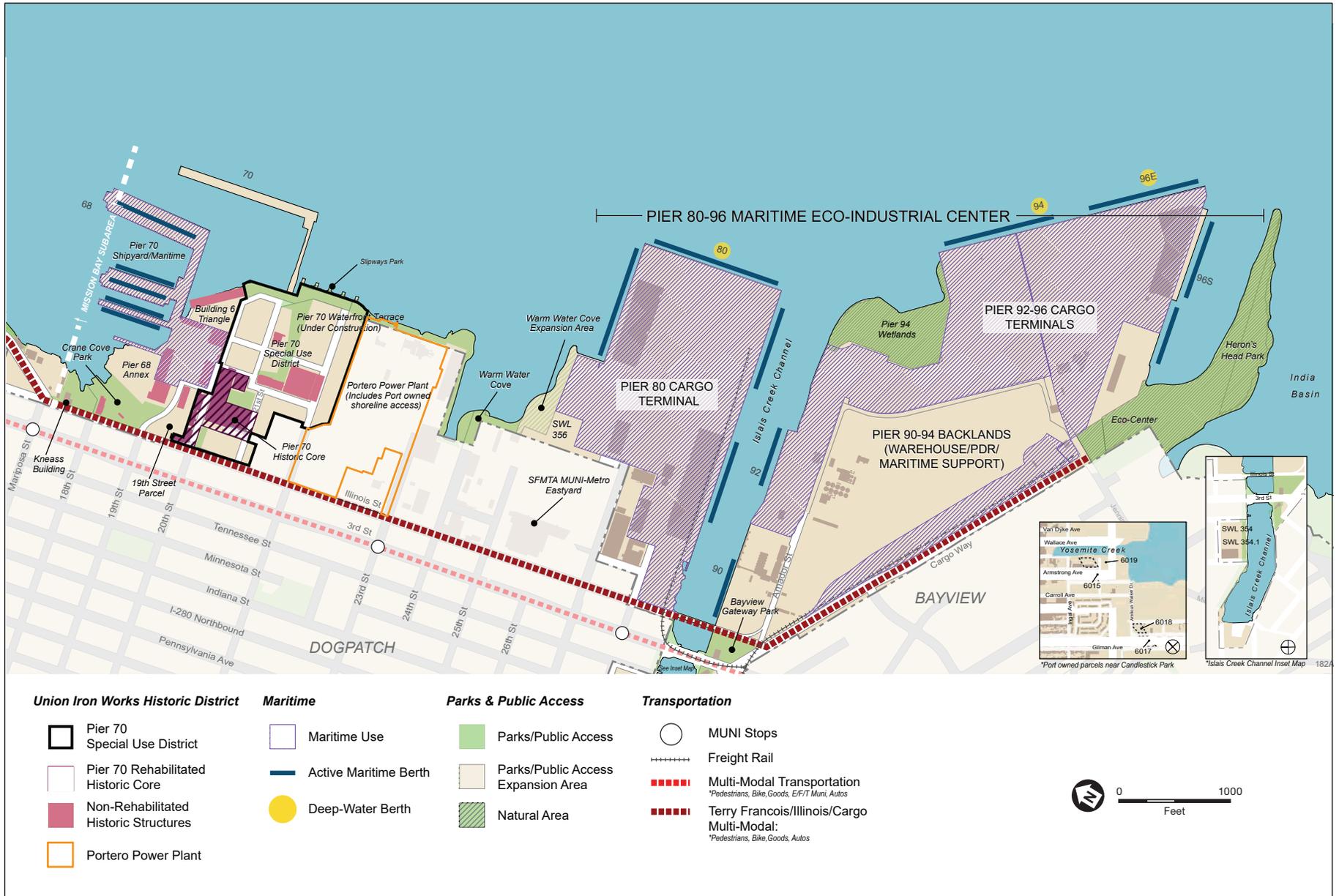
FIGURE 2-13
MISSION BAY SUBAREA ZONING DISTRICTS



SOURCE: Google, 2020; San Francisco Planning Department, 2018; SF Port, 2020; ESA, 2021

Waterfront Plan

FIGURE 2-14
MISSION BAY SUBAREA EXISTING SPECIAL USE
DISTRICTS AND HEIGHT AND BULK DISTRICTS



SOURCE: Port of San Francisco, Waterfront Plan, 2019

Waterfront Plan

FIGURE 2-15
SOUTHERN WATERFRONT SUBAREA

The Port piers and seawall lots in the Southern Waterfront are located within the Heavy Industrial (M-2) and Public (P) zoning districts. Pier 70 and associated seawall lots are within the Pier 70 SUD, which includes zoning and building height limits for that area. Port-owned shoreline access is within the Potrero Power Station SUD, which also includes zoning and building height limits. The existing subarea zoning districts are shown in **Figure 2-16**, and the existing SUDs and height and bulk districts are shown in **Figure 2-17**, p. 2-26. As shown in Figure 2-17, with the exception of the Pier 70 SUD and the Potrero Power Station SUD, this subarea is located in a 40X height and bulk district, which limits new buildings to a maximum height of 40 feet.

2.D.3 Zoning Regulations and Ballot Measures

The majority of Port lands are zoned C-2 (Community Business), M-1 (Light Industry), or M-2 (Heavy Industry) districts that allow the mix of maritime industries and non-maritime uses in the Waterfront Plan area. Zoning for the five subareas are described above and shown in Figure 2-4, p. 2-9; Figure 2-7, p. 2-13; Figure 2-10, p. 2-17; Figure 2-13, p. 2-21; and Figure 2-16, p. 2-25. Height and bulk districts for the five subareas are described above and shown in Figure 2-5, p. 2-10; Figure 2-8, p. 2-14; Figure 2-11, p. 2-18; Figure 2-14, p. 2-22; and Figure 2-17, p. 2-26. Pursuant to Proposition B (2014), any change to building height limits for Port-owned property requires approval by San Francisco voters. No changes to the underlying zoning or height and bulk districts are proposed as part of the Waterfront Plan.

The Waterfront Plan was prepared in conformance with Proposition H, approved by San Francisco voters in 1990, which describes land use provisions and controls for Port piers and properties within 100 feet of the shoreline; Proposition H includes a prohibition of development of hotels on these properties.

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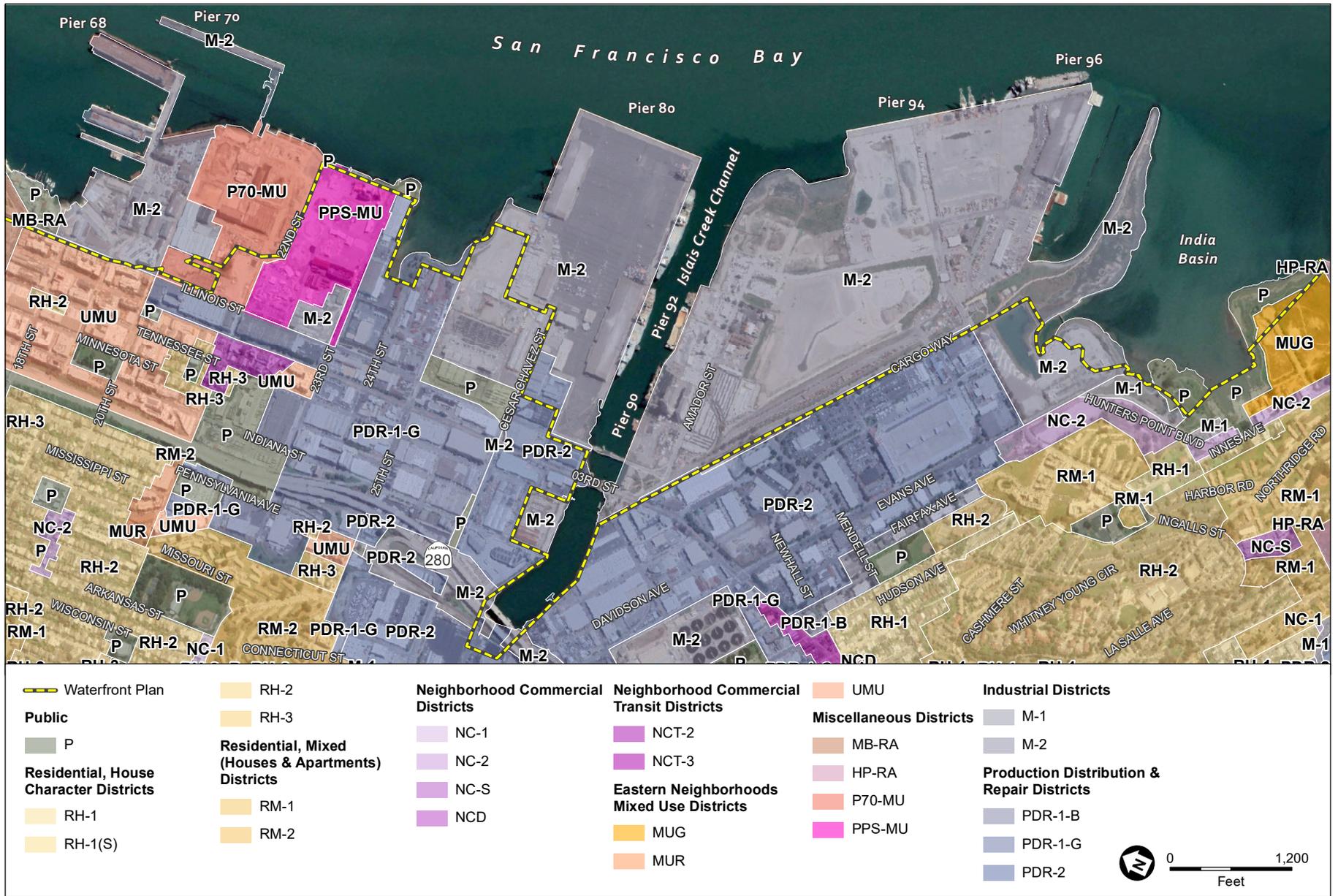
The Waterfront Plan provides goals and policies for the Port's 7.5-mile waterfront, and objectives for the five geographic subareas described above. The Plan proposes nine Port-wide goals, each of which are supported by policies. Five of these goals are new, and many policies in all nine goal categories are new or have been updated from the 1997 Plan.

2.E.1 Waterfront Plan Goals and Policies

MARITIME

The maritime goal remains the same in the Waterfront Plan as in the 1997 Plan—to recognize and support the current and future needs of the diverse categories of maritime industry and businesses at the Port.

The updated or new maritime policies would continue to give priority to terminal, facility, berthing, and operational needs by allowing the Port to use any of its properties for maritime -related purposes, including Harbor Services and the Port's Maintenance Division facilities, which is consistent with the Proposition H requirement to give priority consideration to maritime needs. The Waterfront Plan also retains policies from the 1997 Plan that support linking the development of new maritime facilities and improvements with complementary non-maritime mixed-use developments and projects.



SOURCE: Google, 2020; San Francisco Planning Department, 2020; SF Port, 2020; ESA, 2021

Waterfront Plan

FIGURE 2-16
SOUTHERN WATERFRONT SUBAREA ZONING DISTRICTS



SOURCE: Google, 2020; San Francisco Planning Department, 2018; SF Port, 2020; ESA, 2021

Waterfront Plan

FIGURE 2-17
SOUTHERN WATERFRONT SUBAREA EXISTING SPECIAL USE DISTRICTS AND HEIGHT AND BULK DISTRICTS

The Waterfront Plan retains the following maritime policies from the 1997 Plan:²⁵

- Protecting maritime facilities, infrastructure, and operational flexibility (Policies 1–6);
- Maintaining and enhancing maritime facilities by providing long-term leases and other incentives for maritime industries and encouraging the development of new commercial and recreation-oriented maritime activities (Policies 7, 8);
- Allow maritime-oriented clubs (but prohibit private clubs with exclusive memberships), and permit development of accessory commercial services (Policies 11, 12);
- Maintaining existing marine terminals at Pier 80, Pier 92, and Piers 94–96 for non-container cargo shipping activities (Policy 14); and
- Maximizing efficient use of new and existing parking facilities in a manner that doesn't hamper maritime business operations or public access (Policy 18).

The Waterfront Plan includes updated or new maritime policies in the following areas:

- Conducting site and financial feasibility studies to identify viable location(s) to develop a second cruise ship berth that complies with new air emission rules set by the California Air Resources Board (CARB) (Policies 9, 10);
- Increasing coordination and partnerships to expand water transportation facilities and services (Policy 13);
- Pursuing industrial leasing and warehouse development in the Piers 90–94 Backlands, and industrial transportation access to protect the integrity of the Port's Southern Waterfront cargo terminal operations (Policies 15, 16, 17);
- Planning and providing water recreation facilities, partnerships, and related commercial services that are appropriately funded, located, and managed to be compatible with maritime and deep vessel operations, and sensitive natural habitat areas (Policies 19, 20, 21, 22, 23, 24, 25); and
- Promoting shared public access on pier aprons where it is safe and compatible with maritime berthing, particularly in the Embarcadero Historic District (Policies 26, 27).

DIVERSITY OF ACTIVITIES AND PEOPLE

This goal remains the same in the Waterfront Plan as in the 1997 Plan—to promote a mix of commercial, industrial, public-oriented, civic, cultural, open space, and recreational uses that complement Port maritime activities. The Waterfront Plan includes new information describing state trust legislation that has allowed development of non-trust uses on specified seawall lots, and recognition of the Pier 70 and Mission Rock SUDs, which are incorporated by reference in the Waterfront Plan and supported by Development Agreements and Design for Development Documents, which secured City approvals following the completion of earlier CEQA environmental review processes.

²⁵ The citations shown in parentheses after the stated policies in this section correspond to the policies identified in the Waterfront Plan listed under each goal.

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The Waterfront Plan retains the following policies from the 1997 Plan:

- Maintaining maritime and non-maritime industrial leasing opportunities in Port properties, including leasing opportunities for maritime and general office uses in historic buildings listed in the National Register of Historic Places, as permitted (Policies 11, 12);
- Developing commercial and industrial projects consistent with applicable policies, prohibit private clubs with exclusive memberships but allow clubs that may charge membership fees, promote use of public transit and alternative transportation modes (Policies 14–16);
- Providing passenger waiting and service areas to encourage use of public and private water transportation services, encouraging ticket sales for local and regional public transportation modes, planning vehicle staging areas that minimize congestion (Policies 17–19);
- Allowing public safety and other community service facilities on strategically located sites to provide services to the Port or the City, include spaces that can be used by the public in new developments (Policies 20–22);
- Complying with applicable City policy regarding provision of affordable housing in new residential development projects and encouraging the inclusion of social and common areas to serve on-site or nearby residents (Policies 42, 43); and
- Ensuring that seawall lot parking uses are consistent with transportation policies (Policy 45).

The Waterfront Plan includes updated or new policies in the following areas:

- Promoting diversity of public-oriented uses that equitably serve and attract visitors of all ages, races, income levels, and abilities; increased number of free or low-cost activities; activities that promote connections to nature, maritime features, and public education (Policies 1–10);
- Consistent with Maritime policies, supporting industrial warehouse developments in the Piers 90–94 Backlands area to complement and support maritime terminal operations in the Southern Waterfront (Policy 13);
- Promoting a greater range of land uses as defined by public trust objectives to increase certainty and financial viability of historic pier repair and rehabilitation projects in the Embarcadero Historic District, including requirements that all improvements be consistent with the Secretary of the Interior’s Standards for Rehabilitation, and to include flood protection measures (Policies 23–33);
- Promoting development of upland seawall lots to complement surrounding neighborhoods, enhance the public realm and connections to the bay, with provisions that allow the Port under certain conditions to seek state legislation to allow non-trust uses on seawall lots north of Market Street (Policies 34–41);
- Recognizing parking on seawall lots as a trust use by accommodating Port visitors who drive from elsewhere in the region or state, and Port businesses that are underserved by public transit; revenue generated from interim parking lots also are recognized as trust benefits (Policy 44);
- Updates to definitions and provisions for leases for interim uses for up to 10-year terms (Policies 50–52); and
- Updates to new and unacceptable non-maritime uses on piers or land within 100 feet of the shoreline (Policy 53).

PUBLIC ACCESS AND OPEN SPACE

This goal is updated in the Waterfront Plan, as compared to the comparable goal in the 1997 Plan, to recognize an expanded network of public access and open space that extends along the Port's entire 7.5-mile waterfront, including the Blue Greenway open space system extending from China Basin Channel to Heron's Head Park. This open space network and the updated policies support and recognize the Association of Bay Area Governments (ABAG) Bay Trail, and includes water recreation facilities that also implement the ABAG Bay Water Trail.

The Waterfront Plan retains the following policies from the 1997 Plan:

- Maintaining a continuous waterfront walkway that connects parks, public access, and activity areas from Fisherman's Wharf to India Basin, and provide improvements to the San Francisco Bay Trail (Policy 1);
- Seeking ways to draw attention to underused public open space and water recreation areas (Policy 7);
- Improving open spaces to enhance connections between the city, waterfront, and the bay through design, wayfinding, and interpretive exhibits (Policy 11); and
- Locating public access areas at ground or platform level, addressing microclimate conditions in the design and placement of new public access, protecting open spaces from shadow and wind impacts from adjacent development in accordance with applicable law, and promoting safety through design considerations (Policies 13–16).

The Waterfront Plan includes updated or new policies in the following areas:

- Promoting ways to create and improve the public realm, and connections between the city, waterfront, and the bay (Policies 2–3, 11);
- Improvements to complete and enhance the Port's open space network by increasing the recreational uses, no/low-cost activities and events, and connections with nature; and creating an improved Ferry Plaza on the bay side of the Ferry Building (Policies 4–6);
- New park activation policies to support open space programs and improvements to serve a balance of local and state public trust needs, as well as people of all ages, races and economic means (Policy 8);
- New policies to promote city and community partnerships to increase use and funding opportunities for waterfront parks (Policies 9–10);
- New policy to recognize and describe ways to incorporate Bayside History Walk public access within Embarcadero Historic District pier projects (Policy 12);
- Promoting connections with nature, and improvements of natural and marine habitat areas (Policy 17);
- Promoting the Bay Water Trail, enhance water recreation facilities, and safe access in areas shared with maritime vessel operations and natural habitat areas (Policy 18);
- Promoting compatibility and balance of public access and maritime berthing needs (Policy 19);
- Directing development of design guidelines providing location criteria, materials, and furnishing design details to enhance public access areas, which aligns with San Francisco Urban Design Guidelines and Better Streets Guidelines (Policy 20); and
- Promoting resilient landscape designs that adapt to sea-level rise, preserve natural shoreline edges, and incorporate open space areas in plans for emergency staging and disaster response (Policies 21–27).

URBAN DESIGN AND HISTORIC PRESERVATION

This goal is updated in the Waterfront Plan, as compared to the comparable goal in the 1997 Plan, to describe city pattern, urban design characteristics, public views, architectural and historic resources, and principles and criteria to support new additions that respect and enhance maritime character and form along the Port waterfront.

The Waterfront Plan retains the following policies from the 1997 Plan:

- Ensuring that new waterfront buildings and improvements contribute to the historic and maritime form of the city and preserve the character of adjacent neighborhoods (Policies 1a–1d, 1f, 1g);
- Recognizing and strengthening the Port’s role in contributing to the city’s transportation system, open space network, and neighborhood identity (Policy 2);
- Providing waterfront views, shoreline public access, or direct access to and from the bay (Policy 7); and
- Preserving and enhancing public views of the bay, maritime uses, and historic structures (Policy 8).

The Waterfront Plan includes updated or new policies in the following areas:

- Enhancing the Piers 80–96 Maritime Eco-industrial district to allow industrial development while incorporating environmental improvements in the southern waterfront (Policy 3);
- Recognizing the Embarcadero Historic District and Pier 70 Union Iron Works Historic District, and requirements for repair or rehabilitation of historic resources to be consistent with the Secretary of the Interior’s Standards for Rehabilitation (Policy 4a);
- Promoting historic resource stewardship through a variety of partnerships, funding and leasing strategies, and cultural programs that promote public awareness of Port maritime history (Policies 4b–4e, 4g–4i);
- Providing unifying elements to the length of Port property that strengthen the identity of the Port and enhance the public realm (Policies 5a–5g);
- Integrating protection of historic and cultural assets with resilience planning (Policies 6a–6d); and
- Producing design guidelines and criteria to guide development that strengthens city pattern character, document design precedents and best practices for treatments to historic resources that are consistent with the Secretary of the Interior’s Standards for Rehabilitation, and programs for pedestrian wayfinding and waterfront lighting improvements, and public art installations (Policies 1e, 4f, 5e).

FINANCIALLY STRONG PORT

This goal is new to the Waterfront Plan, and describes the Port’s enterprise agency and public trust responsibilities, which require the Port to generate revenues to support maintenance and waterfront capital investments, equitable leasing and business opportunities, including programs and resources for workforce training and jobs for people of color from historically marginalized communities.

The Waterfront Plan includes new policies in the following areas:

- Support investments in Port lands and facilities to advance public aspirations and trust objectives for historic rehabilitation, maritime use, public access and open space, recreation, and natural resource protection (Policy 1);

- Grow and diversify the Port’s maritime and non-maritime portfolio to support a stable source of income to the Harbor Fund through economic cycles (Policy 2);
- Strengthen existing and develop new funding and financing resources, as identified and tracked in the Port’s Capital Plan and Capital Budget, to support waterfront improvements and programs promoted in the Waterfront Plan (Policy 3); and
- Leverage the Port’s economic activity to advance equity, inclusion, and public benefit for communities in and neighboring the Port, including historically disadvantaged communities (Policy 4).

TRANSPORTATION AND MOBILITY

This goal is new to the Waterfront Plan, focusing on the Port’s location and relationship with the city and regional transportation network and transportation agencies, description of the land and water transportation modes and facilities supported on Port property, and support of City policies including San Francisco’s Transit-First Policy.

The Waterfront Plan includes new policies in the following areas:

- Developing public transit and agency partnerships to ensure affordable, inclusive, and equitable access to all transportation modes, and improvements to Muni transit along The Embarcadero, and between Mission Bay and India Basin (Policies 1, 3);
- Coordination with public and private water transportation providers that link Port destinations to one another and to other bay destinations (Policies 8–10);
- Continuing to integrate water transit into emergency response and resilience plans and strategies (Policy 11);
- Coordinate with ABAG and other agencies to complete the San Francisco Bay Trail, by 2030, as a continuous walking and bicycling path from Aquatic Park to India Basin (Policies 12a–12e);
- Coordinating with San Francisco Municipal Transportation Agency (SFMTA) on projects to make bicycling more attractive than driving, working to increase safety and eliminate conflicts between users of all modes (Policies 2, 13–15, 18, 19);
- Coordinating with SFMTA and other stakeholders to implement the City’s Vision Zero policy and support the Embarcadero Enhancement Project (a protected bicycle facility along The Embarcadero) (Policies 16, 17);
- Coordinating with City agencies to enhance street connections between The Embarcadero and Blue Greenway, and between the waterfront and adjacent neighborhoods (Policies 20, 21);
- Coordinating with SFMTA to develop and enhance sustainable and reliable goods movement and industrial transportation access within the city and to Port facilities, including designation and management of curb zones for loading and access (Policies 23–30);
- Reducing parking demand and manage parking supply to improve use of pedestrian, bicycle, and transit modes; safety; neighborhood and business vitality; reduce vehicle miles traveled and associated air quality impacts; manage parking spaces for shared use and priority for electric vehicles (Policies 31, 39);
- Prioritizing parking management to serve disabled accessible parking, high parking turnover and customer access, maritime operations, Port tenants, and waterfront visitors (Policies 31–33);

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- Limiting or prohibiting net new automobile parking spaces, residential parking permits, and bundling of parking in Port leases (Policies 34, 37, 38);
- Working with SFMTA to develop transportation improvements and implementation timeframes for Port tenant operations and projects consistent with the City’s Climate Action Plan to work toward a goal of achieving 80 percent of trips by non-driving modes by 2030 (Policy 44);
- Developing and implementing Port-wide and subarea Transportation Demand Management plans (Policy 46);
- Working with the City to design and upgrade substandard Port streets to City “Better Streets” and “Complete Streets” standards (Policy 48); and
- Transferring street maintenance responsibility to SF Public Works, where feasible; and ensure development of new streets provide adequate long-term financing for maintenance, signal, and signage operations (Policies 49, 50).

ENVIRONMENTAL SUSTAINABILITY

This goal is new in the Waterfront Plan, and describes natural and environmental resources and management responsibilities along the waterfront, including the Port’s regulatory compliance and environmental sustainability stewardship initiatives. The Port’s environmental sustainability efforts involve managing activities and resources to protect air quality, water quality, public health, and biodiversity; and to limit the impact of climate change, improve the bay ecology, and create healthy waterfront neighborhoods.

The Waterfront Plan includes new policies in the following areas:

- Reducing greenhouse gas emissions and maximize carbon capture and sequestration; consider incentives for carbon emissions reduction measures and improve energy efficiency (Policies 1a–1d);
- Improving water quality through remediation of contaminated sites; repair and construction of new wastewater infrastructure; continued stormwater management and creating new green infrastructure to reduce sewage overflows; removing harmful bay fill; building partnerships and promoting education and awareness to improve water quality (Policies 2a–2f);
- Implementing water conservation measures, including new infrastructure (Policies 3a–3b);
- Protecting and enhancing biodiversity, including bird-safe building design, promoting native plants in landscaping, parks, and open spaces, and development of natural and multi-benefit green infrastructure (Policies 4a–4h);
- Implementing the Port’s green building code in Port lease and development projects, including conformance with Leadership in Energy and Environmental Design (LEED) standards, energy efficiency, zero waste practices, City Better Roofs Ordinance, and promoting district-level sustainability measures (Policies 5a–5g); and
- Reducing environmental health risks from Port operations (Policy 6).

RESILIENT PORT

This goal is new in the Waterfront Plan, and describes how the Port defines and addresses the issues that would need to be addressed in the near-, middle- and long-term to support a safe and resilient waterfront. This includes protecting and adapting assets and facilities to maintain city infrastructure systems, business,

recreational, cultural, and natural resources to address numerous resilience needs and challenges, such as earthquakes, climate change, security threats, and disaster recovery.

The Waterfront Plan includes new policies in the following areas:

- Improving emergency and disaster response planning to reduce risks, coordinated with City and regional emergency managers, transportation, and infrastructure operators (Policies 1a–1g);
- Reducing seismic risks to life safety and emergency response capabilities through continued seismic retrofit programs, including the Embarcadero Seawall and Waterfront Resilience Program (Policies 2a–2c);
- Partnering with City, regional, state, and federal agencies, tenants, and the public to address resilience challenges and promote education and awareness (Policies 3a–3c);
- Developing a resilience program for Port facilities that is transparent and coordinated with San Francisco’s Resilience Program (Policies 4a–4h);
- Encouraging and designing resilience projects that achieve multiple public objectives, consistent with the Waterfront Plan goals and policies (Policies 5a–5f); and
- Ensuring that the Port’s resilience plans make equity a priority and identify ways to build community capacity, participation, and social cohesion to help communities withstand and recover from disasters (Policies 6a–6e).

PARTNERING FOR SUCCESS

This goal is new in the Waterfront Plan, and describes public trust and regulatory requirements, as well as public agency partnerships and collaborations necessary to support improvement projects and programs at the Port. This includes active engagement in developing partnerships with Port advisory committees, Port tenants, regional residents and waterfront stakeholder organizations, and community stakeholders to ensure they have a voice in public discussions regarding opportunities and benefits that should be provided along the Port waterfront.

The Waterfront Plan includes new policies in the following areas:

- Strengthen Port advisory committee and public engagement, including with people of color and members from disadvantaged communities, to participate in Port land use planning development, leasing, environmental, resilience, and business activities (Policies 3, 4);
- Conduct a robust community input process for competitive solicitations of specified types of Port lease and development project opportunities, including consultation with the Port Commission and public about public trust values and objectives to inform the lease/development solicitation opportunity, and developing procedures for producing developer selection recommendations to the Port Commission (Policies 5, 6);
- Review process for consideration of unsolicited (sole source) lease/development proposals (Policy 7);
- Develop Port Commission and Port advisory committee review requirements for Port non-maritime leases that do not otherwise require approval by the San Francisco Board of Supervisors (Policy 8);
- Develop Port Commission and Southern Waterfront Advisory Committee review requirements for intermediate and long-term lease proposals in the Piers 80–96 Maritime Eco-industrial Strategy area (Policy 9);

- Develop use limitations and public notice and review requirements for short-term interim leases in the Southern Waterfront (Policy 10); and
- Identify and exempt certain types of Port leases—such as short-term leases for maritime; light-industrial; and existing office, retail, and restaurant uses, and intermediate-term lease renewals of bulkhead buildings for existing public-oriented uses—from additional public review beyond that required by applicable City regulations (Policy 11).

2.E.2 Waterfront Subarea Objectives

The nine goals and policies summarized above establish the framework to guide improvements along the Port’s 7.5-mile waterfront. As noted above, the Waterfront Plan identifies five waterfront subareas and objectives for each based on the key maritime, environmental, open space, historic preservation, and recreational issues within each geography. The Waterfront Plan includes updates to these subarea objectives that stem from the Waterfront Plan’s expanded goals and policies. The new or updated Waterfront Plan subarea objectives, described below, provide guidance for future lease and waterfront improvement proposals and are accompanied by land use tables that indicate the range of maritime and non-maritime uses allowed for the Port facilities located within each subarea.

FISHERMAN’S WHARF SUBAREA

- Protect and maintain Fisherman’s Wharf as a working fishing port;
- Maintain a colorful mix of maritime and water-dependent activities at Fisherman’s Wharf, in addition to fishing;
- Enhance the public access experience and open space programming in Fisherman’s Wharf;
- Maintain the Wharf’s diverse mix of public, commercial, and maritime activities, and include activities that attract local residents and dispel the Wharf’s image as a tourist-only attraction;
- Work closely with longstanding Fisherman’s Wharf restaurants and businesses to coordinate investments in infrastructure improvements that maintain public safety and economic vitality and adapt to sea-level rise; and
- Manage transportation flow to and through Fisherman’s Wharf to maintain viable industrial and loading access for the fishing industry and commercial businesses, reduce single-occupant vehicle use, increase public transit service levels, provide continuing enhancements of the pedestrian and bicycle experience, and support efficient parking operations for waterfront visitors to the Wharf.

NORTHEAST WATERFRONT SUBAREA

- Protect and enhance the historic maritime character of the Northeast Waterfront;
- Maximize opportunities to retain and enhance maritime operations in the Northeast Waterfront;
- Activate the Northeast Waterfront with an array of uses that establish a daytime and nighttime presence but are not primarily tourist-oriented;
- On Northeast Waterfront seawall lots, create new developments that complement the surrounding neighborhood and highlight connections between upland neighborhoods and the waterfront;

- Provide public access amenities that highlight newly created points of interest, more diverse recreational options and events to activate the Pier 27 Cruise Terminal Park, and wayfinding systems to enhance public enjoyment of the Northeast Waterfront open space and public access network;
- Provide a mix of uses in the Northeast Waterfront that emphasizes the civic importance of the Ferry Building area, generates waterfront activity, and serves San Franciscans and visitors alike;
- Maintain close working relationships with the San Francisco Municipal Transportation Agency and transportation agency partners to expand Northeast Waterfront public transit and alternative transportation services that improve the safety and comfort of travel along The Embarcadero;
- Provide efficiently planned parking and loading facilities to serve new activities in the Northeast Waterfront; and
- Coordinate closely with resilience proposals produced through the Embarcadero Seawall Program to build understanding and support for innovations required to adapt to the impacts of climate change while respecting the history, character, and authenticity of the Northeast Waterfront.

SOUTH BEACH SUBAREA

- Preserve and improve existing maritime uses and provide focal points for public enjoyment of maritime and water-dependent activities in South Beach;
- Maintain and activate an integrated series of parks and public access improvements that extend through South Beach, and provide a unifying pedestrian connection to Mission Bay at China Basin Channel;
- Promote activities and public access in South Beach pier projects within the Embarcadero Historic District;
- Create opportunity for the design of new development in South Beach to create a new architectural identity while respecting the Embarcadero Historic District;
- Take advantage of proximity to downtown San Francisco by providing attractions for the general public while respecting the living environment of the Rincon Hill and South Beach neighborhoods;
- Maintain close working relationships with the San Francisco Municipal Transportation Agency and transportation agency partners to expand public transit and alternative transportation services that improve the safety and comfort of travel along The Embarcadero in South Beach; and
- Coordinate closely with resilience proposals produced through the Embarcadero Seawall Program to build understanding and support for innovations required to adapt to the impacts of climate change while respecting the history, character, and authenticity of the South Beach waterfront.

MISSION BAY SUBAREA

- Complete the Blue Greenway public access and open space improvements through the Mission Bay waterfront;
- Preserve berthing for maritime and deep-water vessels at piers along the Mission Bay waterfront, and give first priority to maritime needs at Pier 50;
- Maintain and, where possible, increase services and amenities to enhance businesses, recreational boating uses, and public use, safety, and enjoyments of water recreation along the Mission Bay waterfront;
- Rehabilitate Pier 48 to recall the Mission Bay waterfront's historic use and to accommodate new uses; and

- Maintain close working relationships with the San Francisco Municipal Transportation Agency and transportation agency partners to support the expansion of public transit and alternative transportation services that serve new development along the Mission Bay waterfront and Central Waterfront while maintaining viable access for Port maritime and maintenance services.

SOUTHERN WATERFRONT SUBAREA

- Continue inter-agency coordination to align maritime, industrial, and development priorities and investments in the Southern Waterfront;
- Throughout the Southern Waterfront, improve and enhance Blue Greenway open space and public access areas that do not compromise maritime operations or sensitive environmental habitat areas, and provide education to promote public safety among maritime, small boating, and recreational water users;
- Implement approved development plans for the Pier 70 Special Use District, Historic Core, and Crane Cove Park projects to connect and integrate all areas within Pier 70, which will give new life to the Union Iron Works Historic District and create a unique waterfront neighborhood addition in the Dogpatch area;
- Explore new business partnerships to operate the Pier 70 ship repair and dry-dock facility, as part of a broader maritime strategy that evaluates additional maritime opportunities for the shipyard site and facilities;
- Increase marketing efforts to support maritime business partnerships to maximize the utilization of existing cargo terminal facilities in a dynamic urban environment;
- In the Piers 90–94 Backlands, pursue development of industrial warehouse facilities that are compatible with cargo terminal operations and provide space for maritime support uses, generate economic value and benefits to the Port and community, and productively improve land to support a stable industrial base in San Francisco;
- Protect wildlife habitat and shoreline areas; and
- Work with the community to assess vulnerabilities, consequences, and community priorities to build resilience, reduce risks, and advance benefits in the Southern Waterfront.

2.F Land Use Assumptions, Growth Projections, and Subsequent Projects for the Waterfront Plan

Since the Waterfront Plan is a policy document, its approval would not directly result in physical changes from new development, property leasing, or waterfront improvements that could occur pursuant to the Plan. The analysis of physical impacts in this Draft EIR is based in part upon estimated land use assumptions and growth projections developed by the planning department in collaboration with the Port planning staff based upon leasing, development, and waterfront improvements that could occur as subsequent projects under the Waterfront Plan.²⁶ See Chapter 4, Environmental Setting, Impacts, and Mitigation Measures, and Appendix C, Land Use Assumptions and Growth Projections Memorandum, for a more detailed description of the subsequent projects and the land use assumptions and growth projections developed for the Waterfront Plan.

The Waterfront Plan goals and policies would guide the location, types of land use, and property improvements the Port will seek through new leases and developments, rehabilitation of existing piers,

²⁶ See Appendix C, Land Use Assumptions and Growth Projections Memorandum, for more detail regarding the land use assumptions and growth projections.

waterfront and open space improvements along the shoreline, enhancement of recreational uses in the bay, improvements to existing maritime uses, and development of a resilience program for Port facilities. As a programmatic document, the Waterfront Plan does not define specific projects. However, the Plan includes policies that identify specific actions, including but not limited to those described below. The environmental effects of these subsequent projects are analyzed at a programmatic level in this Draft EIR.

2.F.1 Back-Up Cruise Terminal and Shore Power (Pier 50)

A possible subsequent project anticipated under the Waterfront Plan would upgrade the shoreside power at Pier 50 to support the docking of passenger cruise vessels as an alternate location to Pier 35, which does not have shoreside power. Allowing cruise ships to dock at Pier 50 would not induce demand nor increase the number of cruise ships docking annually on Port property. Rather it would relocate approximately 10 to 12 cruise ships per year from Pier 35 to Pier 50. Construction activities associated with enabling Pier 50 to support cruise vessels is anticipated to include in-bay pile work and construction of an apron and *marine fenders*²⁷ to ensure cruise ships can safely dock at the pier.

2.F.2 Ferry Plaza and Open Space Improvements

Open space improvements anticipated under the Plan include creating a Ferry Plaza on the bay side of the Ferry Building; public realm improvements as part of pier renovation projects; natural habitat enhancements; and completing and improving various public access and open spaces to offer recreational opportunities and enhance uses along the waterfront and connections between the city, the waterfront, and the bay.

2.F.3 Pier 94 Backlands Industrial Development

The Plan includes policies to support maritime and industrial uses to support cargo terminal operations, including warehouse development in the Pier 94 Backlands on the south side of Islais Creek. Site improvements could replace the Pier 90 grain silos with new structures designed to complement nearby Blue Greenway open spaces and the Pier 94 wetlands.

2.F.4 Construction

Construction activities associated with implementation of subsequent projects that could occur under the Waterfront Plan include but are not limited to site preparation (clearing, grubbing, excavation, grading), demolition, in-bay water work (with the exception of new dredging), new construction, interior construction and renovation of existing piers, and laydown area management work.

2.F.5 Waterfront Plan Update and Conforming Amendments

Port projects are subject to review by various planning agencies and regulatory authorities including the San Francisco Planning Department, BCDC, and the California State Lands Commission. The Port works to align and coordinate planning policies and principles among these agencies to support implementation of

²⁷ *Marine fenders* are used at ports and docks on quay walls and other berthing structures to absorb the kinetic energy of a berthing vessel and prevent damage to the vessel or the berthing structure.

waterfront improvements. As such, the proposed amendments to the Waterfront Plan would trigger a need for conforming amendments to the planning documents below to align planning policies and procedures.

SAN FRANCISCO PLANNING CODE, ZONING MAP, AND GENERAL PLAN

The Waterfront SUDs set forth in San Francisco Planning Code section 240 establish design review procedures with respect to new development on certain land under the Port Commission's jurisdiction within the Waterfront SUDs, consistent with the provisions of the Port's 1997 Plan. Waterfront SUD 1 (piers) and Waterfront SUD 3 (landside) districts apply to Port piers and seawall lots north of the China Basin Channel.

The Waterfront Plan would not require any changes to use districts or building height limits for Port property. However, the Waterfront Plan would amend the planning code by adding section 240.4 to create Waterfront Special Use District 4 (SUD 4). Waterfront SUD 4 would require waterfront design review process and procedures for future non-maritime development on Port piers and seawall lots located south of China Basin/Mission Creek that are not included in the Mission Rock, Pier 70, or Potrero SUDs. The Waterfront Plan also would amend the San Francisco Planning Code Sectional Map SU08 of the City and County's Zoning Map to reflect the creation of Waterfront SUD 4. **Figure 2-18** and **Figure 2-19**, p. 2-40, show the proposed SUD areas in the Mission Bay and Southern Waterfront subareas, respectively.

The Waterfront Plan also would include a general plan amendment to align the City and Port policies based on the Waterfront Plan amendments. When the 1997 Waterfront Plan was developed, the planning commission approved a general plan amendment to provide consistent policies for waterfront improvements. The new and updated Waterfront Plan goals, policies, and objectives described above would be the basis for amendments to general plan elements and area plans.

BCDC WATERFRONT SPECIAL AREA PLAN

BCDC's planning policies and regulatory framework are set forth in the San Francisco Bay Plan, which applies to the entire Bay region, and the San Francisco Waterfront Special Area Plan (SAP), which specifically addresses the San Francisco waterfront, including all Port properties over or within 100 feet of the shoreline of San Francisco Bay. The Port has filed a BCDC application to amend the SAP to align Port and BCDC policies. Key SAP amendments would include the following:

- Create a comprehensive approach to support planned network of shoreline parks and public access along the Port's 7½ mile waterfront, park activation, and programs to increase recreational use and benefits to a broader range of populations, including historically disadvantaged communities;
- Replace the BCDC "50% Rule"²⁸ governing bay fill, pier repair, and use rules on Fisherman's Wharf and Southern Waterfront properties with a policy that recognizes and permits uses consistent with the public trust doctrine and Burton Act, and include public access and other public benefits for both waterfront areas;
- Update information and policies to recognize maritime industries and berthing requirements, and criteria for determining conditions when public access and maritime uses can share space on piers, and when public access is not compatible with maritime operations;

²⁸ The *Replacement Fill Policy (50% Rule)* provides, in part, that BCDC can permit replacement fill on publicly owned pile-supported piers for bay-oriented commercial recreation and bay-oriented public assembly, provided that the replacement fill covers less of the bay than was being uncovered, and the amount of bay-oriented commercial recreation or bay-oriented public assembly uses cover not more than 50 percent of the area of the original pier, and the remainder (50 percent) must be used either for public access or open space, which may include fill removal to expand Bay open water area.



SOURCE: Google, 2020; San Francisco Planning Department, 2018; SF Port, 2020; ESA, 2021

Waterfront Plan

FIGURE 2-18
MISSION BAY SUBAREA PROPOSED SPECIAL USE DISTRICTS

- Recognition of the Embarcadero Historic District and policies to support historic pier rehabilitation projects;
- Replace an existing SAP public benefit obligation to create an Open Water Basin by removing the eastern end of Pier 23 and creating a new public plaza and Open Water Basin on the bay side of the Ferry Building;
- Policies to support public realm improvements that improve public access, safety, and mobility along and between the city and the waterfront; and
- Policies to recognize and support resilience and adaptation of piers, wharves, and shoreline properties in coordination with BCDC's San Francisco Bay Plan and Bay Adapt planning process, and the Port's Waterfront Resilience Program.

2.G Required Project Approvals and Actions

The Waterfront Plan analyzed in this EIR includes amendments to local and regional plans that are subject to review and approval by agencies with appropriate jurisdiction including various local, state, and regional agencies. These agencies are expected to use the EIR in their decision making for project approvals, including those listed below.

2.G.1 State and Regional Agencies

SAN FRANCISCO BAY CONSERVATION AND DEVELOPMENT COMMISSION

- Approval of amendments to the San Francisco Waterfront Special Area Plan

2.G.2 Local Agencies

SAN FRANCISCO PORT COMMISSION

- Adoption of CEQA findings
- Approval of amendments to the Waterfront Plan

SAN FRANCISCO PLANNING COMMISSION

- Certification of the Waterfront Plan Final EIR
- Adoption of CEQA findings and recommendation to the Board of Supervisors to approve amendments to the general plan, planning code, and zoning map, including updates to the waterfront design review procedures and creation of the Waterfront Special Use District 4

SAN FRANCISCO BOARD OF SUPERVISORS

- Approval of amendments to the general plan, planning code, and zoning map (for waterfront special use districts), including updates the waterfront design review procedures and creation of the Waterfront Special Use District 4

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CHAPTER 3

PLANS AND POLICIES

3.A Overview

In accordance with California Environmental Quality Act (CEQA) Guidelines section 15125(d), this chapter provides a summary of the plans and policies of the City and County of San Francisco, and regional, state, and federal agencies that have policy and regulatory control over the Waterfront Plan area. Although many of the plans and policies relate to regulations under the jurisdiction of these agencies, the primary discussion of regulations pertinent to the Waterfront Plan and their environmental effects are included in Chapter 4, Environmental Setting, Impacts, and Mitigation Measures, under the regulatory framework subsection of each environmental topic.

Subsequent lease, development, and improvement projects (subsequent projects) that could occur under the Waterfront Plan are subject to the primary agencies with jurisdiction over the project sites, including the Port of San Francisco (Port), the San Francisco Bay Conservation and Development Commission (BCDC), and the State Lands Commission (SLC), and the San Francisco Planning Department. Other agencies that have plans and policies that could be applicable to subsequent projects and that could have permitting jurisdiction over subsequent projects include the U.S. Army Corps of Engineers (Corps), Metropolitan Transportation Commission (MTC), San Francisco Bay Regional Water Quality Control Board (regional board), Bay Area Air Quality Management District (air district), Water Emergency Transportation Authority (WETA), and the Association of Bay Area Governments (ABAG).

General plans and other policy documents typically contain numerous objectives and policies emphasizing differing legislative goals, and an interpretation of consistency requires the balancing of all relevant policies. Policy conflicts do not, in and of themselves, indicate a significant environmental effect within the meaning of CEQA, in that the intent of CEQA is to determine physical effects associated with a project. Many of the plans of the City and County of San Francisco contain policies that address multiple goals pertaining to different resource areas. The San Francisco Port Commission, BCDC, San Francisco Planning Commission, San Francisco Board of Supervisors, and other decision makers will review the Waterfront Plan for consistency with the relevant objectives, policies, and principles of the applicable policy documents. The staff reports and approval motions prepared for the decision makers as part of the Waterfront Plan's approval process would include a comprehensive analysis and findings regarding the consistency of the Waterfront Plan with the applicable plans, policies, and regulations independent of the environmental review process. Specific policy conflicts identified in this Draft EIR also would be referenced in the staff reports prepared in conjunction with the Waterfront Plan's approval documentation.

To the extent that physical environmental impacts from subsequent projects that could occur under the Waterfront Plan may result from conflicts with one of the goals related to a specific resource topic, such impacts are analyzed in this Draft EIR in that respective topical section. For example, policies that guide development on the bay and shoreline to protect habitat for special status species are discussed in Section 4.F, Biological Resources.

3.B Plans and Policies Relevant to the Waterfront Plan

3.B.1 Federal Plans and Policies

PLANS CONSIDERED UNDER THE COASTAL ZONE MANAGEMENT ACT

The authority to evaluate projects conducted, funded, or permitted by the federal government is granted to coastal states through the federal Coastal Zone Management Act (CZMA) of 1972, United States Code section 3501 et seq., as amended in 1990 under the Coastal Zone Act Reauthorization Amendments. The CZMA requires that federal actions be consistent to the maximum extent practicable with federally approved state coastal plans. Federal actions requiring CZMA consistency findings may include permits issued by the Corps, the National Park Service (NPS), and other federal agencies where required. The state coastal management plans, laws, and regulations applicable to the Waterfront Plan are the McAteer-Petris Act, the BCDC regulations, and the BCDC's San Francisco Bay Plan and San Francisco Waterfront Special Area Plan, as discussed below.

GENERAL MANAGEMENT PLAN—SAN FRANCISCO MARITIME NATIONAL HISTORICAL PARK

The NPS General Management Plan (GMP) for San Francisco Maritime National Historical Park²⁹ guides the management of resources, visitor use, and general development at the park. It summarizes the final actions that were approved in the park's Final GMP/Environmental Impact Statement completed in September 1997.

The direction for future park management is based on the laws establishing the park, the purpose of the park, and the park's significant resources. The park's purpose, as mandated by Congress, is to preserve and interpret the history of achievements of seafaring Americans and the nation's maritime heritage, especially on the Pacific Coast.

The park encompasses approximately 35 acres on San Francisco's northern waterfront of what was once an industrial and food packing section of the city. NPS has a lease with the Port for use of the Hyde Street Pier, which hosts a valuable collection of historic ships. In addition to the fleet of historic vessels and approximately 90 small watercraft, the Historical Park includes a museum artifact collection of approximately 30,000 items, historic documents, photography, and manuscripts; a maritime library estimated at over 21,000 titles; and historic structures including the Aquatic Park Bathhouse and historic district, the Tubbs Cordage Company office building, and the Haslett Warehouse. Should a subsequent project be proposed in the Park, it would be required to comply with the San Francisco Maritime National Historical Park GMP.

3.B.2 State Plans and Policies

THE PUBLIC TRUST AND THE STATE LANDS COMMISSION

The State of California, upon admission to the United States in 1850, was granted title to all submerged lands and tidelands, then held by the United States. Jurisdiction and management of these lands is under the State Lands Commission (SLC), which provides stewardship of state-owned lands, waterways, and resources through economic development, protection, and restoration. The SLC's responsibilities include presiding over oil and gas development on all state-owned properties, determining boundaries between trust lands and

²⁹ NPS, *San Francisco Maritime National Historical Park, General Management Plan*, October 1997.

private property, removing hazards from its jurisdiction, protecting the environment through review of permit applications and environmental documents, monitoring land granted to local jurisdictions to ensure compliance with terms of the statutory grant, and granting leases.

The SLC is the State's Trustee of Public Trust lands except where the State has transferred property to a local jurisdiction, such as the City. In 1968, the state legislature adopted the Burton Act, which enabled transfer of former submerged lands and tidelands to the City and County of San Francisco to be held in Trust for the people of California for the purposes of maritime commerce, navigation and fisheries (the Public Trust) and in accordance with the provisions of the Burton Act (the Burton Act Trust), uses that enhance natural resources or attract people to use and enjoy the bay, as well as other specified uses. In accordance with the Burton Act and the accompanying Transfer Agreement relating to Transfer of the Port between the State and the City and County of San Francisco (Transfer Agreement), the State transferred the administration and control of some of the Port property from the San Francisco Port Authority, a state agency, to the City and County of San Francisco in 1969, to be held in trust for the people of California and, administered by the Port Commission separately from other City property. The Port also separately acquired additional waterfront property that had been in federal and private ownership, separate from the Burton Act. These "after-acquired" Port lands are not necessarily impressed with the Public Trust or the Burton Act Trust (together, "the Trust").

The Burton Act granted the Port broad powers relative to the transferred property. There are, however, three key constraints: (1) property subject to the Trust cannot be sold or otherwise alienated by the Port, unless the property is found to be valueless for trust purposes and is a small portion of the total land held in the Trust; (2) the properties cannot be leased for a period exceeding 66 years (except for certain seawall lots identified in Senate Bill 815 (Statutes 2007, chapter 660); and (3) the revenues derived from the operation from leases of the Trust property must be maintained in a separate account and used only for trust purposes. The Port Commission may also determine that Port property is surplus to trust purposes and may lease the property for other purposes contemplated by Burton Act section 3. The Port may also lease property for short-term interim periods (generally 10 years or less) for non-trust purposes if the property will not be required for trust purposes during the interim period. The interim lease can be terminated should the property be required for trust purposes.

The SLC oversees compliance by the Port with its grant under the Burton Act. While the Port Commission has the authority under the Burton Act to determine whether proposed non-maritime uses are consistent with the Trust, the Port generally will seek the concurrence of the SLC before approving development projects on Port lands. The SLC provides no formal approvals, however, and acts only in an advisory capacity. Under the Burton Act, the SLC also works closely with the State Attorney General's Office, which has the authority to enforce the Burton Act if the Port is acting outside of its granted authority. The Attorney General's Office can also issue formal opinions as to whether certain proposed uses conform to the Public Trust use restrictions.

The Port is required to obtain the agreement of the SLC to any proposal to lift the Public Trust from Port lands unless the action is authorized by the State through legislation without further action by the SLC. The SLC may agree to remove Public Trust restrictions from trust property if: (1) the land has been filled and reclaimed; (2) the land is cut off from access to the waters of San Francisco Bay and is no longer in fact tidelands or submerged lands or navigable waterways; (3) is relatively useless for Public Trust purposes, and constitutes a relatively small portion of the granted lands within the city; and (4) the removal of Public Trust restrictions will not substantially interfere with public rights of navigation and fishing.

SAN FRANCISCO BAY CONSERVATION AND DEVELOPMENT COMMISSION

The BCDC is a state agency with permit authority over the bay and its shoreline. Created by the McAteer-Petris Act in 1965, BCDC regulates filling, dredging, and changes in use in the San Francisco Bay. The creation of BCDC was a legislative response to address environmental damage created by years of extensive and unmanaged filling, by developing policies and regulations that recognize and protect the San Francisco Bay, an invaluable natural resource of the Bay Area region.

Of primary concern to BCDC is the placement of new “fill” (generally defined as any material in or over the water surface, including pilings, structures placed on pilings, and floating structures) in the bay. The McAteer-Petris Act imposes very strict standards for the placement of new fill. Placement of fill may be allowed only for uses that are (1) water-oriented uses, such as water-related industry, water-oriented recreation, and public assembly and the like; (2) minor fill to improve shoreline appearance and public access; or (3) necessary for public health, safety or welfare of the entire Bay Area. Fill must be the minimum necessary for the purpose and can be permitted only when no alternative upland location exists.

In addition, BCDC regulates new development within 100 feet of the shoreline to ensure that maximum feasible public access to and along the bay is provided. BCDC is also charged with ensuring that the limited amount of shoreline property suitable for regional high-priority water-oriented uses (ports, water-related industry, water-oriented recreation, airports, and wildlife areas) is reserved for these purposes. Land-side uses and structural changes are governed by policies regarding public access. BCDC can require, as conditions of permits, shoreline public access improvements consistent with a proposed project, such as, but not limited to, pathways, observation points, bicycle racks, parking, benches, landscaping, and signs.

BCDC planning documents applicable to San Francisco’s waterfront are described below.

SAN FRANCISCO BAY PLAN³⁰

The San Francisco Bay Plan (Bay Plan) was prepared by BCDC from 1965 through 1969 and amended through 2019 in accordance with the McAteer-Petris Act. The Bay Plan guides the protection and use of the bay and its shoreline. BCDC has permit jurisdiction over shoreline areas subject to tidal action up to the mean-high-tide line and including all sloughs, tidelands, submerged lands, and marshlands lying between the mean high tide and 5 feet above mean sea level for the nine Bay Area counties with bay frontage, and the land lying between the bay shoreline and a line drawn parallel to, and 100 feet from, the bay shoreline, known as the 100-foot shoreline band. Under the McAteer-Petris Act, the Bay Plan provides policy direction for BCDC’s permit authority regarding the placement of fill, extraction of materials, determining substantial changes in use of land, water, or structures within its jurisdiction, protection of the bay habitat and shoreline, and maximizing public access to the bay.

Part IV of the Bay Plan contains findings and policies that pertain to development of the bay and shoreline. These findings and policies address the many facets that comprise the uses, needs, and design issues associated with balancing the environmental, ecological, economic, recreational and social objectives of development within or along the shoreline of the bay. The findings and policies are organized under the following topics: (1) Environmental Justice and Social Equity; (2) Climate Change; (3) Safety of Fills; (4) Shoreline Protection; (5) Dredging; (6) Water-Related Industry; (7) Ports; (8) Airports; (9) Transportation; (10) Commercial Fishing; (11) Recreation (including Marinas); (12) Public Access; (13) Appearance, Design, and

³⁰ San Francisco Bay Conservation and Development Commission, *San Francisco Bay Plan*, 1965 (as amended through 2019).

Scenic Views; (14) Salt Ponds; (15) Managed Wetlands; (16) Other Uses of the Bay and Shoreline; (17) Fills in Accord with the Bay Plan; (18) Fill for Bay-Oriented Commercial Recreation and Bay-Oriented Public Assembly on Privately Owned Property; (19) Fill for Bay-Oriented Commercial Recreation and Bay-Oriented Public Assembly on Privately Owned or Publicly Owned Property; (20) Filling for Public Trust Uses on Publicly-Owned Property Granted in Trust to a Public Agency by the Legislature; (21) Mitigation; (22) Public Trust; and (23) Navigational Safety and Oil Spill Prevention.

The McAteer-Petris Act specifies that the BCDC should continually review the Bay Plan and to amend it so that it reflects changing conditions and new information. In 2019, the BCDC approved two Bay Plan amendments: the Bay Fill For Habitat Amendment to allow substantially more fill to be placed in the bay as part of an approved multi-benefit habitat restoration and shoreline adaptation project to help address rising sea levels; and the Environmental Justice and Social Equity Amendment to implement BCDC’s first-ever formal environmental justice and social equity requirements for local project sponsors.³¹

In addition, within the policy framework of Part IV of the Bay Plan, the document also includes area plans for specified uses or geographic locations that provide more detailed and site-specific policy direction. There are two such plans that apply to the San Francisco waterfront, discussed below: (1) the Bay Area Seaport Plan and (2) the San Francisco Waterfront Special Area Plan (SAP).

BAY AREA SEAPORT PLAN

The San Francisco Bay Area Seaport Plan (Seaport Plan) is a joint regional policy document of BCDC and the MTC. The Seaport Plan was adopted in 1996 and last amended in 2012. In 2019, the BCDC initiated a process to consider two additional amendments to the Seaport Plan with regard to revisions to the current cargo forecast and possible removal of the port designation from Howard Terminal at the Port of Oakland.³² The Seaport Plan constitutes the maritime element of MTC’s Regional Transportation Plan and provides more detailed policy direction that extends from the Bay Plan’s Port policies. The Seaport Plan contains policies for existing and future waterfront areas reserved for cargo terminals and port-priority uses, based on economic forecasts and projected future needs of Bay Area ports, including the Port. The Seaport Plan designates Pier 48, Pier 50, portions of Pier 70, Pier 80, and Piers 94–96 as marine terminals or port-priority areas.

SAN FRANCISCO WATERFRONT SPECIAL AREA PLAN

In 1975, after a collaborative planning process with the San Francisco Planning Department, BCDC adopted the SAP. The SAP sets forth specific policies for uses, fill, public access, and design for piers and shoreline areas between Hyde Street Pier in Fisherman’s Wharf to India Basin, including all Port piers and pile-supported facilities. The SAP includes general policies that apply to all areas covered by the Waterfront Plan, as well as geographic- or site-specific policies. The SAP divides the waterfront into three geographic areas, in which permitted uses, policies, and maps are addressed in each area: Fisherman’s Wharf, Northeastern Waterfront, and Southern Waterfront.

³¹ San Francisco Bay Conservation and Development Commission, “BCDC Amends the San Francisco Bay Plan to Address Habitats in the Face of Rising Seas and Environmental Justice and Social Equity,” <https://www.adaptingtorisingtides.org/bcdc-amends-the-san-francisco-bay-plan-to-address-habitats-in-the-face-of-rising-seas-and-environmental-justice-and-social-equity/#:~:text=and%20Social%20Equity,.BCDC%20Amends%20the%20San%20Francisco%20Bay%20Plan%20to%20Address%20Habitats.Environmental%20Justice%20and%20Social%20Equity>, accessed December 10, 2020.

³² San Francisco Bay Conservation and Development Commission, *The San Francisco Bay Area Seaport Plan*, 2020 Update, <https://www.bcdc.ca.gov/BPA/BPASeaportPlan.html>, accessed December 10, 2020.

Chapter 3. Plans and Policies
Plans and Policies Relevant to the Waterfront Plan

In July 2000, BCDC approved major amendments to the SAP for the Northeastern Waterfront, which extends from Pier 35 to China Basin. They were coordinated with action taken by the San Francisco Port Commission to update the Port's 1997 Waterfront Land Use Plan, to align BCDC and Port policies for the San Francisco waterfront. Within the Northeast Waterfront, the amendments set forth new policies for: (1) repair, seismic upgrades and development on certain existing piers, consistent with the public trust; (2) public access on piers; (3) replacing prior fill removal rules with new requirements for the removal of specified piers to create four designated "Open Water Basins;" (4) creating two major new waterfront public plazas—Northeast Wharf at Pier 27 and Brannan Street Wharf along the South Beach waterfront; and (5) funding and timeline requirements for implementing fill removal and public plazas, linked to new development on piers.

The policies in the SAP, in addition to the McAteer-Petris Act and other sections of the Bay Plan, are the basis for BCDC's permit decisions and for federal consistency review under the CZMA for proposed projects along the San Francisco waterfront.

The Waterfront Plan area is within the Fisherman's Wharf, Northeastern Waterfront, and Southern Waterfront geographic vicinities of the SAP. The Fisherman's Wharf policies are associated with providing maximum feasible public access; visual access to the bay; maintaining the area as a center for commercial fishing and maritime uses; and permitting limited bay-oriented commercial recreation.

The SAP's most detailed policies apply to the Northeast Waterfront. This reflects the intricacies of preserving historic pier and waterfront structures in the Embarcadero Historic District, while defining strategic locations to remove fill to create major public plazas; designating open water basins around these plazas and major public spaces to preserve expansive bay views for the public; and articulating how individual development projects should meet public trust and maximum feasible public access requirements. According to the SAP, public access should be provided free of charge to the public, be generally accessible at any time, and emphasize passive recreation and focus on its proximity to the bay and on the views and unique experiences that nearness to the bay affords.

The Southern Waterfront policies are associated with providing continuous public access to China Basin Channel and the shoreline; and limited development on the shorelines, preferably bay-oriented commercial recreation.

The Waterfront Plan would require amendments to the SAP to incorporate revisions to maintain consistent BCDC and Port policies for the Port waterfront. BCDC approval is required to amend the SAP; additional BCDC permit approval would be required for any subsequent projects that could occur under the Waterfront Plan located within the bay or within the 100-foot shoreline band. Key SAP amendments would include the following:

- Create a comprehensive plan framework and holistic approach to coordinated use and improvement across the entire 7.5-mile waterfront that supports area-wide resilience and adaptation planning, and a connected network of parks and public access;
- Update to recognize the Blue Greenway open space system in the southern waterfront between China Basin/Mission Creek and Hunters Point;
- Policies to increase the diversity of recreational activities and public uses allowed in public access areas;
- Deletion of the Replacement Fill ("50% Rule") Policy and allowance of uses consistent with the Public Trust Doctrine and Burton Act Trust on Port properties in Fisherman's Wharf and Southern Waterfront;

- Updated information and policies to recognize maritime industries and berthing requirements;
- Criteria for shared public access and maritime uses on piers, and circumstances when maritime operations preclude public access;
- Policies recognizing and supporting historic rehabilitation projects in the Embarcadero Historic District; and
- Policies to support public realm improvements that improve public access, safety, and mobility along and between the city and the waterfront.

The environmental effects of the Waterfront Plan and SAP amendments are addressed in this Draft EIR in Sections 4.C, Transportation and Circulation, and 4.F, Biological Resources, as well as Sections E.1, Land Use and Planning; E.11, Recreation; and E.17, Hydrology and Water Quality, in the initial study (see Appendix B) for purposes of meeting CEQA requirements. While BCDC will consider the information and analysis presented in this Draft EIR, the Commission maintains independent authority in evaluating issues and implications of proposed amendments to BCDC plans and determinations for the Waterfront Plan. In order to approve subsequent projects under their jurisdiction and the proposed amendments, BCDC would need to find them to be consistent with the McAtteer-Petris Act and the policies and findings of the Bay Plan and SAP, as amended, prior to approving BCDC permits to allow the implementation of subsequent projects.

SAN FRANCISCO BAY SUBTIDAL HABITAT GOALS

Published in 2010, the San Francisco Bay Subtidal Habitat Goals Report provides guidance for conservation planning for the submerged areas of the bay, including recommended approaches for removing pile-supported fill in the bay. The BCDC, California Ocean Protection Council/California State Coastal Conservancy, the National Oceanographic and Atmospheric Administration (NOAA), and the San Francisco Estuary Partnership, in collaboration with each other and the broader scientific community, managers, restoration practitioners, and stakeholders have identified a set of restoration planning goals and guidelines for the subtidal areas and habitats of the San Francisco Bay-Delta. This 50-year conservation plan takes a bay-wide approach in setting science-based goals for maintaining a healthy, productive, and resilient ecosystem. Physical environmental impacts related to implementation of the Waterfront Plan relative to the Subtidal Habitat Goals Report are addressed in Section 3F, Biological Resources.

STATE WATER RESOURCES CONTROL BOARD'S PLANS

Water quality control plans (basin plans) provide the basis for protecting water quality in California. Basin plans are mandated by both the federal Clean Water Act and the state Porter-Cologne Water Quality Act (Porter-Cologne). Porter-Cologne sections 13240–13247 specify the required contents of a regional basin plan. Each plan must contain water quality objectives, which in the judgment of the regional board will ensure the reasonable protection of beneficial uses and the prevention of nuisance, and a program of implementation for achieving those objectives, including a description of the nature of actions that are necessary to achieve the objectives, time schedules for the actions to be taken, and a description of surveillance to be undertaken to determine compliance with objectives. The goal of the Basin Plan is to provide a definitive program of actions designed to preserve and enhance water quality and to protect beneficial uses of water in the San Francisco Bay. The Basin Plan is used as a regulatory tool by the Regional Water Board's technical staff. Regional Water Board orders cite the Basin Plan's water quality standards and prohibitions applicable to a particular discharge. The Basin Plan is also used by other agencies in their permitting and resource management activities. It also serves as an educational and reference document for dischargers and members of the public. The Waterfront Plan was reviewed in the context of the regional board's Basin Plan, and no potential conflicts were identified.

DENSITY BONUS PROGRAMS

The state density bonus regulations apply to properties in San Francisco, including within Port jurisdiction. The state density bonus law in California, adopted in 1978, allows developers to select concessions from local development standards if a certain percentage of affordable units is included in a project. In 2017, the City approved amendments to its local housing density bonus program, codified in planning code section 206, Affordable Housing Bonus Programs. Section 206 incorporates, among other programs, the 100 Percent Affordable Housing Bonus Program (planning code section 206.4, approved in 2016 as section 206.3), which allows up to three additional stories for fully affordable residential projects and establishes procedures for projects that seek approval under a state density bonus (planning code section 206.6). Both of these programs would be applicable to the Waterfront Plan area.³³

The growth projections in this Draft EIR are derived from the overall citywide growth projections developed by the planning department, which are based on the regional planning effort underlying Plan Bay Area (see below for further discussion of Plan Bay Area). The Plan Bay Area growth allocations for the city can be accommodated under existing height and bulk controls; therefore, existing zoning is not currently a constraint on growth or a determinant of the overall amount of housing growth expected citywide by 2050. It is assumed that increased residential development in the Waterfront Plan area, which would only occur on Seawall Lot 330, due to the use of state or local density bonus programs will lead to a concomitant decrease in residential development elsewhere in San Francisco. Additionally, adoption of the Waterfront Plan in and of itself would not alter the overall growth forecast for San Francisco under Plan Bay Area.³⁴ Therefore, the Draft EIR adequately analyzes the growth that could occur pursuant to the state density bonus program and the resulting effects related to, for example, transportation, air quality, and noise. Regarding other effects, such as wind or shadow effects, which are site specific, it would be speculative to analyze the future height and/or density on Seawall Lot 330 given that a specific project is not currently proposed on that site. A subsequent project proposed on Seawall Lot 330 would undergo project-level CEQA review, as applicable, to determine whether it would create significant environmental effects that were not disclosed in this Draft EIR as a result of the additional height increases or bulk modifications permitted under the state density bonus law.

3.B.3 Regional Plans and Policies

The principal planning agencies and their policy plans that guide planning for the Waterfront Plan and the nine-county Bay Area region are: (1) the air district and its 2017 Bay Area Clean Air Plan (Clean Air Plan) and the 2017 California Environmental Quality Act Air Quality Guidelines; (2) MTC and its Transportation 2035 Plan for the San Francisco Bay Area; (3) WETA and its Final Implementation & Operations Plan and Emergency Water Transportation System Management Plan; (4) the regional board's plans and its Water Quality Control Plan for the San Francisco Bay Basin; and (5) ABAG and its regional Plan Bay Area 2050 and San Francisco Bay Trail Plan (Bay Trail Plan).

³³ Two other components of section 206, Housing Opportunities Mean Equity – San Francisco, or HOME-SF (section 206.3), and the analyzed state density bonus program (section 206.5), would not apply to the Waterfront Plan area because they are applicable only to use districts where residential density is regulated by lot size. In the Waterfront Plan area, residential density is regulated by building height and bulk controls, an approach generally known as “form-based zoning.”

³⁴ When allocating the anticipated future regional growth that was assigned through the regional planning process to San Francisco, the planning department, as part of a forecasting exercise for a Plan area, such as the Waterfront Plan area, maintains cumulative totals that are consistent with the regional plan and inclusive of whatever proposed zoning changes are being analyzed.

BAY AREA AIR QUALITY MANAGEMENT DISTRICT'S PLANS

The most recently adopted air quality plan in the San Francisco Bay Area Air Basin is the Clean Air Plan. In April 2017, the air district adopted the Clean Air Plan. The 2017 Clean Air Plan requires implementation of “all feasible measures” to reduce ozone; provide a control strategy to reduce ozone, particulate matter, toxic air contaminants, and greenhouse gas in a single, integrated plan; review progress in improving air quality in recent years; and eliminate health risk disparities from exposure to air pollution among Bay Area communities. The 2017 Clean Air Plan and physical environmental impacts of the Waterfront Plan relating to attainment of air quality standards are addressed in Section 4.E, Air Quality. In addition, Section 4.E presents the evaluation of potential air quality impacts of the Waterfront Plan with respect to the BAAQMD’s 2017 California Environmental Quality Act Air Quality Guidelines.

METROPOLITAN TRANSPORTATION COMMISSION'S PLAN

On April 22, 2009, the MTC adopted the Transportation 2035 Plan for the San Francisco Bay Area, which specifies how some \$218 billion in anticipated federal, state, and local transportation funds will be spent in the nine-county Bay Area during the next 25 years. The vision for Transportation 2035 is to support a prosperous and globally competitive Bay Area economy, provide for a healthy and safe environment, and promote equitable mobility opportunities for all residents. Among the cornerstones of the new plan are a joint regional planning initiative known as FOCUS, which provides incentives for cities and counties to promote future growth near transit in already urbanized portions of the Bay Area. The plan also launches a Transportation Climate Action Campaign to reduce transportation-related greenhouse gas emissions. In addition, a new market-based pricing system would—with legislative authorization—convert and expand current carpool lanes into a Regional Express Lane Network that continues to grant carpoolers and buses free access to the lanes but permits solo drivers to pay to use available space in the carpool lanes for a price. Revenue generated by the tolls would pay for the completion of the planned express lane network sooner and fund other mobility improvements like more express bus and rail services in the region’s most heavily traveled corridors.

The Waterfront Plan was reviewed in the context of MTC’s Transportation 2035 Plan for the San Francisco Bay Area, and no conflicts were identified.

SAN FRANCISCO BAY AREA WATER EMERGENCY TRANSPORTATION AUTHORITY'S PLANS

The WETA replaced the San Francisco Bay Area Water Transit Authority, which was a regional agency authorized by the State of California to operate a comprehensive San Francisco Bay Area public water transit system. In 2003, the Water Transit Authority issued a Final Implementation & Operations Plan, which provides a strategy to improve public transit with an environmentally friendly ferry system. In 2009, with updated approved in 2016, the WETA adopted the Emergency Water Transportation System Management Plan, which complements and reinforces other transportation emergency plans that will enable the Bay Area to restore mobility after a regional disaster. In 2016, WETA adopted the 2016 Strategic Plan, which sets forth a vision, mission and priorities for the next 20 years of San Francisco Bay Ferry service. The Waterfront Plan was reviewed in the context of these plans, and no conflicts were identified.

PLAN BAY AREA 2050

Plan Bay Area 2050, prepared by the ABAG and MTC, is the official regional long-range plan to improve housing, the economy, transportation, and the environment across the bay area's nine counties — Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma. Plan Bay Area 2050 is driven by the need to meet the growth forecasts identified for the region in a Sustainable Communities Strategy.

Between 2015 and 2050, Plan Bay Area 2050 estimates the region will add 1.4 million new jobs, for a total of 5.4 million bay area workers. Household growth is anticipated to follow pace, adding slightly fewer than 1.4 million new households for a total of 4 million households by 2050. This growth would bring the bay area's population to an estimated 10.3 million residents by 2050, up from around 7.8 million in 2021. Plan Bay Area 2050 estimates the region would need to build another 1.4 million new homes by 2050 to meet forecasted future demand. Plan Bay Area 2050 sets out a plan to meet most of the region's growth in Priority Development Areas (PDA), as identified by local governments. The entirety of the Port's waterfront is located within various PDAs, except for the southern waterfront cargo terminal and industrial properties adjacent to Islais Creek, which are in a designated Priority Production Area for industrial use. The Waterfront Plan was reviewed in the context of Plan Bay Area 2050, and no potential conflicts were identified.

BAY TRAIL PLAN

The Bay Trail is a multi-purpose recreational trail that, when complete, would encircle San Francisco Bay and San Pablo Bay with a continuous 400-mile network of bicycling and hiking trails; to date, 290 miles of the alignment have been completed. The trail would connect the shoreline of all nine Bay Area counties, link 47 cities, and cross the major bridges in the region.³⁵ The Bay Trail Plan was prepared by ABAG pursuant to Senate Bill 100, which mandated that the Bay Trail provide connections to existing park and recreation facilities, create links to existing and proposed transportation facilities, and be planned in such a way as to avoid adverse effects on environmentally sensitive areas. The Waterfront Plan was evaluated against Bay Trail Plan policies for protecting existing trail segments and expanding proposed trail links, and no conflicts were identified.

3.B.4 Local Plans and Policies

SAN FRANCISCO GENERAL PLAN

The San Francisco General Plan provides general policies and objectives to guide land use decisions. The general plan contains 10 elements (commerce and industry, recreation and open space, housing, community facilities, urban design, environmental protection, transportation, air quality, community safety, and arts) that set forth goals, policies, and objectives for physical development of the city. The general plan also contains many area plans, which provide more specific policy direction for certain neighborhoods, primarily on the east side of the city. The Waterfront Plan includes lands within the Northeastern Waterfront and Central Waterfront area plans of the general plan. A general plan amendment is being proposed to align the City and Port policies based on the Waterfront Plan amendments.

³⁵ Association of Bay Area Governments, *San Francisco Bay Trail Overview*, 2008.

WATERFRONT PLAN

The Waterfront Plan would update and amend the 1997 Waterfront Land Use Plan, which sets long-term goals and policies to guide the use, management, and improvement of 7.5 miles of properties under the Port's jurisdiction, from Fisherman's Wharf to India Basin. The Port developed the 1997 Plan pursuant to Proposition H, approved by San Francisco voters in 1990, and the Port Commission adopted it in 1997. The goals and policies in the 1997 Plan have guided the development of new parks, maritime facilities, historic rehabilitation, and development projects on Port properties.

In 2015, the Port conducted a comprehensive review and identified changes in conditions and the need to update the 1997 Plan. This led to a three-year public planning process led by a Waterfront Plan Working Group, which produced policy recommendations to be reflected in the updated Plan. In June 2019, the Port published the Draft Waterfront Plan for Public Review and Comment, which incorporates those policy recommendations along with other updates to recognize and align with City policies, evolving public trust needs, and land use changes on Port property. The Waterfront Plan provides a long-range policy framework to guide future Port improvement projects, programs, and stewardship initiatives, and is the subject of this Draft EIR and initial study.

SAN FRANCISCO PLANNING CODE

The San Francisco Planning Code incorporates the City and County of San Francisco's zoning maps, implements the San Francisco General Plan, and governs permitted uses, densities, heights and bulks, and the configuration of buildings and development sites (e.g., lots, open space, and public realm requirements) within San Francisco. Permits to alter existing buildings, construct new buildings, or demolish existing buildings may not be issued unless (1) the proposed project conforms to the planning code, (2) an allowable exception is granted pursuant to provisions of the planning code, or (3) amendments to the planning code are included as part of the project.

The Waterfront Special Use Districts (SUDs) set forth in the planning code establish design review procedures with respect to new development on certain land under the Port Commission's jurisdiction within the Waterfront SUDs, consistent with the provisions of the Port's Waterfront Land Use Plan and its Waterfront Design and Access goals, objectives, and criteria, as described in planning code section 240. Waterfront SUD 1 (piers) and Waterfront SUD 3 (landside) districts apply to Port piers and seawall lots north of the China Basin Channel. Waterfront SUD 2 encompasses the landside area of the Fisherman's Wharf subarea.

The Waterfront Plan amendments would not require any changes to use districts or building height limits for Port property. However, the Waterfront Plan would amend the planning code by adding section 240.4 to create Waterfront SUD 4. The SUD would apply to Port piers and seawall lots in the Mission Bay and Southern Waterfront subareas that are not included in the Mission Rock, Pier 70, or Potrero Power Station development projects. The planning code amendment would require waterfront design review process and procedures for future development on Port-owned properties in the Mission Bay and Southern Waterfront subareas. The Waterfront Plan also would amend the San Francisco Planning Code Sectional Map SU08 of the City and County's Zoning Map to reflect the creation of Waterfront SUD 4.

The proposed amendments to the planning code described above would be subject to approvals by the planning commission and board of supervisors. If the Draft EIR is certified by the planning commission, the commission would make recommendations to the board of supervisors. The board of supervisors would then have the ability to approve the Waterfront Plan and related planning code amendments.

SAN FRANCISCO CLIMATE ACTION PLAN

In 2002, the San Francisco Board of Supervisors adopted Resolution 158-02 that called for the City to develop plans to reduce its greenhouse gas emissions. In 2004, the San Francisco Department of the Environment and Public Utilities Commission issued the *Climate Action Plan for San Francisco*. This Plan was updated in 2013 and again in 2021 to provide a pathway for San Francisco to reach its zero emissions and zero waste goals.

It is the intent of the Mayor and the San Francisco Board of Supervisors to protect the health and welfare in a manner that compliments state and federal efforts to improve air quality by exercising a leadership role in mandating local actions to reduce global warming, and by calling upon City departments and the private sector to integrate emission reduction measures into their standard operating procedures. As a global city, San Francisco is committed to aligning its Climate Action Plan with the Paris Agreement, which aims to limit global temperature rise to 1.5 degrees Celsius to avoid the most harmful impacts of climate change.

SAN FRANCISCO GREEN BUILDING PROGRAM

SAN FRANCISCO GREEN BUILDING CODE

The San Francisco Building Code was amended in 2008 to add chapter 13C, Green Building Requirements. The requirements under this ordinance mandate that newly constructed private residential and commercial buildings include energy- and water-efficiency features during construction and operation. The stated purpose of the chapter is “to promote the health, safety and welfare of San Francisco residents, workers, and visitors by minimizing the use and waste of energy, water and other resources in the construction and operation of the City and County of San Francisco’s building stock and by providing a healthy indoor environment.” The California Building Standards Commission adopted a green building code as part of the California Building Code (California Code of Regulations title 24, part 6); the provisions of the state code became effective on January 1, 2011. Local jurisdictions are allowed to adopt or continue to use their own green building ordinances as long as they are as, or more, stringent than those adopted by the state.

The San Francisco Green Building Requirements establish either Leadership in Energy and Environmental Design (LEED®) certification levels or GreenPoint Rated systems points for types of residential and commercial buildings; the requirements are summarized below.

SAN FRANCISCO MUNICIPAL GREEN BUILDING PROGRAM

San Francisco’s Municipal Green Building Program was founded in 1999 when the City adopted the Resource Efficient Building Ordinance, which established green building standards for municipal buildings to increase energy efficiency, conserve City finances, reduce the environmental impacts of demolition, construction, and operation of buildings, and create safe workplaces for City employees and visitors. The ordinance created the interdepartmental Resource-Efficient Building (REB) Task Force and charged the San Francisco Department of the Environment with implementing the ordinance in partnership with the Department of Public Works and other REB Task Force departments. In 2011, the REB Task Force was renamed as the Municipal Green Building Task Force. In 2004, amendments to Environment Code chapter 7 set LEED® Silver certification by the U.S. Green Building Council as the minimum environmental performance requirement for all municipal projects over 5,000 square feet. In 2013 this was upgraded to LEED® Gold, applicable to projects over 10,000 square feet. This performance standard does not apply to private development projects. The Municipal Green Building Task Force assists City departments in compliance with the LEED® certification requirement and helps to determine which projects are applicable for LEED® ratings. Implementation of the ordinance is intended to

reduce carbon emissions, save power and drinking water, reduce discharges of wastewater and stormwater, reduce construction and demolition waste, reduce automobile trips, and increase green power generation by City-owned buildings.

Subsequent projects that could occur under the Waterfront Plan would be required to comply with Environment Code chapter 7 and the Port Green Building Code, and be LEED® Gold certified by Green Business Certification Inc. Thus, subsequent projects would meet or exceed the provisions of the Port's Green Building Code and Municipal Green Building Program; no potential conflicts were identified.

THE ACCOUNTABLE PLANNING INITIATIVE

In November 1986, the voters of San Francisco approved Proposition M, the Accountable Planning Initiative, which added planning code section 101.1 to establish eight priority policies. Prior to issuing a permit for any project that requires an initial study under the CEQA; issuing a permit for any demolition, conversion, or change in use; or taking any action that requires a finding of consistency with the general plan, the City is required to find that the plan or legislation is consistent with the priority policies. The priority policies pertain to (1) the preservation and enhancement of neighborhood-serving retail uses, (2) protection of neighborhood character, (3) preservation and enhancement of below-market-rate housing, (4) discouragement of commuter automobiles, (5) protection of industrial and service land uses from commercial office development and enhancement of resident employment and business ownership, (6) maximization of earthquake preparedness, (7) landmark and historic building preservation, and (8) protection of open space.

Both the Draft EIR and initial study provide information for use in the staff report for the Waterfront Plan. The staff report and approval motions for the Waterfront Plan will contain the planning department's comprehensive project analysis and findings regarding consistency of the Plan with the priority policies.

OTHER LOCAL PLANS AND POLICIES

In addition to the plans and policies noted above, other local plans and policies that are relevant to the Waterfront Plan are discussed below.

- **San Francisco Transit First Policy** is a set of principles that emphasize the City's commitment that the use of public rights-of-way by pedestrians, bicyclists, and public transit be given priority over the private automobile. These principles are embodied in the policies and objectives of the Transportation Element of the San Francisco General Plan. All City boards, commissions, and departments are required by law to implement the City's Transit First Policy principles in conducting the City's affairs. Analysis of the Waterfront Plan's consistency with this policy is addressed in Section 4.C, Transportation and Circulation.
- **San Francisco Bicycle Plan** is a citywide bicycle transportation plan that identifies short-term, long-term, and other minor improvements to San Francisco's bicycle route network. The overall goal of the San Francisco Bicycle Plan is to make bicycling an integral part of daily life in San Francisco. Analysis of the Waterfront Plan's consistency with this plan is addressed in Section 4.C, Transportation and Circulation.
- **San Francisco Better Streets Plan** was adopted in 2010 to support the City's efforts to enhance the streetscape and the pedestrian environment. It classifies the city's public streets and rights-of-way and creates a unified set of standards, guidelines, and implementation strategies that govern how the City designs, builds, and maintains its public streets and rights-of-way. Analysis of the Waterfront Plan's consistency with this plan is addressed in Section 4.C, Transportation and Circulation.

- **San Francisco Climate Action Strategy** is a local action plan that examines the causes of global climate change and the human activities that contribute to global warming; provides projections of climate change impacts on California and San Francisco based on recent scientific reports; presents estimates of San Francisco’s baseline greenhouse gas emissions inventory and reduction targets; and describes recommended actions for reducing the city’s GHG emissions. Analysis of the Waterfront Plan’s consistency with this policy is addressed in initial study Section E.9, Greenhouse Gas Emissions.
- **Vision Zero SF** was adopted in 2014 to support the City’s efforts to eliminate all traffic deaths in San Francisco by the year 2024. The goal of Vision Zero is also to reduce severe injury inequities across neighborhoods, transportation modes, and populations; and to build better and safer streets, educate the public on traffic safety, enforce traffic laws, and adopt policy changes that save lives.

CHAPTER 4

ENVIRONMENTAL SETTING, IMPACTS, AND MITIGATION MEASURES

Impact Overview

This chapter analyzes the physical environmental effects of implementing the Waterfront Plan (Waterfront Plan) described in Chapter 2, Project Description. This chapter also describes the environmental and regulatory framework for topics evaluated under the California Environmental Quality Act (CEQA), assesses project impacts and cumulative impacts, and identifies feasible mitigation measures that would reduce or avoid identified significant environmental impacts that have been determined to be significant. This Draft EIR evaluates the maximum environmental impact that could result from the implementation of all components of the Waterfront Plan policies.

Initial Study

As described in Chapter 1, Introduction, the planning department determined that an EIR is required for the Waterfront Plan and published a Notice of Preparation (NOP) of an EIR (see Appendix A). The initial study prepared for this Draft EIR (see Appendix B) concluded that many of the physical environmental impacts of the Waterfront Plan would be less than significant, or that mitigation measures agreed to by the project sponsor and required as conditions of approval would reduce significant impacts to a less-than-significant level. CEQA does not require further assessment of the issues covered in the initial study; thus, those issues are not included in this chapter. The topics addressed in the initial study include: Land Use and Planning, Population and Housing, Cultural Resources (archeology only), Tribal Cultural Resources, Greenhouse Gas Emissions, Wind, Shadow, Recreation, Utilities and Service Systems, Public Services, Geology and Soils, Hydrology and Water Quality, Hazards and Hazardous Materials, Mineral Resources, Energy, Agricultural and Forestry Resources, and Wildfire.

Scope and Organization of This Chapter

The resource topic areas addressed in this chapter of the Draft EIR are listed below, and the abbreviations for each resource topic that are used in the naming of impact statements and mitigation measures are shown in parenthesis:

- Section 4.A, Aesthetics (AE)
- Section 4.B, Cultural Resources (CR; historic resources only)
- Section 4.C, Transportation and Circulation (TR)
- Section 4.D, Noise (NO)
- Section 4.E, Air Quality (AQ)
- Section 4.F, Biological Resources (BI)

Each environmental topic listed above is presented within a setting (i.e., a description of physical characteristics applicable to the environmental topic) to compare conditions as they exist without the

Waterfront Plan and then again with anticipated activities and subsequent lease, development, and improvement projects (subsequent projects) that could occur under the Waterfront Plan, which is the basis for the analysis of environmental impacts. Thus, the evaluation of impacts in this chapter under each environmental topic is based on specific “study areas” dictated by the characteristics of the resource being evaluated as well as the type, magnitude, and location of potential environmental effects. The introduction to each resource topic in this chapter defines the setting where the effects of the Waterfront Plan are considered and clarifies relevant details regarding the definition and location of the study area if different from the Waterfront Plan area shown in Figure 2-1, p. 2-2.

Each section of Chapter 4 contains the following elements, based on the requirements of CEQA:

- **Introduction.** This subsection provides a brief description of the overall contents of the section and a cross-section to other related resource topics.
- **Environmental Setting.** This subsection presents a description of the existing physical environmental conditions in the Plan area with respect to each resource topic as of August 2020, which is the month and year the San Francisco Planning Department issued a NOP initiating environmental review of the Waterfront Plan. The environmental setting constitutes the baseline physical conditions (existing conditions) by which potential impacts of the Waterfront Plan are assessed for significance. CEQA Guidelines section 15360 defines the environment (or the setting) as “the physical conditions which exist within the area which will be affected by a proposed project.”
- **Regulatory Framework.** This subsection provides an overview of statutory and regulatory considerations that are applicable to the specific environmental topic.
- **Impacts and Mitigation Measures.** This subsection evaluates the potential for the Waterfront Plan to result in adverse effects on the physical environment described in the setting. As described in more detail below, this subsection identifies the significance criteria specific to that resource topic, which is followed by the approach to the analysis, and concludes with the impact evaluation. For impacts determined to be significant, the impact analysis identifies feasible mitigation measures that would avoid or reduce the severity of the identified impact.

The Impacts and Mitigation Measures section is further subdivided into the following:

- **Significance Criteria.** This subsection lists the criteria specific to each resource topic used to identify and determine significant environmental effects of the Waterfront Plan. Under CEQA, a significant effect is defined as a substantial, or potentially substantial, adverse change in the environment. The guidelines implementing CEQA direct that this determination be based on scientific and factual data, including the entire record for the project, and not on argument, speculation, or unsubstantiated evidence. The significance criteria used in this Draft EIR are based on planning department guidance used to assess the severity of environmental impacts of the Waterfront Plan. It is based on CEQA Guidelines Appendix G, with procedures as set forth in San Francisco Administrative Code chapter 31.10.
- **Approach to the Analysis.** This subsection describes the general approach and methodology used to apply the significance thresholds in evaluating the impacts of the Waterfront Plan. The methodology for applying significance criteria provides the basis for the impact analysis, which could be either qualitative or quantitative, depending on the specific impact. The methodology identifies use of applicable regulatory guidelines, thresholds, standards, or accepted professional practices or protocols used to assess construction, operational, and cumulative impacts.

- **Impact Evaluation.** This subsection evaluates the potential for implementation of the Waterfront Plan to result in significant adverse effects on the existing physical environment. Where applicable, both construction and operational impacts are analyzed at a programmatic level. The section begins with the criteria of significance, which establish the metric by which significance is determined. The latter part of this section assesses the impacts occurring as a result of project implementation and mitigation measures, if required. The impacts are grouped in individually numbered impact statements (shown in boldface type) that address each significance criterion. If the impact analysis concludes that an impact is significant and that feasible mitigation measures are available that could reduce the severity of the impact, the feasible mitigation measure(s) are presented immediately following the impact analysis, indented and numbered corresponding to the number of the impact analysis. The conclusion of each impact analysis is expressed in terms of the impact significance as no impact, less-than-significant impact, less-than-significant impact with mitigation, significant and unavoidable impact with mitigation, or significant and unavoidable impact, as described in more detail below. Waterfront Plan-specific impacts are discussed first, followed by cumulative impacts (see Section 4.A.6, Approach to Cumulative Impact Analysis, for further discussion).

Significance Determinations

For each impact statement and analysis, the impact evaluation provides a conclusion of the impact significance, which is designated as one of the following:

- **No Impact.** This determination applies if there is no potential for impacts or the environmental resource does not occur within the project area or the area of potential effects.
- **Less-than-Significant Impact.** This determination applies if the impact does not exceed the defined significance criteria or would be eliminated or reduced to a less-than-significant level through compliance with existing local, state, and federal laws and regulations. No mitigation is required for impacts determined to be less than significant.
- **Less-than-Significant Impact with Mitigation.** This determination applies if implementation of the Plan would or could result in a significant adverse effect, exceeding the defined significance criteria, but feasible mitigation is available that would reduce the impact to a less-than-significant level.
- **Significant Unavoidable Impact or Significant and Unavoidable with Mitigation.** This determination applies if implementation of the Plan would result in a significant adverse effect that exceeds the defined significance criteria, and although feasible mitigation might lessen the severity of the impact, the residual impact would still exceed the defined significance criteria. Thus, even with implementation of feasible mitigation, the impact would be significant, and therefore, unavoidable.

Mitigation Measures

CEQA Guidelines section 15126.4 directs preparers of an EIR to describe feasible measures that could minimize significant adverse impacts. Mitigation measures are developed to avoid, minimize, rectify, reduce, or eliminate an impact or compensate for an impact resulting from project implementation. CEQA Guidelines section 15041 grants authority to the lead agency to require feasible changes in any or all activities involved in a project to substantially lessen or avoid significant effects on the environment. Feasible mitigation measures have been included in this chapter for specific environmental impacts where applicable.

Other Considerations in the Impact Analysis

CEQA Standards of Adequacy CEQA Guidelines section 15151 describes standards for the preparation of an adequate EIR. Specifically, the standards under section 15151 state:

- An EIR should be prepared with a sufficient degree of analysis to provide decision-makers with information that enables them to make a decision that intelligently takes into account environmental consequences.
- An evaluation of the environmental impacts of a project need not be exhaustive; rather, the sufficiency of an EIR is to be reviewed in light of what is reasonably feasible.
- Disagreement among experts does not make an EIR inadequate, but the EIR should summarize the main points of disagreement among the experts.

In practice, the above points indicate that EIR preparers should use a reasonable, professionally accepted methodology to assess impacts. This approach sometimes requires making reasonable assumptions using the best information available. In some cases, when information is limited, this Draft EIR employs a “reasonable worst-case analysis” in order to identify the largest expected potential change from existing baseline conditions that the Waterfront Plan may create. This approach thus identifies the most-severe impact that could occur, providing a conservative analysis of potential environmental impacts.

Analysis Assumptions

The Waterfront Plan is a long-term planning document that sets goals and policies to guide maritime and non-maritime uses and waterfront improvements that would not immediately result in new development. Its approval would require the City to amend the general plan, planning code, and associated zoning maps to align planning policies, and reflect creation of the Waterfront SUD 4 in the Mission Bay and Southern Waterfront subareas, as amended by the Plan; however, the underlying zoning of allowable uses for the piers and seawall lots within the SUDs would remain the same. Additionally, approval of the Waterfront Plan would mean the policies outlined in the Plan would guide leasing, development, and improvements in the Plan area. Adoption of the Plan would not immediately result in new development or result in direct physical changes in the environment. However, certain uses and activities are considered the logical consequences of adopting and implementing the Waterfront Plan. This Draft EIR considers the environmental impacts of the uses and activities of the Plan and its components subsequent to Plan adoption, which are the indirect effects of the Plan and are studied at a “programmatic level” of review.

GROWTH PROJECTIONS AND APPROACH TO ANALYSIS

Since the Waterfront Plan is a policy document, its approval would not directly result in physical changes from new development, property leasing, waterfront open space, or other site improvements. The analysis of physical impacts in this Draft EIR is based in part upon estimated land use assumptions and growth projections developed by the planning department in collaboration with the Port planning staff based upon leasing, development, and waterfront improvements that could occur under the Waterfront Plan.³⁶

³⁶ The department regularly updates citywide growth forecasts that are based on Association of Bay Area Governments’ (ABAG) regional projections of housing and employment growth. The department allocates the regional growth forecasts to 981 Traffic Analysis Zones, which are the smallest geographic units of measurement associated with existing job and household counts, in San Francisco by first accounting for in-city growth that is already anticipated (both individual projects and planning efforts) in the development pipeline, subtracting pipeline growth from the City’s share of the regionally forecast growth, and allocating the residual amount of ABAG-forecast growth on the basis of weighting factors developed from analysis of both development capacity and existing development.

To establish 2020 baseline conditions for the Waterfront Plan, the planning department relied on Port of San Francisco real estate lease roll data to describe existing uses and square footage of all Port properties in each of the five waterfront subareas. The Port developed land use assumptions and growth projections based on what could occur under the proposed goals and policies in the Waterfront Plan to support analysis of environmental effects for 2050. The land use assumptions included maritime, non-maritime, commercial, public and recreational uses in existing facilities, new development that could occur on existing parking lots and vacant sites; and new leases, rehabilitation, and infill development in existing properties and piers, such as Piers 26, 28, 38, 40, 19 through 33, and 45A.^{37,38} The planning department evaluated the Port land use assumptions with regard to regional land use forecasts and determined they were reasonable to incorporate into 2050 citywide forecasts of new jobs and housing units. This analysis approach allows the Waterfront Plan EIR to include unique types of uses along the waterfront, such as cargo and cruise terminals, as well as other maritime uses (see Appendix C, Land Use Assumptions and Growth Projections Memorandum, for a more detailed discussion of the growth projections and land use assumptions).

The land use assumptions include environmental sustainability considerations proposed in updated Waterfront Plan policies. For example, the Waterfront Plan promotes efforts to identify a location to support a second facility for passenger cruise ship berthing at Pier 50, which can be improved with shoreside power to meet new air quality standards, and to replace current back-up cruise operations at Pier 35, which does not have shoreside power. Pier 50 is assumed to meet this need because it has the berthing and on-dock facilities to provide the same level of cruise service, and has available space for installation of a shoreside power system to reduce diesel and greenhouse gas emissions.³⁹

SUMMARY OF GROWTH PROJECTIONS

Table 4-1 presents the housing unit, population, and employment information for the Waterfront Plan area in 2020 (the baseline year for the analysis or “existing conditions”) and the assumed growth in 2050 (“planning horizon”). The 2020 existing conditions for the Waterfront Plan area includes approximately 410 housing units, 850 residents, and 12,910 jobs (column A in the table). Growth that could occur under the Waterfront Plan amounts to approximately 260 additional housing units, approximately 540 additional residents, and approximately 14,800 additional jobs (column B in the table).⁴⁰ Therefore, the existing conditions plus growth projections assumed under the Waterfront Plan in 2020 would total approximately 670 housing units, 1,380 residents, and 27,700 jobs. Some population and employment growth would be expected to occur in the Plan area without implementation of the Waterfront Plan, which is shown in column C of the table as 2020 to 2050 Growth Without Waterfront Plan. This includes the Mission Rock and Pier 70 projects, which were analyzed in separate EIRs and have secured City approvals. As such, total growth for 2050, which includes existing conditions, growth attributable to the Waterfront Plan, and growth that would be expected to occur in the Plan

³⁷ See Appendix C, Land Use Assumptions and Growth Projections Memorandum, for more detail regarding the land use assumptions and growth projections. Note that the land use assumptions and growth projections do not include Mission Rock, the Pier 70 Mixed-Use District Project, or the Potrero Power Station Mixed-Use Development Project, which have completed their CEQA review and were approved but have not been fully developed, and so are accounted for in the cumulative impact analysis, as described below.

³⁸ The pier bulkheads are anticipated to include ground-floor retail with office space on the second floor. Pier sheds area anticipated to include approximately 75 percent of the space dedicated to office uses and 25 percent dedicated to maritime uses. The pier aprons would include public access areas and serve maritime uses.

³⁹ Note that docking cruise ships at Pier 50 would not induce demand nor increase the number of cruise ships docking annually. See Appendix C, Land Use Assumptions and Growth Projections Memorandum.

⁴⁰ Of the approximately 14,800 jobs that could occur with implementation of the Waterfront Plan, approximately 11,570 (78 percent) would be under the Management, Information, Professional Services (MIPS) category, while 1,750 (12 percent) would be under the Cultural, Institutional and Educational (CIE) category. The remaining 10 percent (1,480 jobs) of employment growth would occur under the retail; Production, Distribution, and Repair (PDR); and visitor categories.

Chapter 4. Environmental Setting, Impacts, and Mitigation Measures
Impact Overview

area without the Waterfront Plan, would total approximately 6,940 housing units, 14,440 residents, and 43,200 jobs (column D in the table).

Table 4-1 Summary of Growth Projections

	(a) 2020 Existing Conditions ^a	(b) Waterfront Plan Growth ^b	2020 Existing Conditions plus Waterfront Plan Growth (a + b)	(c) Background Growth: 2020 to 2050 Growth Without Waterfront Plan ^c	2050 Condition Without Waterfront Plan (a + c)	(d) 2050 Condition With Waterfront Plan (a + b + c)
Housing Units	410	260	670	6,280	6,690	6,940
Population ^d	850	540	1,380	13,060	13,910	14,440
Employment (Jobs)	12,910	14,800	27,700	15,490	28,400	43,200

SOURCES: San Francisco Planning Department and Port of San Francisco, 2020

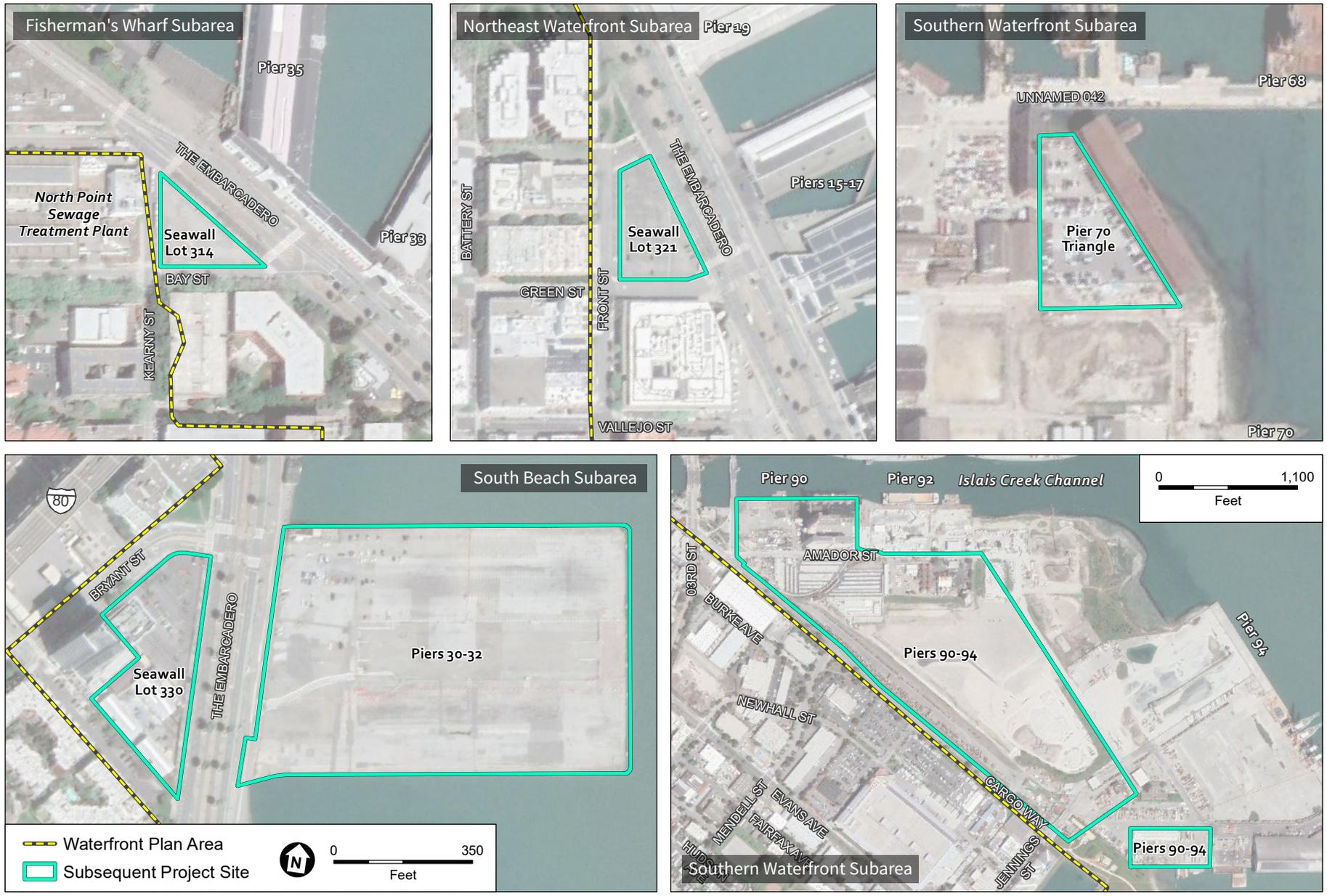
NOTES:

See Appendix C, Land Use Assumptions and Growth Projections Memorandum, for a more detailed discussion of the growth projections and land use assumptions.

- ^a Existing conditions includes individual projects that were entitled and under construction as of March 31, 2020.
- ^b The Waterfront Plan Growth condition includes a maximum development program for the subsequent project sites. The maximum development program for the sites assumes no changes to the underlying zoning and height and bulk districts.
- ^c The 2020 to 2050 Growth Without Project conditions includes larger, long-term development projects within the Waterfront Plan area (Mission Rock and Pier 70 projects), which have completed CEQA documentation and have been approved.
- ^d Assumes 2.08 persons per household based on an average of the persons per household for the census tracts located within Port-owned property (Census Tracts 101, 105, 226, 231.03, 607, 615, and 9809), Selected Housing Characteristics, ACS 2015–2019, 5-Year, Table DP04, California & San Francisco.

The Draft EIR assumes that the updated and amended policies and land use regulations associated with the Waterfront Plan would apply to subsequent projects, and that those projects, if implemented, could result in physical changes in the environment. Therefore, future changes in land uses would not be caused by Plan policies, but rather by subsequent projects that could occur on individual sites within the Plan area as a result of these policy updates and amendments.

For other physical effects that could occur with implementation of the Waterfront Plan, this Draft EIR includes analysis of “subsequent project sites” (i.e., underdeveloped or undeveloped sites, such as parking lots on seawall lots or piers), which are assumed to be developed with new building construction in order to create a model that reflects build out of the Plan area should the Plan be adopted and implemented (see **Figure 4-1**). For these development sites, computer-generated building mass models are used to qualitatively evaluate shadow, wind, and aesthetics impacts. The three-dimensional building mass model does not incorporate any architectural design or detail. Instead, the model consists largely of simple box forms to represent a buildout condition that reflects base height limits and site coverage based on constraints for each of the six sites shown in **Table 4-2** and on Figure 4-1. The model assumes that these sites are redeveloped and other sites that are currently developed would remain in their current state. These assumptions are not based on actual project applications on file with the planning department, but reflect the Port’s judgment related to the potential for where development could occur within the Plan area. These assumptions should not be interpreted as predicting how a particular site would be developed in the future, and reflect development that would be consistent with the existing zoning and height and bulk regulations for each site.



SOURCE: Google, 2020; San Francisco Planning Department, 2021; SF Port, 2021; ESA, 2021

Waterfront Plan

FIGURE 4-1
SUBSEQUENT PROJECT SITES

Table 4-2 Subsequent Project Site Buildout Assumptions

	Base Height Limit (feet)	Assumptions
Seawall Lot 314	40	Full site coverage
Seawall Lot 321	40	Full site coverage
Piers 30–32	40	2/3 site coverage
Seawall Lot 330	105	Code compliant building envelope with setbacks and building bulk limits incorporated in massing
Pier 70 Triangle ^a	40	2/3 site coverage with 40-foot setbacks from the north and west side
Piers 90–94 Backlands	40	1/3 site coverage with warehouse massings

SOURCE: Port of San Francisco, 2020

NOTES:

Table 4-1 identifies the total growth projections that could occur under the Waterfront Plan associated with new development on the subsequent project sites identified in this table, as well as infill development of existing buildings from property leasing and the rehabilitation of existing piers.

^a As part of the Pier 70 project, the new 20th Street pump station (approximately 13 feet by 10 feet) would be located on the southeast portion of the Pier 70 Triangle site.

Cumulative Impacts

DEFINING CUMULATIVE IMPACTS

CEQA requires an evaluation of a proposed project’s potential contributions to cumulative impacts, in addition to proposed project-specific impacts. Cumulative impacts, as defined in CEQA Guidelines section 15355, refer to two or more individual effects that, when taken together, are “considerable” or that compound or increase other environmental impacts. A cumulative impact from several projects is the change in the environment that would result from the incremental impact of the project when added to the impact of other closely related past, present, or reasonably foreseeable future projects. Pertinent guidance for cumulative impact analysis is provided in CEQA Guidelines section 15130:

- An EIR shall discuss cumulative impacts of a project when the project’s incremental effect is “cumulatively considerable” (i.e., the incremental effects of an individual project are considerable when viewed in connection with the effects of past, current, and probable future projects, including those outside the control of the agency, if necessary).
- An EIR should not discuss impacts that do not result in part from the project evaluated in the EIR.
- A project’s contribution is less than cumulatively considerable, and thus not significant, if the project is required to implement or fund its fair share of a mitigation measure or measures designed to alleviate the cumulative impact.
- The discussion of impact severity and likelihood of occurrence need not be as detailed as for effects attributable to the project alone.
- The focus of analysis should be on the cumulative impact to which the identified other projects contribute, rather than on attributes of the other projects that do not contribute to the cumulative impact.

An EIR must then determine whether an individual project’s contribution to a cumulative impact is considerable. This means that the project’s proportional share is deemed to be adverse in conjunction with other similar projects that may combine to result in physical impacts.

The cumulative impact analysis for each individual resource topic is described in each resource section of this chapter, immediately following the description of the project-specific impacts and mitigation measures.

APPROACH TO CUMULATIVE IMPACT ANALYSIS

The following factors were used to determine an appropriate list of individual projects to be considered in the cumulative analysis:

- **Similar Environmental Impacts**—A relevant project contributes to effects on resources that are also affected by the proposed project. A relevant future project is defined as one that is “reasonably foreseeable,” such as a proposed project for which an application has been filed with the approving agency or has approved funding.
- **Geographic Scope and Location**—A relevant project is located within the geographic area within which effects could combine. The geographic scope varies on a resource-by-resource basis. For example, the geographic scope for evaluating cumulative effects to regional air quality consists of the affected air basin.
- **Timing and Duration of Implementation**—Effects associated with activities for a relevant project (e.g., short-term construction or demolition, or long-term operations) would likely coincide in timing with the related effects of the proposed project.

CEQA Guidelines section 15130(b)(1) outlines two approaches to a cumulative impact analysis: (a) the analysis can be based on a list of past, present, and reasonably foreseeable probable future projects producing closely related impacts that could combine with those of a proposed project, or (b) a summary of projections contained in a general plan or related planning document can be used to determine cumulative impacts. The analysis in this Draft EIR employs both the list-based approach and a projections approach, depending on which approach is most appropriate for the resource topic being analyzed. For instance, Section 3.A, Aesthetics, considers the Pier 70 project that is under construction in the Plan area that could alter the visual character and views in and surrounding the Plan area. By comparison, portions of Section 3.C, Transportation and Circulation, rely on the San Francisco County Transportation Authority’s citywide travel forecasting model that encompasses many reasonably foreseeable projects anticipated in and surrounding the Plan area, as well as elsewhere in San Francisco, and takes into account regional growth projections. Additional projects beyond those identified below are considered under relevant resource topics areas.

For the resource topics using the list-based approach, the projects noted below are located either within or near the Plan area and are considered in the cumulative impact analysis.⁴¹ Each section identifies which of these cumulative projects could contribute to a cumulative impact on that specific resource and why.

- The Pier 48/Seawall Lot 337/Mission Rock Special Use District Project (Planning Department Case 2013.0208ENV) is a 3.6-million-square-foot mixed-use development would include retail, commercial, residential, and parking uses as well as 8 acres of parks and open space and historic rehabilitation of Pier 48. The project would include a parking structure with 2,300 spaces, 1.7 million square feet of commercial, 150,000 to 250,000 square feet of retail, and between 650 and 1,500 residential units. Note that Phase 1 of this project currently is under construction.
- The Pier 70 Mixed-Use District Project (Planning Department Case 2014-001272ENV) is a multi-phase 28-acre mixed-use development including parking spaces, parks, roads, public access, shoreline improvement and utility infrastructure. Mixed uses include residential (1,712,000 to 903,000 gross square

⁴¹ Routine maintenance projects are considered in the cumulative analysis. This includes projects such as the proposed PG&E Power Asset Acquisition project (Case No. 2019-017272ENV; SCH No.2022010066).

Chapter 4. Environmental Setting, Impacts, and Mitigation Measures

Impact Overview

feet), commercial (1.8 million gross square feet), retail and arts spaces (400,000 gross square feet) and research/development space. Note that Phase 1 of this project is currently under construction.

- The Potrero Power Station Mixed-Use Development Project (Planning Department Case 2017-011878ENV) is a 5.4-million-square-foot mixed-use development that would include hotel, commercial, entertainment, residential, and parking uses as well as 7 acres of open space. The project would include 2,600 residential units, 250 hotel rooms, 1.6 million square feet of commercial (office, research and development, PDR, and retail), 50,000 square feet of community facilities, 25,000 square feet of entertainment/assembly, and 2,700 parking spaces. The buildings would range in height between 65 and 240 feet. Note that Phase 1 of this project is currently under construction.
- The TZK Broadway and Teatro ZinZanni project (Planning Department Case 2015-016326ENV) includes a boutique hotel with approximately 192 rooms with ancillary retail and commercial spaces and a new theater to serve as the permanent home for Teatro ZinZanni and its historic “Spiegel tent”; and an approximately 14,000-square-foot privately financed park at the northern end of the site. Construction has not yet begun.
- The Port of San Francisco’s Waterfront Resilience Program would include developing a series of coordinated projects working to ensure a resilient waterfront in the face of seismic and sea-level rise, climate change-related hazards, and includes an U.S. Army Corps of Engineers Flood Study for the entire Port waterfront and a program to strengthen the three-mile-long Embarcadero seawall. A project application has not yet been submitted.
- The San Francisco Housing Element 2022 Update⁴² (Planning Department Case 2019-016230ENV) will modify the policies of the general plan’s housing element. The goals, policies, and actions are required to plan for the regional housing targets allocated to San Francisco by regional agencies for the 2023–2031 cycle and meet future housing demand in San Francisco. The housing element update includes policies designed to improve housing affordability and advance racial and social equity, and would shift an increased share of the city’s future housing growth to transit corridors and low-density residential districts within certain areas of the city. It would not include specific changes to existing land use controls (e.g., zoning) or approve any physical development, but the EIR will evaluate the potential physical environmental impacts that could result from future actions regarding implementation of the policies proposed under the housing element. The Draft EIR will be published in spring or summer 2022.
- The Better Market Street Project (Planning Department Case 2014.0012ENV) will revitalize Market Street from Octavia Boulevard to The Embarcadero by optimizing sustainable mobility modes (transit, walking, rolling, and cycling) so that Market Street will be pleasant, reliable, efficient, and safe for all users. The first phase of the project, between Fifth and Eighth streets, is anticipated to begin in the summer of 2022.
- The Embarcadero Enhancement Program, Central Embarcadero Phase 1 (Planning Department Case 2019-003785ENV) will improve safety, mobility, connectivity, and accessibility for all users of The Embarcadero, which serves as a major transit corridor, tourist destination, marine-oriented commercial district, and public recreation area. The first phase of the project is anticipated to be complete by the end of March 2022.
- The Mission Bay Ferry Landing project (Phase 2) (Planning Department Case 2017-008824ENV) will provide regional ferry service to and from the Mission Bay neighborhood, as well as the Dogpatch, Potrero Hill, Pier 70, and the Central Waterfront neighborhoods. The Mission Bay Ferry Landing will provide capability to berth two ferry boats simultaneously.

⁴² Note that the Housing Element growth projections are not included in the Waterfront Plan growth projections because the quantitative data for the Housing Element was not available at the time the analysis was conducted.

4.A Aesthetics

4.A.1 Introduction

This section describes the existing visual characteristics of the Waterfront Plan area, its relationship to the surrounding physical and visual environment, and effects to scenic resources, scenic vistas, public views, and visual character, or conflicts with applicable zoning and other regulations governing scenic quality that could result from adoption and implementation of the Waterfront Plan. This section also evaluates the potential for subsequent lease, development, and improvement projects (subsequent projects) that could result from adoption and implementation of the Waterfront Plan to create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area. The impact discussion evaluates potential impacts to aesthetic and visual resources in the context of existing conditions based on analyses of photographs, site reconnaissance, and visual simulations.

4.A.2 Environmental Setting

Visual or aesthetic resources are generally defined as both the natural and built features of the landscape that contribute to the public's experience and appreciation of the environment. The physical aesthetic setting therefore encompasses any area in the project vicinity from which there are scenic public views that could be affected by implementation of the Waterfront Plan. Depending on the extent to which a subsequent project's presence would alter the perceived visual character and quality of the environment, a visual or aesthetic impact may occur. Key concepts and terminology used in the aesthetics evaluation are described below.

CONCEPTS AND TERMINOLOGY

Visual character is a general description of the visual attributes of a particular setting. The purpose of defining the visual character of an area is to provide the context within which the visual quality of a particular site or locale is most likely to be perceived by the viewing public. For urban areas, visual character is typically described on the neighborhood level, or in terms of areas with common land use, development intensity, and/or urban design features. For natural and open space settings, visual character is most commonly described in terms of areas with common landscape attributes (e.g., landform, vegetation, water features).

Visual quality is defined as the overall visual impression or attractiveness of a site or locale as determined by its aesthetic qualities (such as color, variety, vividness, coherence, uniqueness, harmony, and pattern).

Scenic vistas are locations from which the public can experience unique and exemplary views, typically from elevated vantage points that offer panoramic views of great breadth and depth.

Viewer exposure addresses the variables that affect the viewing conditions of a site. Viewer exposure considers some or all of the following factors: landscape visibility (the ability to see the landscape); viewing distance (i.e., the proximity of viewers to the project); viewing angle (whether the project would be viewed from a superior, inferior, or level line of sight); extent of visibility (whether the line of sight is open and panoramic to the project area or restricted by terrain, vegetation, and/or structures); and duration of view.

A *viewshed* is an area of land, water, or other urban or environmental element that is visible to the human eye from a fixed vantage point.

REGIONAL VISUAL SETTING

The greater San Francisco Bay region is a complex system of mountain ranges, valleys, and waterways that, together, create a unique area that not only defines the character of the region but also contributes to the overall character of California. Some notable areas include the distinctive urban center of San Francisco, the cliffs of the Marin Headlands, the Pacific Ocean coastline, and the bay.

VISUAL STUDY AREA

The visual study area for the Waterfront Plan includes all public areas from which Waterfront Plan components would come into view. The Port of San Francisco's waterfront extends along 7.5-miles of San Francisco Bay. The Plan area is generally bounded to the north by Hyde Street Pier and Jefferson Street in Fisherman's Wharf and includes piers and upland properties adjacent to The Embarcadero, including Oracle Park; piers and waterfront properties adjacent to Terry A. Francois Boulevard in Mission Bay; and properties generally east of Illinois Street south of Mission Bay to Cargo Way in India Basin. The Waterfront Plan divides the waterfront into the Northern Waterfront and Southern Waterfront, with five subareas, as described and shown in Chapter 2, Project Description, and as discussed in this section. The exact boundaries of the visual study area depend on site conditions (i.e., viewshed, structures, landforms) and are site-specific.

VISUAL CHARACTER OF THE PLAN AREA

GENERAL CHARACTERISTICS

The Waterfront Plan area is urban in character and includes a diverse and intermixed combination of modern and historic buildings and structures, maritime and industrial facilities, vehicular streets, recreational trails, parks and public spaces, and natural areas along the shoreline. The linear stretch of the Plan area extends through several San Francisco districts and neighborhoods, contributing substantially to its diverse visual character.

The Plan area has and continues to experience physical and visual transformation in the form of redevelopment and infill development. This process of transformation has created a visual environment that includes a wide variety architectural styles, mixing old with new. As a result of this ongoing evolution, the massing, scale, materials, and architectural character (with respect to age and style) of the buildings and structures in the Plan area do not conform to any strongly discernible overall pattern.

Open spaces in the Plan area also vary in character and are largely related to the physical form of the waterfront edge. From Fisherman's Wharf to just south of China Basin Channel, the waterfront is a built edge supported by The Embarcadero seawall and pile-supported pier decks. The built seawall ends at the Mission Bay waterfront, transitioning to a solid landform that meets the water.

Except where views are obscured by buildings or other intervening structures or landforms, the Plan area offers expansive views of San Francisco Bay, the San Francisco-Oakland Bay Bridge (Bay Bridge), the East Bay, and historic maritime facilities along the waterfront. Numerous street views to the waterfront are available from areas to the west of the Plan area due to the city's hilly topography, the compactness of adjacent districts, and the built character and maritime uses of the waterfront.

The three Northern Waterfront subareas; Fisherman's Wharf, Northeast Waterfront, and South Beach, share a similar land use history and architectural character. The historic finger piers and bulkhead buildings of the

Embarcadero Historic District are defining elements that span all three subareas. The Embarcadero and Terry A. Francois Boulevard, which extend in a north-south direction through the Northern Waterfront subareas and the Mission Bay subarea south of China Basin, form a break in the city landscape that creates two distinct identities: city neighborhoods on the west side, and maritime ships, waterfront activities, and historic architecture on the east side.

The two Southern Waterfront subareas; Mission Bay and Southern Waterfront, include a variety of maritime uses, along with waterfront parks and direct access to the bay. These subareas include new mixed-use neighborhoods; commercial, residential, and recreational uses; and light industrial buildings and facilities. This geography also includes the Blue Greenway network of parks, public access, natural habitat, and water recreation facilities. Key physical features and visual characteristics of the Northern Waterfront and Southern Waterfront subareas are described below.

FISHERMAN'S WHARF SUBAREA

The approximately 117-acre Fisherman's Wharf subarea extends from the east end of Aquatic Park to the east side of Pier 39, an area of shoreline located roughly between Hyde and Kearny streets. Current land uses in the Fisherman's Wharf subarea include commercial and industrial fishing, maritime activities, and retail, restaurant, and entertainment uses, including many tourism-related businesses. Piers 45 and 43 are located within the Embarcadero Historic District, which includes historic finger piers, as well as bulkhead and wharf structures extending from Fisherman's Wharf to Pier 48 in the Mission Bay subarea.

The Fisherman's Wharf subarea includes an eclectic mix of architectural styles and materials. The scale and size of buildings on the seawall lots and in the adjacent upland neighborhood is generally small. Most buildings do not exceed two stories in height. Along Jefferson Street, architectural changes to building fronts occur as frequently as every 10 feet. Some small-scale buildings are interspersed with mid-block alleys that provide pedestrian passages to the water's edge. There are also a variety of public access and open spaces in the Fisherman's Wharf subarea. Most of the waterfront edge is publicly accessible from Pier 39 to Pier 45. The waterfront edge offers views of the bay, Alcatraz Island, and historic ships and fishing operations.

NORTHEAST WATERFRONT SUBAREA

The approximately 73-acre Northeast Waterfront extends from Pier 35 to Pier 14 along The Embarcadero, an area located roughly between Kearny Street to the north of The Embarcadero and Howard Street to the south. The Northeast Waterfront is part of a former maritime and industrial district that has evolved into a mixed-use neighborhood. The Northeast Waterfront includes the Ferry Building, Piers 1-5, and Pier 15, which are Embarcadero Historic District structures that have been rehabilitated for commercial, retail, restaurant, recreational, and maritime uses. Buildings located within the Northeast Waterfront Historic District are also located in this subarea. Parks and open spaces in this subarea include the Pier 27 Cruise Terminal Park, Harry Bridges Plaza, Downtown Ferry Terminal Plaza, and Piers 7 and 14. Common building characteristics in this area include large massings, minimal architectural detailing, and the repeated use of vertically-shaped window and door openings.

SOUTH BEACH SUBAREA

The approximately 90-acre South Beach subarea extends from Rincon Park to Oracle Park. South Beach is an area along The Embarcadero that is located roughly between Howard Street to the north and King/Third Street to the south. This subarea is a former heavy industrial maritime area. The current land uses include open

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4.A. Aesthetics

space, industrial, mixed-use residential, commercial, and maritime uses. Parks and open spaces in this subarea include Rincon Park, Brannan Street Wharf, South Beach Park, and the PortWalk along Oracle Park. Significant public investments and the opening of the Oracle Park have largely converted this former heavy industrial maritime area to a modern urban waterfront neighborhood. Dilapidated piers have been removed to create a connected network of waterfront parks and open spaces along The Embarcadero, from Rincon Park to the gateway of the Blue Greenway open space network south of China Basin Channel.

MISSION BAY SUBAREA

The approximately 98-acre Mission Bay subarea extends from China Basin Channel/Mission Creek to the north to Mariposa Street to the south. Port properties in the Mission Bay subarea include China Basin, Pier 52 Corrine Woods Public Boat Launch, and the Terry A. Francois Boulevard public realm. The Mission Bay subarea also includes Pier 50. Park, commercial, and maritime boatyard uses occupy Port properties at the south end of the Mission Bay subarea. Parks and open spaces in this subarea include Bayfront Park, Agua Vista Park, and Mission Creek Park.

SOUTHERN WATERFRONT SUBAREA

The approximately 417-acre Southern Waterfront subarea extends from Pier 70 to India Basin, and is located roughly between Mariposa Street and Hunters Point Boulevard. The Southern Waterfront subarea includes a mix of land uses, including the historic Pier 70 shipyard and Pier 70 Special Use District (SUD), Blue Greenway parks, and the Port's cargo terminal, maritime, and industrial operations. Industrial buildings and facilities in this subarea are interspersed with natural habitat and water recreation areas. Parks and open spaces in this subarea include Crane Cove Park, Warm Water Park, Bayview Gateway, and Heron's Head Park.

SCENIC AND VISUAL RESOURCES

Scenic resources are elements in the environment, such as topographic features, trees, rock outcroppings, or other features of the built or natural environment, that contribute to a scenic public setting. Scenic resources may be protected by federal, state, or local regulations or highly valued by the local community. Scenic vista views are views from public areas that generally encompass a wide area with long-range views to surrounding elements in the landscape. Scenic vista views often have local and regional value. Vistas also have a directional range, which is to say that some viewpoints have scenic vistas with a 360-degree view in all directions, while others may be limited in one direction in a manner that reduces the line-of-sight angle and the amount of vista that is visible. Scenic vista viewsheds allow the public to access panoramic views of natural features, including the ocean, striking or unusual natural terrain, or unique urban or historic features that are identified in adopted policies or plans.

As described above, several locations in the Plan area, and the waterfront edge in particular, offer expansive views of San Francisco Bay, the Bay Bridge, Alcatraz Island, the East Bay, and historic ships and fishing operations. The Plan area also includes numerous visually important buildings, maritime structures, and historic districts, including historic resources within the Embarcadero Historic District, the Northeast Waterfront Historic District, and the Union Iron Works Historic District, which include Port buildings and structures that recall shipbuilding, steel manufacturing, and maritime activities in the Pier 70 area. The San Francisco Ferry Building is located on The Embarcadero in the Northeast Waterfront subarea within the Embarcadero Historic District, and is a designated City landmark. Completed in 1898, the building served as a destination for ferry commuters to San Francisco from the East Bay and a connection to San Francisco for the transcontinental rail lines of the Southern Pacific. A restoration and renovation of the Ferry Building and complex began in 2002, and the building currently

serves as a terminal for ferries, a marketplace, and an office building. The large Beaux Arts Ferry Building and its 245-foot-tall clock tower is a prominent San Francisco landmark and a historic resource.

In addition, numerous street views to the Plan area and its visually important buildings and features are available from the areas to the west of the Plan area due to the city's hilly topography, the compactness of adjacent districts, and the built character and maritime uses of the waterfront.

There are no state designated scenic highways in San Francisco. However, a 3.2-mile segment of Interstate 80 (I-80) that extends across the Bay Bridge is identified as an eligible state scenic highway. The Bay Bridge is a prominent city and regional landmark that is visible from numerous vantage points within the Plan area, and high-quality views of the Plan area are available to motorists traveling on the bridge. In addition, an approximately 25-mile segment of I-280 between South San Francisco and Menlo Park is an eligible state scenic highway, but no portion of the Plan area is visible from this highway segment. Finally, a portion of the 49-Mile Scenic Drive, a designated scenic road tour highlighting much of San Francisco, extends adjacent to and within the Plan area. The route generally extends as Indiana and Iowa streets west of the South Beach subarea, as King Street west of the Mission Bay subarea, and as The Embarcadero within the South Beach and Northern Waterfront subareas.⁴³

LIGHT AND GLARE

Nighttime lighting is necessary to provide and maintain safe, secure, and attractive environments. However, these lights have the potential to produce spillover light and glare, and if designed incorrectly, could be considered unattractive. Although nighttime light is a common feature of urban areas, spillover light can adversely affect light-sensitive uses, such as residential units at nighttime.

Glare results when a light source directly in the field of vision is brighter than the eye can comfortably accept. Squinting or turning away from a light source is an indication of glare. The presence of a bright light in an otherwise dark setting may be distracting or annoying, referred to as discomfort glare, or it may diminish the ability to see other objects in the darkened environment, referred to as disability glare. Reflective glare, such as the reflected view of the sun from a window or mirrored surface, can be distracting during the day.

Sources of light and glare are typical and abundant in the urban environment of the Plan area, including streetlights, vehicular parking lot lights, security lights, vehicular headlights, internal building lights, and reflective building surfaces and windows.

4.A.3 Regulatory Framework

FEDERAL REGULATIONS

PLANS CONSIDERED UNDER THE COASTAL ZONE MANAGEMENT ACT

The authority to evaluate projects conducted, funded, or permitted by the federal government is granted to coastal states through the federal Coastal Zone Management Act of 1972 (CZMA), United States Code section 3501 et seq., as amended in 1990 under the Coastal Zone Act Reauthorization Amendments. The CZMA requires that federal actions be consistent to the maximum extent practicable with federally approved state

⁴³ California Department of Transportation (Caltrans), California State Scenic Highways, 2021, <https://dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways>, accessed August 25, 2021.

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coastal plans. Federal actions requiring CZMA consistency findings may include permits issued by the U.S. Army Corps of Engineers (Corps), the National Park Service, and other federal agencies where required. The state coastal management plans applicable to the Waterfront Plan as it pertains to aesthetic and visual resources are the San Francisco Bay Conservation and Development Commission (BCDC) San Francisco Bay Plan and San Francisco Waterfront Special Area Plan, as discussed below.

GENERAL MANAGEMENT PLAN—SAN FRANCISCO MARITIME NATIONAL HISTORICAL PARK

The National Park Service (NPS) General Management Plan (GMP) for San Francisco Maritime National Historical Park guides the management of resources, visitor use, and general development at the park. It summarizes the final actions that were approved in the park's Final GMP/Environmental Impact Statement completed in September 1997.

The direction for future park management is based on the laws establishing the park, the purpose of the park, and the park's significant resources. The park's purpose, as mandated by Congress, is to preserve and interpret the history of achievements of seafaring Americans and the nation's maritime heritage, especially on the Pacific Coast.

The park encompasses about 35 acres on San Francisco's northern waterfront of what was once an industrial and food packing section of the city. NPS has a lease with the Port for use of the Hyde Street Pier, which hosts a valuable collection of historic ships. In addition to the fleet of historic vessels and approximately 90 small watercraft, the Historical Park includes a museum artifact collection of approximately 30,000 items, historic documents, photography, and manuscripts; a maritime library estimated at over 21,000 titles; and historic structures including the Aquatic Park Bathhouse and historic district, the Tubbs Cordage Company office building, and the Haslett Warehouse.

Any subsequent projects anticipated under the Waterfront Plan within the San Francisco Maritime National Historical Park would be required to comply with the San Francisco Maritime National Historical Park GMP.

STATE REGULATIONS

SCENIC HIGHWAY PROGRAM

California's Scenic Highway Program was created by the Legislature in 1963 to preserve and protect scenic highway corridors from change that would diminish the aesthetic value of lands adjacent to highways. The state laws governing the Scenic Highway Program are found in the Streets and Highways Code, section 260. The State Scenic Highway System includes a list of highways that are either eligible for designation as scenic highways or have been so designated. These highways are identified in section 263 of the Streets and Highways Code.

The California Department of Transportation (Caltrans) is the state agency that designates highways as scenic highways. A highway may be designated scenic depending upon how much of the natural landscape can be seen by travelers, the scenic quality of the landscape, and the extent to which development intrudes upon the traveler's enjoyment of the view. When a city or county nominates an eligible scenic highway for official designation, it must identify and define the scenic corridor of the highway. A scenic corridor is the land generally adjacent to and visible from the highway. A scenic corridor is identified using a motorist's line of vision. A reasonable boundary is selected when the view extends to the distant horizon. The corridor protection program does not preclude development, but seeks to encourage quality development that does

not degrade the scenic value of the corridor. Jurisdictional boundaries of the nominating agency are also considered. The agency must also adopt ordinances to preserve the scenic quality of the corridor or document such regulations that already exist in various portions of local codes. These ordinances make up the scenic corridor protection program.

There are no state designated scenic highways in San Francisco.⁴⁴ However, a 3.2-mile segment of I-80 that extends across the Bay Bridge is identified as an eligible state scenic highway.

CALIFORNIA GREEN BUILDING CODE

The California Green Building Code includes mandatory requirements for exterior light sources to reduce the amount of light and glare that extends beyond a property. Non-residential mandatory measures contained in section 5.106.8, Light Pollution Reduction, require that exterior lights be shielded or meet “cutoff” lighting standards and meet specified backlight, uplight, and glare ratings designed to limit the amount of light that escapes beyond a site’s boundary.

SAN FRANCISCO BAY PLAN⁴⁵

The San Francisco Bay Plan (Bay Plan) was prepared by BCDC from 1965 through 1969 and amended through 2019 in accordance with the McAteer-Petris Act. The Bay Plan guides the protection and use of the bay and its shoreline. BCDC has permit jurisdiction over shoreline areas subject to tidal action up to the mean high tide line and including all sloughs, tidelands, submerged lands, and marshlands lying between the mean high tide and 5 feet above mean sea level for the nine Bay Area counties with bay frontage, and the land lying between the bay shoreline and a line drawn parallel to, and 100 feet from, the bay shoreline, known as the 100-foot shoreline band. Under the McAteer-Petris Act, the Bay Plan provides policy direction for BCDC’s permit authority regarding the placement of fill, extraction of materials, determining substantial changes in use of land, water, or structures within its jurisdiction, protection of the bay habitat and shoreline, and maximizing public access to the bay.

Part IV of the Bay Plan contains findings and policies that pertain to development of the bay and shoreline. These findings and policies address the many facets that comprise the uses, needs, and design issues associated with balancing the environmental, ecological, economic, recreational and social objectives of development within or along the shoreline of the bay. They include: (1) Safety of Fills; (2) Protection of the Shoreline; (3) Dredging; (4) Water-Related Industry; (5) Ports; (6) Airports; (7) Transportation; (8) Commercial Fishing; (9) Recreation (including Marinas); (10) Public Access; (11) Appearance, Design and Scenic Views; (12) Salt Ponds and Other Managed Wetlands; and (13) Other Uses.

The Appearance, Design, and Scenic Views policies of the Bay Plan are provided below.

1. To enhance the visual quality of development around the bay and to take maximum advantage of the attractive setting it provides, the shores of the bay should be developed in accordance with the Public Access Design Guidelines.
2. All bayfront development should be designed to enhance the pleasure of the user or viewer of the bay. Maximum efforts should be made to provide, enhance, or preserve views of the bay and shoreline,

⁴⁴ Caltrans, California State Scenic Highways, 2021, <https://dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways>, accessed May 16, 2021.

⁴⁵ San Francisco Bay Conservation and Development Commission, *San Francisco Bay Plan*, 1965 (as amended through 2019), https://bcdc.ca.gov/plans/sfbay_plan, accessed May 16, 2021.

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especially from public areas, from the bay itself, and from the opposite shore. To this end, planning of waterfront development should include participation by professionals who are knowledgeable of the Commission's concerns, such as landscape architects, urban designers, or architects, working in conjunction with engineers and professionals in other fields.

3. In some areas, a small amount of fill may be allowed if the fill is necessary-and is the minimum absolutely required-to develop the project in accordance with the Commission's design recommendations.
4. Structures and facilities that do not take advantage of or visually complement the bay should be located and designed so as not to impact visually on the bay and shoreline. In particular, parking areas should be located away from the shoreline. However, some small parking areas for fishing access and bay viewing may be allowed in exposed locations.
5. To enhance the maritime atmosphere of the Bay Area, ports should be designed, whenever feasible, to permit public access and viewing of port activities by means of (a) viewpoints (e.g., piers, platforms, or towers), restaurants, etc., that would not interfere with port operations, and (b) openings between buildings and other site designs that permit views from nearby roads.
6. Additional bridges over the bay should be avoided, to the extent possible, to preserve the visual impact of the large expanse of the bay. The design of new crossings deemed necessary should relate to others nearby and should be located between promontories or other land forms that naturally suggest themselves as connections reaching across the bay (but without destroying the obvious character of the promontory). New or remodeled bridges across the bay should be designed to permit maximum viewing of the bay and its surroundings by both motorist and pedestrians. Guard rails and bridge supports should be designed with views in mind.
7. Access routes to bay crossings should be designed so as to orient the traveler to the bay (as in the main approaches to the Golden Gate Bridge). Similar consideration should be given to the design of highway and mass transit routes paralleling the bay (by providing frequent views of the bay, if possible, so the traveler knows which way he or she is moving in relation to the bay). Guardrails, fences, landscaping, and other structures related to such routes should be designed and located so as to maintain and to take advantage of bay views. New or rebuilt roads in the hills above the bay and in areas along the shores of the bay should be constructed as scenic parkways in order to take full advantage of the commanding views of the bay.
8. Shoreline developments should be built in clusters, leaving open area around them to permit more frequent views of the bay. Developments along the shores of tributary waterways should be bay-related and should be designed to preserve and enhance views along the waterway, so as to provide maximum visual contact with the bay.
9. "Unnatural" debris should be removed from sloughs, marshes, and mudflats that are retained as part of the ecological system. Sloughs, marshes, and mudflats should be restored to their former natural state if they have been despoiled by human activities.
10. Towers, bridges, or other structures near or over the bay should be designed as landmarks that suggest the location of the waterfront when it is not visible, especially in flat areas. But such landmarks should be low enough to assure the continued visual dominance of the hills around the bay.
11. In areas of the bay where oil and gas drilling or production platforms are permitted, they should be treated or screened, including derrick removal, so they will be compatible with the surrounding open water, mudflat, marsh or shore area.

12. In order to achieve a high level of design quality, the Commission's Design Review Board, composed of design and planning professionals, should review, evaluate, and advise the Commission on the proposed design of developments that affect the appearance of the bay in accordance with the Bay Plan findings and policies on Public Access; on Appearance, Design, and Scenic Views; and the Public Access Design Guidelines. city, county, regional, state, and federal agencies should be guided in their evaluation of bayfront projects by the above guidelines.
13. Local governments should be encouraged to eliminate inappropriate shoreline uses and poor quality shoreline conditions by regulation and by public actions (including development financed wholly or partly by public funds). The Commission should assist in this regard to the maximum feasible extent by providing advice on bay-related appearance and design issues, and by coordinating the activities of the various agencies that may be involved with projects affecting the bay and its appearance.
14. Views of the bay from vista points and from roads should be maintained by appropriate arrangements and heights of all developments and landscaping between the view areas and the water. In this regard, particular attention should be given to all waterfront locations, areas below vista points, and areas along roads that provide good views of the bay for travelers, particularly areas below roads coming over ridges and providing a "first view" of the bay (shown in Bay Plan Maps, Natural Resources of the Bay).
15. Vista points should be provided in the general locations indicated in the Plan maps. Access to vista points should be provided by walkways, trails, or other appropriate means and connect to the nearest public thoroughfare where parking or public transportation is available. In some cases, exhibits, museums, or markers would be desirable at vista points to explain the value or importance of the areas being viewed.

SAN FRANCISCO WATERFRONT SPECIAL AREA PLAN⁴⁶

In 1975, after a collaborative planning process with the San Francisco Planning Department, BCDC adopted the San Francisco Waterfront Special Area Plan (SAP). The SAP sets forth specific policies for uses, fill, public access, and design for piers and shoreline areas between Hyde Street Pier in Fisherman's Wharf to India Basin, including all Port piers and pile-supported facilities. The SAP includes general policies that apply to all areas covered by the Waterfront Plan, as well as geographic- or site-specific policies. The SAP divides the waterfront into three geographic areas, in which permitted uses, policies, and maps are addressed in each area: Fisherman's Wharf, Northeastern Waterfront, and Southern Waterfront.

In July 2000, BCDC approved major amendments to the SAP for the Northeastern Waterfront, which extends from Pier 35 to China Basin. They were coordinated with action taken by the San Francisco Port Commission to update the Port's 1997 Waterfront Land Use Plan, to align BCDC and Port policies for the San Francisco waterfront. Within the Northeast Waterfront, the amendments set forth new policies for: (1) repair, seismic upgrades, and reconstruction of piers for uses and developments consistent with the public trust and Burton Act, noting which piers are not designated for removal; (2) public access on piers; (3) eliminate the Replacement Fill (50% Rule) Policy in the Northeastern Waterfront; create new policies and requirements for the removal of specified piers; create four designated "Open Water Basins"; create two major waterfront public plazas; and provide for the pier repair and redevelopment policies described under item 1; and (4) funding and timeline requirements for implementing fill removal and public plazas linked to new development on Piers 27–31 and Piers 30–32.

⁴⁶ San Francisco Bay Conservation and Development Commission, *San Francisco Waterfront Special Area Plan*, 1975 (as amended through April 2012), https://bcdc.ca.gov/sfwsap/SFWSAP_Final_2012.pdf, accessed May 16, 2021.

The policies in the SAP, in addition to the McAteer-Petris Act and other sections of the Bay Plan, are the basis for BCDC's permit decisions and for federal consistency review under the CZMA for projects proposed along the San Francisco waterfront.

GENERAL POLICIES

The SAP includes general policies that are applicable to the area covered by the SAP and geographic-specific policies applicable to vicinities of the SAP. The following general policies of the SAP are applicable to the evaluation of potential effects to aesthetic and visual resources that could result from implementation of the Waterfront Plan.

View Corridors

Important bay views along The Embarcadero and level inland streets should be preserved and improved. Minor encroachment into the view corridors from level inland streets may be permitted under the following conditions:

- a. Where the encroaching element has a distinct maritime character, is separated from the shoreline by water, and adds variety to the views along the waterfront;
- b. Where minor structures (such as kiosks) are desirable to provide public amenities contributing to a continuity of interest and activity along the waterfront; and
- c. Where essential maritime facilities cannot reasonably be located and designed to avoid view blockage.

GEOGRAPHIC-SPECIFIC POLICIES

The Waterfront Plan area is within the Fisherman's Wharf, Northeastern Waterfront, and Southern Waterfront geographic vicinities of the SAP. The following geographic-specific policies of the SAP are applicable to the evaluation of potential effects to aesthetic and visual resources that could result from implementation of the Waterfront Plan.

Fisherman's Wharf

The Fisherman's Wharf policies are associated with providing maximum feasible public access; visual access to the bay; maintaining the area as a center for commercial fishing and maritime uses; and permitting limited bay-oriented commercial recreation.

Northeastern Waterfront

The SAP's most detailed policies apply to the Northeast Waterfront. This reflects the intricacies of preserving historic pier and waterfront structures in the Embarcadero Historic District, while defining strategic locations to remove fill to create major public plazas; designating open water basins around these plazas and major public spaces to preserve expansive bay views for the public; and articulating how individual development projects should meet public trust and maximum feasible public access requirements. The following Northeastern Waterfront policies of the SAP are applicable to the evaluation of potential effects to aesthetic and visual resources that could result from implementation of the Waterfront Plan.

Waterfront Form and Structure

- a. Development should take advantage of its location on the bay and reflect and recognize the unique identity of the waterfront districts established by street pattern, building scale, materials, landscaping, land uses, and public access areas.
- b. To the maximum practicable extent, maintain the finger pier configuration of the waterfront.
- c. Take advantage of the bay as a design asset by encouraging transparent buildings and other design treatments.
- d. Building height and bulk should generally be low scale in order to preserve views to the bay, minimize shading of on-pier public access areas and reflect the historic character of the waterfront.
- e. Avoid placing mechanical equipment, pipes, or ducts on roof surfaces and shiny or highly polished materials on roof surfaces and facades.
- f. Use of reflective glass should be prohibited.
- g. To visually emphasize the length of the pier, include a regularly spaced series of architectural treatments (e.g., doors, windows, railing posts, light fixtures or other pier edge improvements).
- h. Sufficient building service (e.g., trash, or storage) and loading space for delivery and service vehicles should be provided without detracting from the building design or the design of adjoining public access areas. Enclose all servicing facilities within structures and shield them from public view. Prohibit exterior storage of a temporary or permanent nature except for maritime uses.
- i. Major new developments on waterside properties should highlight maritime features.
- j. General advertising in any public spaces or attached to any buildings should be prohibited. Allow only attractively designed identification, directional, regulatory or informational signs, and signs for on-site businesses on adjacent buildings. Permit illuminated signs, but prohibit flashing or animated signs.

Bay Views

1. Diverse views of the bay, the city, and waterfront and maritime activities along the water's edge should be provided at frequent intervals along The Embarcadero and Herb Caen Way, the Bayside History Walk and from public plazas and public access on piers, consistent with other policies in this plan.
2. Public overlooks and viewing areas with convenient pedestrian access should be provided on piers, including in areas of maritime and fish processing areas, where safety and use considerations permit. Selected buildings identified in the other policies in this plan should be removed to open up views.
3. Preserve the existing bay view corridor between the Pier 31 and Pier 33 Bulkhead Buildings.
4. Street rights-of-way that connect with the waterfront should be preserved and improved as view corridors to the bay, maritime activities, or waterfront structures. New development on piers should preserve or improve views of the bay, maritime activities and historic and new waterfront architecture, consistent with the Port and City plan policies.

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5. Minor encroachments may be permitted under the following conditions:
 - a. Where the encroaching element has a distinct maritime character, is separated from the shoreline by water, and adds variety to the views along the waterfront, including historic ships and certain navigational vessels that contribute to the character of the view shed;
 - b. Where minor structures (such as kiosks) are desirable to provide public amenities contributing to a continuity of interest and activity along the waterfront; and
 - c. Where essential maritime facilities cannot reasonably be located and designed to avoid view blockage.
6. Billboards should be prohibited along the waterfront.
7. Views of the water should be maximized by designing handrails, fences, marina gates, canopies, and other shoreline accessory structures with maximum practicable transparency.

Southern Waterfront

The Southern Waterfront policies are associated with providing continuous public access to China Basin Channel and the shoreline; and limited development on the shorelines, preferably bay-oriented commercial recreation.

LOCAL REGULATIONS

SAN FRANCISCO GENERAL PLAN

The San Francisco General Plan provides general policies and objectives to guide land use decisions. The general plan contains 10 elements (commerce and industry, recreation and open space, housing, community facilities, urban design, environmental protection, transportation, air quality, community safety, and arts) that set forth goals, policies, and objectives for physical development of the city. The general plan also contains many area plans, which provide more-specific policy direction for certain neighborhoods, primarily on the east side of the city. The Waterfront Plan includes lands within the Northeastern Waterfront and Central Waterfront area plans of the general plan.

URBAN DESIGN ELEMENT

The Urban Design Element of the general plan concerns the physical character and order of the city, and the relationship between people and their environment. The Urban Design Element is concerned both with development and with preservation. The Urban Design Element includes policies relevant to aesthetic resources throughout its City Pattern, Conservation, Major New Development, and Neighborhood Environment sections. Policies directly relevant to the Waterfront Plan include policy 1.1, directing that major views in the city should be recognized and protected, with particular attention to those of open space and water; and policy 1.3, recognizing that buildings, when seen together, produce a total effect that characterizes the city and its districts.

NORTHEASTERN WATERFRONT AREA PLAN

The Northeastern Waterfront Area Plan of the general plan includes objectives and policies for four geographic subareas, as well as The Embarcadero Corridor that links them: the Fisherman's Wharf Subarea (which extends from the Municipal Pier at Van Ness Avenue through Pier 39); the Base of Telegraph Hill Subarea (Pier 35

through Pier 7); the Ferry Building Subarea (Pier 5 through Rincon Park); and the South Beach Subarea (Pier 22 through Pier 46B).

The dominant planning principles of the Northeastern Waterfront Area Plan are to (1) provide for those uses that positively contribute to the environmental quality of the area and contribute to the economic health of the Port and the 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.

The Fisherman's Wharf, Northeast Waterfront, and South Beach subareas of the Waterfront Plan are within the Northeastern Waterfront Area Plan and are subject to compliance with its policies.

Northeast Waterfront Area Plan policies directly relevant to visual and aesthetic resources for the Waterfront Plan include policy 10.1, preserve the physical form of the waterfront and reinforce San Francisco's distinctive hill form by maintaining low structures near the water, with an increase in vertical development near hills or the downtown core area; and policy 10.2, preserve and create view corridors which can link the city and the bay.

CENTRAL WATERFRONT PLAN

The geographic area covered by the Central Waterfront Area Plan (adopted in 2008) is bounded by Mariposa Street on the north, San Francisco Bay on the east, Islais Creek on the south, and I-280 on the west. This plan supersedes the 1990 Central Waterfront Area Plan. The entire area designated as Mission Bay in the 1990 Central Waterfront Plan has been designated as two separate Redevelopment Project Areas, Mission Bay North and Mission Bay South, and is governed by the Mission Bay North and Mission Bay South Redevelopment Plans, respectively.

Originally, the Central Waterfront was a rocky peninsula extending from Potrero Hill approximately between 20th and 22nd streets. The Central Waterfront today is a manmade landscape whose natural appearance has been completely transformed. The creeks, marshes, waters, and hills that dominated the area in 1850 have vanished in favor of flat lands and fill. This early transformation was accompanied by the development of industrial, maritime, and residential uses.

The Central Waterfront continues to be home to many production, distribution, and repair (PDR) firms, the traditional users of industrial land, which are an important part of the city's economy. Unlike most typical residential neighborhoods, a number of PDR businesses are intermingled with residential uses. This mixing has continued with more recent housing development, in the form of live/work units. Given the importance of PDR jobs to the city's economy and the increasing demands for housing, the balance of these two uses remains an important goal, as well as a challenge.

A portion of Southern Waterfront subarea of the Waterfront Plan, from Mariposa Street on the north to Islais Creek on the south, is within the Central Waterfront Area Plan and is subject to compliance with its policies.

Central Waterfront Area Plan policies directly relevant to visual and aesthetic resources for the Waterfront Plan include policy 3.1.1, adopt heights that are appropriate for the Central Waterfront's location in the city, the prevailing street and block pattern, and the anticipated land uses, while producing buildings compatible with the neighborhood's character; policy 3.1.2, development should step down in height as it approaches the bay

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to reinforce the city's natural topography and to encourage and active and public waterfront; and policy 3.1.5, respect public view corridors, as San Francisco's natural topography provides important wayfinding cues for residents and visitors alike, and views towards the hills or the bay enable all users to orient themselves vis-à-vis natural landmarks. Furthermore, the city's striking location between the ocean and the bay, and on either side of the ridgeline running down the peninsula, remains one of its defining characteristics and should be celebrated by the city's built form.

SAN FRANCISCO PLANNING CODE

The San Francisco Planning Code is a part of the city's Municipal Code and is periodically amended to include changes made by recent legislation. The code was adopted to (a) guide, control, and regulate future growth and development in accordance with the city's general plan; (b) protect the character and stability of residential, commercial, and industrial areas within the city and promote their orderly and beneficial development; (c) provide adequate light, air, privacy, safety, and convenience of access to property; (d) prevent overcrowding the land; and (e) regulate the location of buildings and the use of buildings and land adjacent to streets and thoroughfares.⁴⁷ The code outlines general plan consistency criteria, establishes zoning procedures and regulations, and defines boundaries and rules for the city's use districts, preservation districts, commercial districts, height and bulk districts, and many others. The majority of Port lands are zoned C-2 (Community Business), M-1 (Light Industry), or M-2 (Heavy Industry) districts that allow the mix of maritime industries and non-maritime uses defined in the Waterfront Plan. Zoning and height and bulk districts for the Plan area and its five subareas are described in Chapter 2, Project Description, of this Draft EIR. Pursuant to Proposition B (2014), any change to building height limits for Port-owned property requires approval by San Francisco voters. No changes to the underlying zoning or height and bulk districts are proposed as part of the Waterfront Plan.

PORT OF SAN FRANCISCO WATERFRONT PLAN

The 1997 Waterfront Plan governs the use, design, and improvement of properties under its jurisdiction, which include historic piers, shoreline, and upland properties. The 1997 Waterfront Plan provides goals and policies for the Port's 7.5-mile waterfront and objectives for the five geographic subareas described above. A detailed description of the 1997 Waterfront Plan and its goals and policies applicable to aesthetic and visual resources is included in Chapter 2, Project Description, of this Draft EIR. An evaluation of aesthetic effects that could occur with adoption and implementation of the Waterfront Plan, as well as consideration of new or updated Waterfront goals and policies applicable to aesthetic and visual resources, is provided in the impact analysis in this section.

SAN FRANCISCO BAY TRAIL PLAN

The San Francisco Bay Trail Plan proposes development of a regional hiking and bicycling trail around the perimeter of San Francisco and San Pablo Bays. The plan was prepared in 2015 by the Association of Bay Area Governments (ABAG) pursuant to Senate Bill 100, which mandated that the Bay Trail provide connections to existing park and recreation facilities, create links to existing and proposed transportation facilities, and be planned in such a way as to avoid adverse effects on environmentally sensitive areas. Over 350 miles of the Bay Trail have been constructed. When complete, the trail will pass through 47 cities and all nine Bay Area counties.

⁴⁷ *San Francisco Planning Code*, section 101, https://codelibrary.amlegal.com/codes/san_francisco/latest/sf_planning/0-0-0-17760, accessed June 12, 2020.

The Bay Trail Plan contains policies to guide selections of the trail route and implementation of the trail system. Policies fall into five categories:

- *Trail alignment policies* reflect the goals of the Bay Trail program—to develop a continuous trail that highlights the wide variety of recreational and interpretive experiences offered by the diverse bay environment and is situated as close as feasible to the shoreline, within the constraints defined by other policies of the plan.
- *Trail design policies* underscore the importance of creating a trail that is accessible to the widest possible range of trail users and that is designed to respect the natural or built environments through which it passes. Minimum design guidelines for trail development are recommended for application by implementing agencies.
- *Environmental protection policies* underscore the importance of San Francisco Bay’s natural environment and define the relationship of the proposed trail to sensitive natural environments such as wetlands.
- *Transportation access policies* reflect the need for bicycle and pedestrian access on Bay Area toll bridges, in order to create a continuous trail and to permit cross-bay connections as alternative trail routes.
- *Implementation policies* define a structure for successful implementation of the Bay Trail, including mechanisms for continuing trail advocacy, oversight, and management.

The Bay Trail extends through the Plan area generally as an off-street paved trail adjacent to and immediately east of The Embarcadero through the Fisherman’s Wharf, Northeast Waterfront, and South Beach subareas, and as paved, unpaved, future-planned, and on-street segments within the Mission Bay and Southern Waterfront subareas.

4.A.4 Impacts and Mitigation Measures

SIGNIFICANCE CRITERIA

For the purpose of this analysis, the following criteria were used to determine whether subsequent projects that could occur with implementation of the Waterfront Plan would result in a significant impact on aesthetic resources. Implementation of the Waterfront Plan would have a significant effect on aesthetics if the project would:

- Have a substantial adverse effect on a scenic vista.
- Substantially damage scenic resources, including but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway.
- In non-urbanized areas, substantially degrade the existing visual character or quality of the site and its surroundings.
- In urbanized areas, conflict with applicable zoning and other regulations governing scenic quality.
- Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

APPROACH TO ANALYSIS

The analysis of potential aesthetic impacts involves a qualitative comparison of the existing built and natural environment to the future built and natural environment and an evaluation of the visual changes that would result from implementation of the Waterfront Plan. Potential impacts to the visual character of the Plan area and its surroundings that could result from subsequent projects that could occur with implementation of the Waterfront Plan are considered, as well as the potential for subsequent projects under the Waterfront Plan to create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the project area.

As described in Chapter 2, Project Description, of this Draft EIR, the Waterfront Plan is a long-term planning document that sets goals and policies to guide maritime and non-maritime uses and waterfront improvements and would not immediately result in new development. Its approval would require the City to amend the general plan, planning code, and associated zoning maps to align planning policies, and reflect creation of the Waterfront SUD 4 in the Mission Bay and Southern Waterfront subareas, as amended by the Plan; however, the underlying zoning of allowable uses for the piers and seawall lots within the SUDs would remain the same. Therefore, although adoption of the Waterfront Plan would not immediately result in new development or result in direct physical changes in the environment, certain uses and activities are considered the logical consequences of adopting and implementing the Waterfront Plan. The evaluation of aesthetic effects considers the environmental impacts of the uses and activities that could occur under the Waterfront Plan subsequent to Plan adoption, which are the indirect effects of the Plan and are studied at a program level.

Section G, Analysis Assumptions, of this Draft EIR includes analysis of subsequent project sites (i.e., underdeveloped or undeveloped sites, such as parking lots on seawall lots or piers), which are assumed to be developed with new building construction in order to create a model that reflects build out of the Plan area should the Waterfront Plan be adopted and implemented. For these subsequent project sites, computer-generated building mass models are used to qualitatively evaluate aesthetics impacts. The three-dimensional building mass model does not incorporate any architectural design or detail. Instead, the model consists largely of simple box forms to represent a buildout condition that reflects base height limits and site coverage based on constraints for each of the six sites shown in Table 4-2, p. 4-8. The model assumes that these sites are redeveloped and other sites that are currently developed would remain in their current state. These assumptions are not based on actual project applications on file with the planning department, but reflect the Port's judgment related to the potential for where development could occur within the Plan area. These assumptions should not be interpreted as predicting how a particular site would be developed in the future, and reflect development that would be consistent with the existing zoning and height and bulk regulations for each site. **Figure 4.A-1** shows the locations for which three-dimensional building mass models were prepared. **Figure 4.A-2** through **Figure 4.A-14**, pp. 4.A-20 to 4.A-36, show existing views of these locations from key viewpoints (e.g., publicly accessible and highly trafficked areas) and views that incorporate the three-dimensional building mass models.



SOURCE: Google, 2020; ESA, 2021

Waterfront Plan

FIGURE 4.A-1
VISUAL SIMULATION LOCATION MAP

As discussed in Chapter 2, Project Description, of this Draft EIR, in addition to zoning, land use, and special use district requirements, the state density bonus program, as well as the City's Affordable Housing Bonus Program (codified in planning code section 206), would be applicable in the Plan area. This would result in the potential for added height for affordable housing projects. An increase in residential development in the Plan area as a result of implementation of the state density bonus program could only occur on Seawall Lot 330. Regarding potential aesthetic effects, it would be speculative to analyze the future height on Seawall Lot 330 given that a specific project is not currently proposed on that site. A subsequent project proposed on Seawall Lot 330 would undergo project-level CEQA review, as applicable, to determine whether it would create significant environmental effects related to aesthetics that were not disclosed in this Draft EIR as a result of the additional height increases or bulk modifications permitted under the state density bonus law. Nonetheless, as discussed above, computer-generated building mass models were prepared to qualitatively evaluate aesthetics impacts for analysis of development that could occur on subsequent project sites, including Seawall Lot 330.

IMPACT EVALUATION

Impact AE-1: The Waterfront Plan would not have a substantial adverse effect on a scenic vista, damage scenic resources, degrade the existing visual character or quality of public views of the site or its surroundings, or conflict with applicable zoning and other regulations governing scenic quality. (*Less than Significant*)

As described above, the Waterfront Plan area is urban in character and includes a diverse and intermixed combination of modern and historic buildings and structures, maritime and industrial facilities, vehicular streets, recreational trails, parks and public spaces, and natural areas along its shoreline. The linear stretch of the Plan area extends through several San Francisco districts and neighborhoods, contributing substantially to its diverse visual character. The Plan area has and continues to experience physical and visual transformation in the form of redevelopment and infill development. This process of transformation has created a visual environment that includes a wide variety architectural styles. As a result of this ongoing evolution, the massing, scale, materials, and architectural character (with respect to age and style) of the buildings and structures in the Plan area do not conform to any strongly discernible overall pattern. Open spaces in the Plan area also vary in character and are largely related to the physical form of the waterfront edge.

In terms of scenic vistas and resources, several locations in the Plan area, and the waterfront edge in particular, offer expansive views of San Francisco Bay, the Bay Bridge, Alcatraz Island, the East Bay, and historic ships and fishing operations. The Plan area also includes numerous visually important buildings, maritime structures, and historic districts, including historic resources within the Embarcadero Historic District (including the Ferry Building) and the Northeast Waterfront Historic District, as well as historic Port buildings and structures that recall shipbuilding, steel manufacturing, and other maritime activities that historically dominated this part of San Francisco's shoreline. In addition, numerous street views to the Plan area and its visually important buildings and features are available from areas west of the Plan area due to the city's hilly topography, the compactness of adjacent districts, and the built character and maritime uses of the waterfront.

There are no state designated scenic highways in San Francisco. However, a 3.2-mile segment of I-80 that extends across the Bay Bridge is identified as an eligible state scenic highway. The Bay Bridge is a prominent regional and city landmark that is visible from numerous vantage points within the Plan area, and high-quality views of the Plan area are available to motorists traveling on the bridge. In addition, an approximately 25-mile segment of I-280 between South San Francisco and Menlo Park is an eligible state scenic highway, but no portion of the

Plan area is visible from this highway segment. Finally, a portion of the 49-Mile Scenic Drive, a designated scenic road tour highlighting much of San Francisco, extends adjacent to and within the Plan area. The route generally extends as Indiana and Iowa streets west of the South Beach subarea, as King Street west of the Mission Bay subarea, and as The Embarcadero within the South Beach and Northern Waterfront subareas.

The San Francisco Bay Trail extends through the Plan area generally as an off-street paved trail adjacent to and immediately east of The Embarcadero through the Fisherman's Wharf, Northeast Waterfront, and South Beach subareas, and as paved, unpaved, future-planned, and on-street segments within the Mission Bay and Southern Waterfront subareas.

While adoption of the Waterfront Plan would not immediately result in new development or result in direct physical changes in the environment, certain uses and activities are considered to be logical consequences of adopting and implementing the Waterfront Plan. The evaluation of aesthetic effects considers the environmental impacts of the uses and activities of the Plan and its components subsequent to Plan adoption, which are the indirect effects of the Plan and are studied at a programmatic level of review. As discussed above, this Draft EIR, including this section, includes analysis of potential aesthetic impacts associated with development that could occur on subsequent project sites (i.e., underdeveloped or undeveloped sites, such as parking lots on seawall lots or piers), which are assumed to be developed with new building construction. In general, undeveloped seawall lots and piers could be developed with buildings that currently do not exist. For these subsequent project sites, computer-generated building mass models are used to qualitatively evaluate aesthetic effects in the analysis and accompanying figures below. The analysis of aesthetic effects related to scenic vistas and resources, visual character, or conflicts with applicable zoning and other regulations governing scenic quality associated with subsequent projects is followed by an evaluation of aesthetic effects for these same categories associated with overall development that could occur with adoption and implementation of the Waterfront Plan.

Aesthetic Impact Evaluation for Subsequent Project Sites

SEAWALL LOT 330 AND PIERS 30-32

Seawall Lot 330 and Piers 30-32 within the South Beach subarea are sites where subsequent projects could be developed under the Waterfront Plan. At Seawall Lot 330, a building with massings up to 105 feet tall could be developed and would cover about half of the site. Buildings on Piers 30-32 could be developed up to 40 feet tall and could cover approximately two-thirds of the site. **Figure 4.A-2** (View 1) shows existing and proposed views from The Embarcadero Promenade within the South Beach subarea, looking north toward the Bay Bridge and the Embarcadero Historic District. **Figure 4.A-3**, p. 4.A-21, (View 2) shows existing and proposed views from The Embarcadero, looking south toward Brannan Street Wharf and Pier 38. **Figure 4.A-4**, p. 4.A-22, (View 3) shows existing and proposed views from the Bay Bridge, looking southwest toward Piers 30-32, Seawall 330, the Brannan Street Wharf, and Pier 38 within the South Beach subarea.

As depicted in the proposed views, new development on Seawall Lot 330 and Piers 30-32 that could occur with implementation of the Waterfront Plan would alter the appearance of these sites. The predominantly undeveloped Piers 30-32 site, which includes a coffee house on the northwestern corner of the site that is a historic resource, and Seawall Lot 330, which includes a parking lot, would be developed with new urban uses. Presently unobstructed views of the undeveloped portions of the sites would include views of new structures. As shown on Figure 4.A-2, views looking north toward the Bay Bridge would be altered compared to existing views due to the presence of a building with massings up to 105 feet tall on Seawall Lot 330 and buildings up to



SOURCE: PreVision Design, 2021

Waterfront Plan

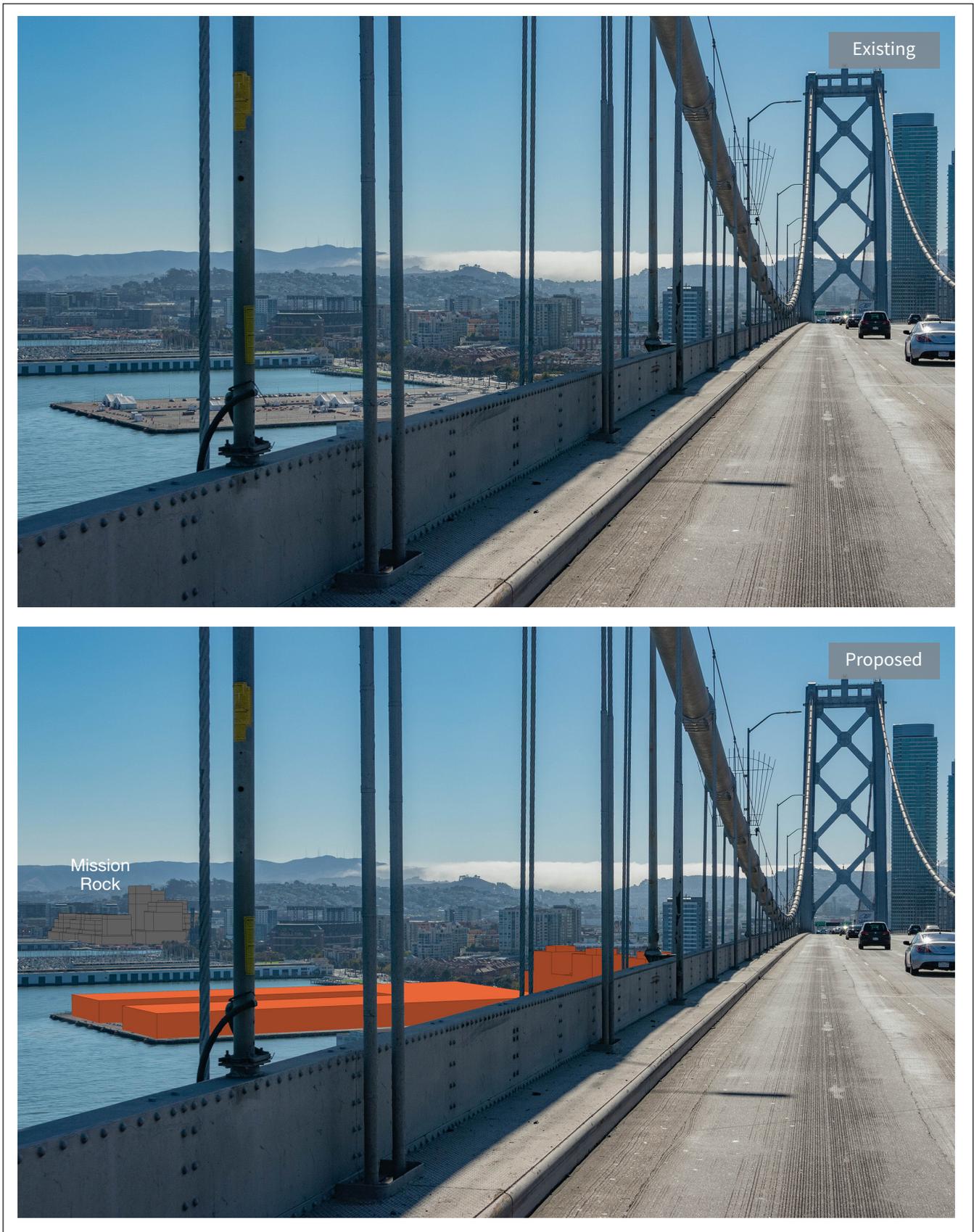
FIGURE 4.A-2
VIEW 1: EXISTING AND PROPOSED VIEWS FROM THE EMBARCADERO PROMENADE WITHIN THE SOUTH BEACH SUBAREA, LOOKING NORTH TOWARD THE BAY BRIDGE AND EMBARCADERO HISTORIC DISTRICT



SOURCE: PreVision Design, 2021

Waterfront Plan

FIGURE 4.A-3
VIEW 2: EXISTING AND PROPOSED VIEWS FROM THE EMBARCADERO PROMENADE WITHIN THE SOUTH BEACH SUBAREA, LOOKING SOUTH TOWARD BRANNAN STREET WHARF AND PIER 38



SOURCE: PreVision Design, 2021

Waterfront Plan

FIGURE 4.A-4
VIEW 3: EXISTING AND PROPOSED VIEWS FROM THE BAY BRIDGE, LOOKING SOUTHWEST TOWARD PIERS 30-32, BRANNAN STREET WHARF, AND PIER 38 WITHIN THE SOUTH BEACH SUBAREA

40 feet tall on Piers 30–32. As shown on Figure 4.A-3, views looking south toward Brannan Street Wharf and Pier 38 also would be altered compared to existing views due to the presence of the new buildings. As shown on Figure 4.A-4, views of the presently undeveloped portions of the sites from motorists traveling westbound into the city on the Bay Bridge would be replaced with views of new urban structures within an existing urban setting.

While new development that could occur on Seawall Lot 330 and Piers 30–32 with implementation of the Waterfront Plan would alter the appearance of the sites and alter existing views to and from the sites, the new development would not have a substantial adverse effect on a scenic vista, damage scenic resources, degrade the existing visual character or quality of public views of the site or its surroundings, or conflict with applicable zoning and other regulations governing scenic quality. As discussed above, several locations in the Plan area, including Seawall Lot 330 and Piers 30–32, offer views of San Francisco Bay, the Bay Bridge, the East Bay, and historic buildings and structures within and adjacent to the Plan area. Development that could occur on Seawall Lot 330 and Piers 30–32 would limit some existing views of a few of these visual resources from specific locations, but not to an extent that would be substantially adverse. Abundant views of scenic and visual resources that are currently available on and in the vicinity of Seawall Lot 330 and Piers 30–32 would remain with new development of these sites that could occur with implementation of the Waterfront Plan.

While there are no state-designated scenic highways in San Francisco, a 3.2-mile segment of I-80 that extends across the Bay Bridge is identified as an eligible state scenic highway. The Bay Bridge is a prominent regional landmark that is visible from numerous vantage points within the Plan area, including from and in the vicinity of Seawall Lot 330 and Piers 30–32, and high-quality views of the Plan area are available to motorists traveling on the bridge. However, views to and from the Bay Bridge occur within the visual context of an urbanized waterfront. Development of new buildings and structures in this existing urban context would not introduce visual elements that are out of character or incompatible with their surroundings or degrade the visual qualities that contribute to the eligibility of this segment of I-80 as a state scenic highway.

As discussed in Chapter 2, Project Description, of this Draft EIR, Port seawall lots in the South Beach subarea are located within three zoning districts—Public (P), Light Industrial (M-1), and South Beach Downtown Residential (SB-DTR). The Port piers are located within M-1, Heavy Industrial (M-2), and Community Business (C-2) zoning districts. Pier facilities in this subarea are within Waterfront SUD 1, and Port-owned seawall lots are within Waterfront SUD 3; properties within these SUDs are subject to waterfront design review requirements for major non-maritime development. Seawall Lot 330 is located in the SB-DTR zoning district, which allows a maximum building height of 105 feet, and Waterfront SUD 3. Piers 30–32 are located in the M-2 zoning district and a 40X height and bulk district, which limits new buildings to a maximum height of 40 feet, and Waterfront SUD 1. As discussed above, in addition to zoning, land use, and special use district requirements, the state density bonus program, as well as the City's Affordable Housing Bonus Program (codified in planning code section 206), would be applicable in the Plan area. This would result in the potential for added height for affordable housing projects. An increase in residential development in the Plan area as a result of implementation of the state density bonus program could only occur on Seawall Lot 330. The public view and aesthetic impacts analyzed in this Draft EIR assume a building envelop that complies with the existing building height and bulk limits but does not include the state density bonus program.⁴⁸ Any subsequent project proposed on Seawall Lot 330 or Piers 30–32 would undergo project-level CEQA review, as applicable,

⁴⁸ New development on Seawall Lot 330 and Piers 30–32 would be subject to compliance with the applicable area-specific and citywide polices and development standards that govern scenic quality, as described in the regulatory framework discussion in this section, to ensure that the new development is visually compatible with the site.

to determine whether it would result in significant environmental effects related to aesthetics that were not disclosed in this Draft EIR.

SEAWALL LOTS 314 AND 321

Seawall Lots 314 and 321 in the Northeast Waterfront subarea are sites assumed for subsequent projects under the Waterfront Plan. Buildings on these sites could be developed up to 40 feet in height and could cover the entire sites. **Figure 4.A-5** (View 4) shows existing and proposed views from Bay Street, looking east toward Pier 33. **Figure 4.A-6** (View 5), p. 4.A-26, shows existing and proposed views from The Embarcadero Promenade near Pier 15, looking northwest toward the Northeast Waterfront Historic District. **Figure 4.A-7** (View 6), p. 4.A-27, shows existing and proposed views from The Embarcadero in the Northeast Waterfront subarea, looking south toward the Northeast Waterfront Historic District.

As shown in the proposed views, new development on Seawall Lots 314 and 321 that could occur with implementation of the Waterfront Plan would alter the appearance of the sites. Seawall Lot 314, which is currently a surface parking lot, could be developed with one or more buildings up to 40 feet in height. As shown on Figure 4.A-5, the existing view from Bay Street, looking east toward Pier 33, would be altered as compared to the existing view due to the presence of new buildings on the site. Seawall Lot 321, which is currently a surface parking lot, also could be developed with one or more buildings up to 40 feet in height. As shown on Figure 4.A-6, the existing view from The Embarcadero Promenade near Pier 15, looking northwest toward the Northeast Waterfront Historic District, would be altered compared to the existing view due to the presence of new buildings on the site. As shown on Figure 4.A-7, the existing view from The Embarcadero, looking south toward the Northeast Waterfront Historic District, would be altered as compared to the existing view due to the presence of new buildings on the site.

While new development that could occur on Seawall Lots 314 and 321 with implementation of the Waterfront Plan would alter the appearance of the sites and alter existing views to and from the sites, the new development would not have a substantial adverse effect on a scenic vista, damage scenic resources, degrade the existing visual character or quality of public views of the sites or their surroundings, or conflict with applicable zoning and other regulations governing scenic quality. The portion of the Plan area in the vicinity of Seawall Lots 314 and 321 offers views of a tree-lined segment of The Embarcadero and Levi Park, east-facing views of finger piers and other maritime features along the waterfront, and west-facing views of Telegraph Hill, including the 210-foot-tall Coit Tower, which is a prominent feature of the city's skyline. Development of Seawall Lots 314 and 321 would limit views of some of these visual resources from specific locations, but not to such an extent that would be substantially adverse. Abundant views of these scenic and visual resources that are currently available on and in the vicinity of Seawall Lots 314 and 321 would remain with new development of these sites. Development of new buildings and structures in an existing urban context would not introduce visual elements that are out of character or incompatible with their surroundings.

As discussed in Chapter 2, Project Description, of this Draft EIR, the Port's seawall lots in the Northeast Waterfront are located within two zoning districts—Public (P) and Community Business (C-2). The Port's piers are located within zoning districts M-1 and C-2. Seawall Lots 314 and 321 are located in the C-2 zoning district and a 40X height and bulk district, which limits new buildings to a maximum height of 40 feet. New development on Seawall Lots 314 and 321 would be subject to compliance with applicable zoning and height and bulk requirements, as well as applicable area-specific and citywide polices and development standards described in the regulatory framework discussion in this section that govern scenic quality to ensure that the new development is visually compatible with the site and its surroundings. In addition, any subsequent



SOURCE: PreVision Design, 2021

Waterfront Plan

FIGURE 4.A-5
VIEW 4: EXISTING AND PROPOSED VIEWS FROM BAY STREET,
LOOKING EAST TOWARD PIER 33 WITHIN THE NORTHEAST WATERFRONT SUBAREA



Existing



Proposed

SOURCE: PreVision Design, 2021

Waterfront Plan

FIGURE 4.A-6
VIEW 5: EXISTING AND PROPOSED VIEWS FROM THE EMBARCADERO PROMENADE NEAR PIER 15 WITHIN THE
NORTHEAST WATERFRONT SUBAREA, LOOKING NORTHWEST TOWARD THE NORTHEAST WATERFRONT HISTORIC DISTRICT



SOURCE: PreVision Design, 2021

Waterfront Plan

FIGURE 4.A-7
VIEW 6: EXISTING AND PROPOSED VIEWS FROM THE EMBARCADERO PROMENADE IN THE NORTHEAST WATERFRONT SUBAREA, LOOKING SOUTH TOWARD THE NORTHEAST WATERFRONT HISTORIC DISTRICT

project proposed on Seawall Lots 314 and 321 would undergo project-level CEQA review, as applicable, to determine whether it would create significant environmental effects related to aesthetics that were not disclosed in this Draft EIR.

PIER 70 TRIANGLE

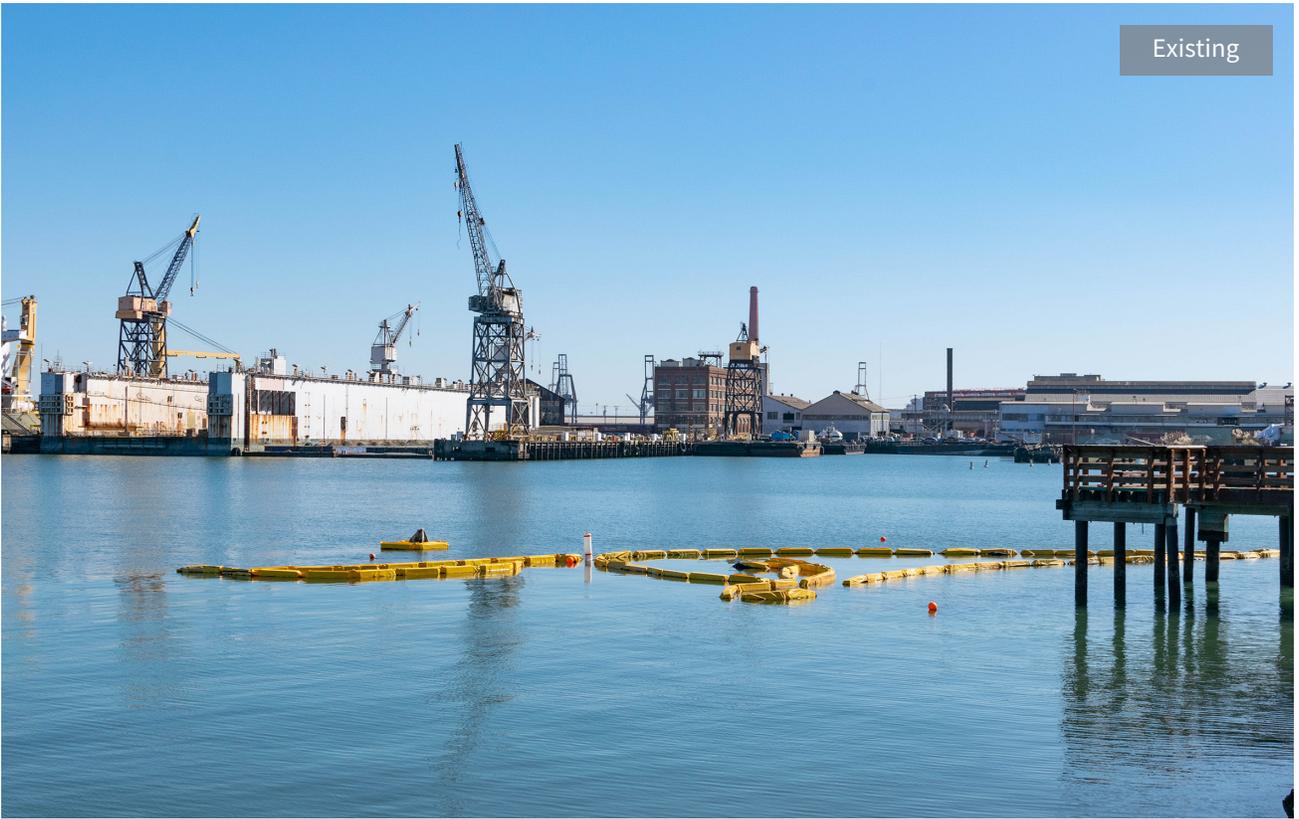
Pier 70 in the Southern Waterfront subarea is a site assumed for subsequent projects under the Waterfront Plan. Development that could occur pursuant to the Waterfront Plan would be on the parcel referred to as the “Pier 70 Triangle” adjacent to historic Building 6, east of the Pier 70 shipyard. Buildings at this site could be developed up to 40 feet in height and cover two-thirds of the site (with setbacks from the north and south site boundaries). **Figure 4.A-8** (View 7) shows existing and proposed views from Agua Vista Park within the Mission Bay subarea, looking southeast toward the Pier 70 ship repair and dry-dock facilities and the Pier 70 Triangle. As shown in the proposed view, new development at the Pier 70 Triangle that could occur with implementation of the Waterfront Plan would alter the appearance of the site with the addition of one or more new buildings.

While new development that could occur at the Pier 70 Triangle with implementation of the Waterfront Plan would alter the appearance of the site and alter existing views to and from the site, the new development would not have a substantial adverse effect on a scenic vista, damage scenic resources, degrade the existing visual character or quality of public views of the site or its surroundings, or conflict with applicable zoning and other regulations governing scenic quality. As discussed in Chapter 2, Project Description, of this Draft EIR, Port piers and seawall lots in the Southern Waterfront are located within the M-2 and P zoning districts. Pier 70 and associated seawall lots are within the Pier 70 SUD, which includes zoning and building height limits for that area. Port-owned shoreline access is within the Potrero Power Station SUD, which also includes zoning and building height limits. With the exception of the Pier 70 SUD and the Potrero Power Station SUD, this subarea is located in a 40X height and bulk district, which limits new buildings to a maximum height of 40 feet. Development that could occur at the Pier 70 Triangle with implementation of the Waterfront Plan would add a new urban use within an existing developed urban/industrial site. New development at the Pier 70 Triangle would be subject to compliance with applicable zoning and height and bulk requirements, as well as applicable area-specific and citywide polices and development standards described in the regulatory framework discussion in this section that govern scenic quality to ensure that the new development is visually compatible with the site and its surroundings. In addition, any subsequent project proposed at the Pier 70 Triangle would undergo project-level CEQA review, as applicable, to determine whether it would create significant environmental effects related to aesthetics that were not disclosed in this Draft EIR.

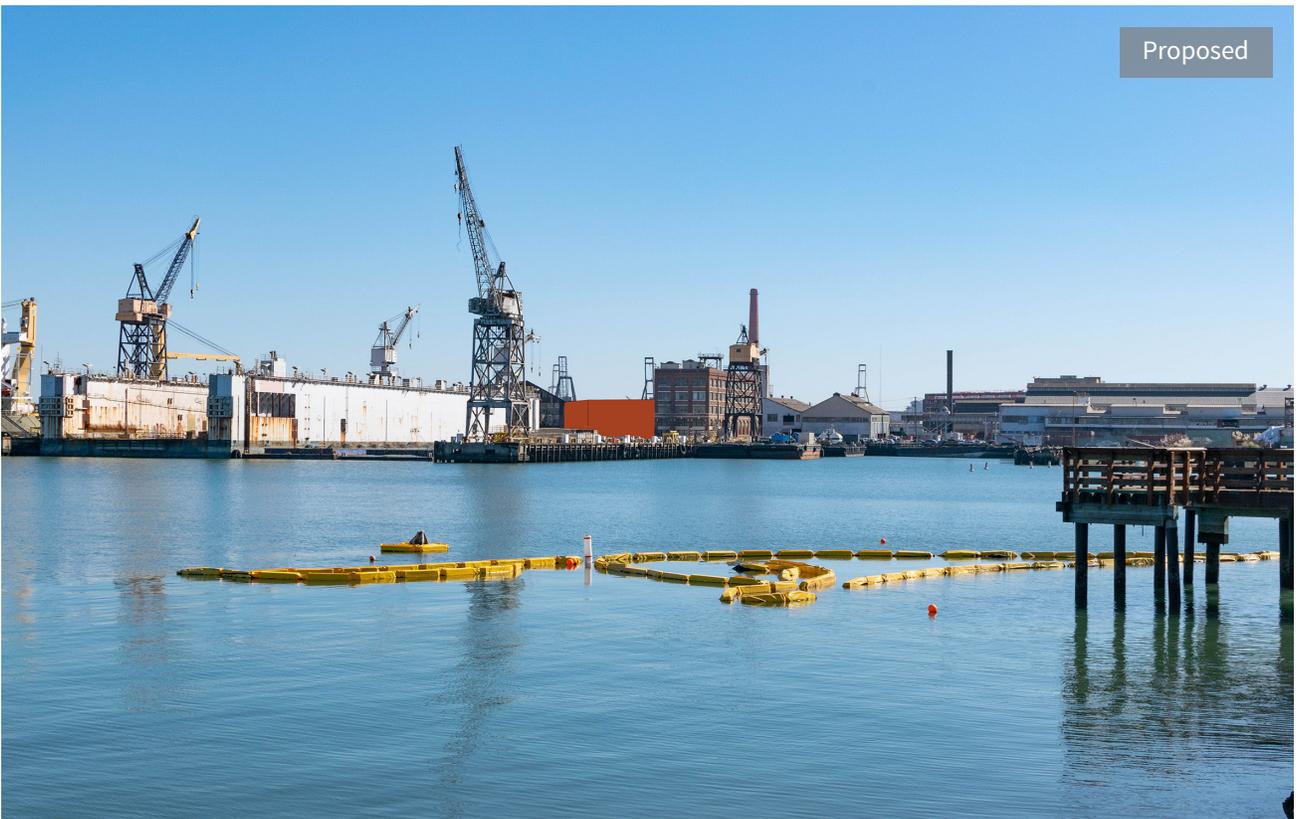
PIERS 90–94 BACKLANDS

The Piers 90–94 Backlands in the Southern Waterfront subarea is a site assumed for subsequent projects under the Waterfront Plan. Buildings at this site could be developed up to 40 feet in height and cover one-fourth of the site. **Figure 4.A-9** (View 8), p. 4.A-30, shows existing and proposed views from Amador Street, looking east toward maritime industrial uses and Bayview Rise, an illuminated animated mural located at the Port’s Pier 92 grain silos on Islais Creek. **Figure 4.A-10** (View 9), p. 4.A-31, shows existing and proposed views from Amador Street, looking west toward Bernal Heights summit, with the Pier 92 grain silos on the right in the existing view. **Figure 4.A-11** (View 10), p. 4.A-32, shows existing and proposed views from Heron’s Head Park, looking northwest toward the Piers 90–94 Backlands. **Figure 4.A-12** (View 11), p. 4.A-33, shows existing and long-range proposed views from a shoreline area within the Southern Waterfront subarea, looking northwest toward Heron’s Head Park and the Piers 90–94 Backlands. **Figure 4.A-13** (View 12), p. 4.A-34, shows existing and

Existing



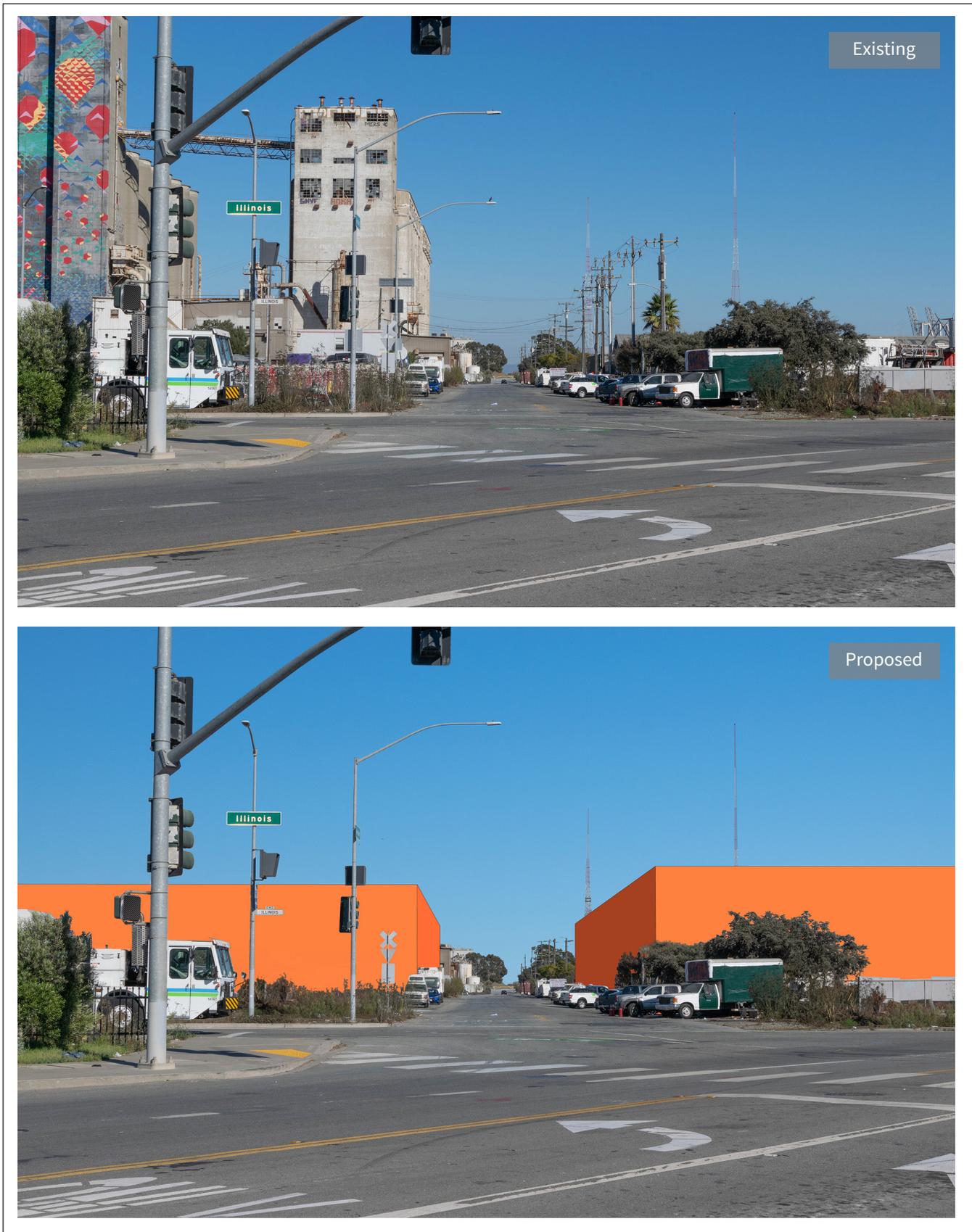
Proposed



SOURCE: PreVision Design, 2021

Waterfront Plan

FIGURE 4.A-8
VIEW 7: EXISTING AND PROPOSED VIEWS FROM AGUA VISTA PARK WITHIN THE MISSION BAY SUBAREA, LOOKING SOUTHEAST TOWARD PIER 70 SHIP REPAIR AND DRY-DOCK FACILITIES WITHIN THE SOUTHERN WATERFRONT SUBAREA



SOURCE: PreVision Design, 2021

Waterfront Plan

FIGURE 4.A-9
VIEW 8: EXISTING AND PROPOSED VIEWS FROM AMADOR STREET WITHIN THE SOUTHERN WATERFRONT SUBAREA, LOOKING EAST TOWARD MARITIME INDUSTRIAL USES AND BAYVIEW RISE, AN ILLUMINATED ANIMATED MURAL LOCATED AT THE PORT OF SAN FRANCISCO'S PIER 92 GRAIN SILOS ON ISLAIS CREEK



Existing

Proposed

SOURCE: PreVision Design, 2021

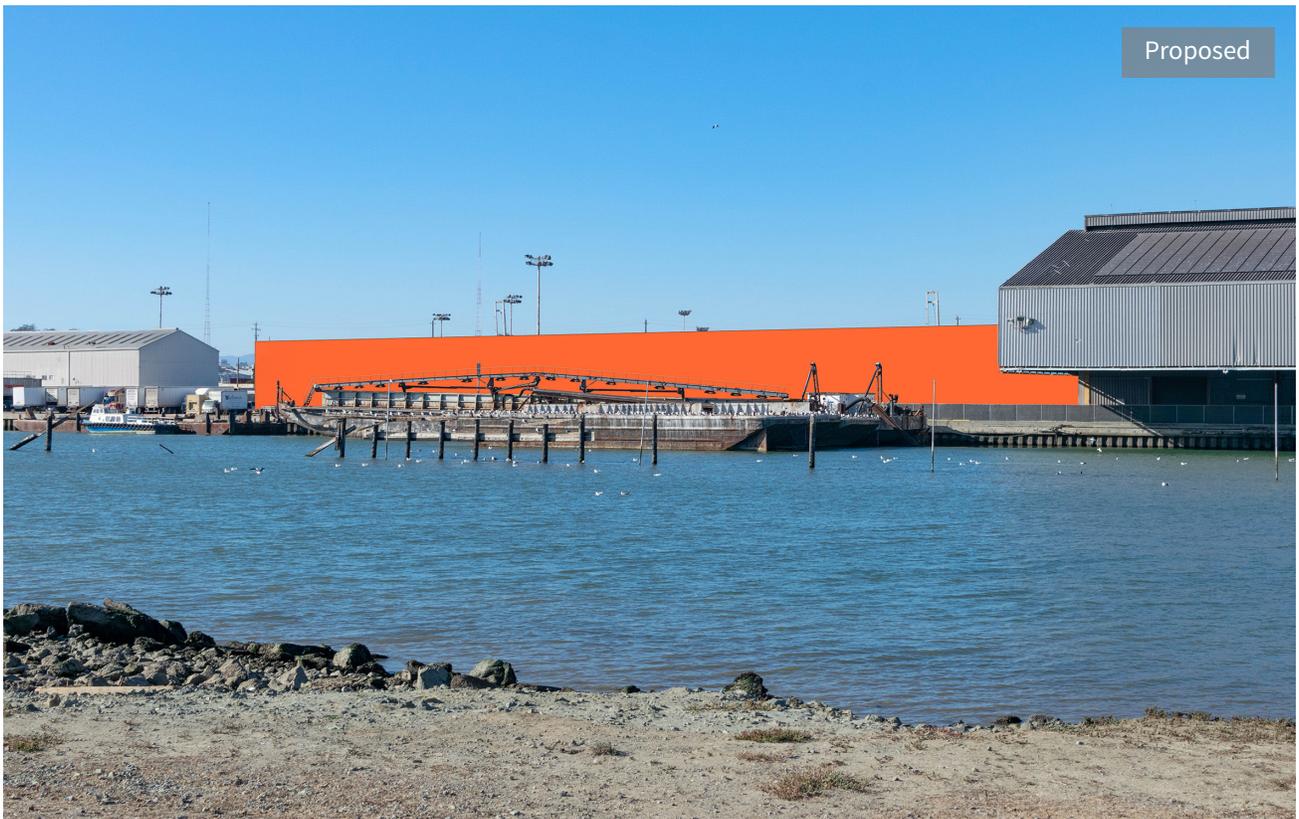
Waterfront Plan

FIGURE 4.A-10
VIEW 9: EXISTING AND PROPOSED VIEWS FROM AMADOR STREET WITHIN THE SOUTHERN WATERFRONT SUBAREA, LOOKING WEST TOWARD BERNAL HEIGHTS SUMMIT, WITH THE PORT OF SAN FRANCISCO'S PIER 92 GRAIN SILOS ON THE RIGHT IN THE EXISTING VIEW

Existing



Proposed



SOURCE: PreVision Design, 2021

Waterfront Plan

FIGURE 4.A-11
VIEW 10: EXISTING AND PROPOSED VIEWS FROM HERON'S HEAD PARK,
LOOKING NORTHWEST TOWARD THE PIERS 90-94 BACKLANDS

Existing



Proposed



SOURCE: PreVision Design, 2021

Waterfront Plan

FIGURE 4.A-12
**VIEW 11: EXISTING AND PROPOSED VIEWS FROM SHORELINE AREA WITHIN THE SOUTHERN WATERFRONT SUBAREA,
LOOKING NORTHWEST TOWARD HERON'S HEAD PARK AND THE PIERS 90-94 BACKLANDS**

Existing



Proposed



SOURCE: PreVision Design, 2021

Waterfront Plan

FIGURE 4.A-13
VIEW 12: EXISTING AND PROPOSED VIEWS FROM THE BAYVIEW-HUNTERS POINT NEIGHBORHOOD, LOOKING NORTH TOWARD THE PIER 90-94 BACKLANDS WITHIN THE SOUTHERN WATERFRONT SUBAREA

proposed long-range views from the Bayview–Hunters Point Neighborhood, looking north toward the Piers 90–94 Backlands. **Figure 4.A-14** (View 13), p. 4.A-36, shows existing and proposed views from Illinois Street, looking southeast toward maritime industrial uses in the Piers 90–94 Backlands and the aforementioned Bayview Rise.

As depicted in the proposed views, new development on the Piers 90–94 Backlands that could occur with implementation of the Waterfront Plan would alter the appearance of the site. The Piers 90–94 Backlands, which presently comprise approximately 23 acres of unimproved land, could be developed with one or more buildings up to 40 feet in height. While new development that could occur on the Piers 90–94 Backlands with implementation of the Waterfront Plan would alter the appearance of the site and alter existing views to and from the site, the new development would not have a substantial adverse effect on a scenic vista, damage scenic resources, degrade the existing visual character or quality of public views of the site or its surroundings, or conflict with applicable zoning and other regulations governing scenic quality. As discussed in Chapter 2, Project Description, of this Draft EIR, Port piers and seawall lots in the Southern Waterfront are located within the M-2 and P zoning districts. The Piers 90–94 Backlands are within the M-2 zoning district and the 40X height and bulk district, which limits new buildings to a maximum height of 40 feet. Development that could occur on the Piers 90–94 Backlands would add new light industrial uses in undeveloped areas of the site within an urban/industrial setting. New development on the Piers 90–94 Backlands would be subject to compliance with applicable zoning and height and bulk requirements, as well as applicable area-specific and citywide polices and development standards described in the regulatory framework discussion in this section that govern scenic quality to ensure that the new development is visually compatible with the site and its surroundings. In addition, any subsequent project proposed on the Piers 90–94 Backlands would undergo project-level CEQA review, as applicable, to determine whether it would create significant environmental effects related to aesthetics that were not disclosed in this Draft EIR.

AESTHETIC IMPACT EVALUATION FOR OVERALL IMPLEMENTATION OF THE WATERFRONT PLAN

The Waterfront Plan area includes a diverse and intermixed combination of modern and historic buildings and structures, maritime and industrial facilities, vehicular streets, recreational trails, parks and public spaces, and natural areas along its shoreline. The linear stretch of the Plan area extends through several San Francisco districts and neighborhoods, contributing substantially to its diverse visual character. The Plan area has and continues to experience physical and visual transformation in the form of redevelopment and infill development. This process of transformation has created a visual environment that includes a wide variety of architectural styles. Except where views are obscured by buildings or other intervening structures or landforms, the Plan area offers expansive views of San Francisco Bay, the Bay Bridge, the East Bay, and historic maritime facilities along the waterfront. Numerous street views to the waterfront are available from the areas to the west of the Plan area due to the city's hilly topography, the compactness of adjacent districts, and the built character and maritime uses of the waterfront.

As discussed above, the Waterfront Plan would not immediately result in new development. The Waterfront Plan would amend and update the 1997 Waterfront Land Use Plan to reflect revised or new goals, policies, and procedures. The Plan also would amend the planning code to create the Waterfront SUD 4, which would require waterfront design review process and procedures for future development on Port piers and seawall lots in the Mission Bay and Southern Waterfront subareas that are not included in the Mission Rock, Pier 70, or Potrero SUDs. The Waterfront Plan's proposed amendments to the planning code and zoning map for the creation of Waterfront SUD 4 would establish design review procedures to review the urban design of new development on Port-owned land in the Mission Bay and Southern Waterfront subareas, consistent with the provisions of the Port's Waterfront Plan, as described in section 240 of the planning code.



SOURCE: PreVision Design, 2021

Waterfront Plan

FIGURE 4.A-14

VIEW 13: EXISTING AND PROPOSED VIEWS FROM ILLINOIS STREET LOOKING SOUTHEAST TOWARD MARITIME INDUSTRIAL USES AND BAYVIEW RISE, AN ILLUMINATED ANIMATED MURAL LOCATED AT THE PORT OF SAN FRANCISCO'S PIER 92 GRAIN SILOS ON ISLAIS CREEK

The Waterfront Plan retains the following policies from the 1997 Waterfront Plan that are relevant to aesthetics and visual quality:

- Ensuring that new waterfront buildings and improvements contribute to the historic and maritime form of the city and preserve the character of adjacent neighborhoods (Policies 1a–1d, 1f, 1g);
- Providing waterfront views, shoreline public access, or direct access to and from the bay (Policy 7); and
- Preserving and enhancing public views of the bay, maritime uses, and historic structures (Policy 8).

The Waterfront Plan includes updated or new policies that are relevant to aesthetics and visual quality:

- Provide unifying elements to the length of Port property that strengthen the identity of the Port and enhance the public realm (Policies 5a–5g);
- Producing design guidelines and criteria to guide development that strengthens city pattern character, document design precedents and best practices for treatments to historic resources that are consistent with the Secretary of the Interior’s Standards for Rehabilitation, and programs for pedestrian wayfinding and waterfront lighting improvements, and public art installations (Policies 1e, 4f, 5e).

New development that could occur with adoption and implementation of the Waterfront Plan would be subject to compliance with zoning and height and bulk requirements applicable to the locations of subsequent project sites, as well as applicable area-specific and citywide polices and development standards described in the regulatory framework discussion in this section that govern scenic quality to ensure that the new development is visually compatible with the site and its surroundings. In addition, new development that would occur with adoption and implementation of the Waterfront Plan would undergo project-level CEQA review, as applicable, to determine whether it would result in significant environmental effects related to aesthetics that were not disclosed in this Draft EIR. In summary, required compliance with applicable zoning and height and bulk requirements, and required adherence to applicable area-specific and citywide polices and development standards that govern scenic quality, would ensure that the Waterfront Plan would not have a substantial adverse effect a scenic vista, damage scenic resources, degrade the existing visual character or quality of public views of the site or its surroundings, or conflict with applicable zoning and other regulations governing scenic quality. Therefore, this impact would be **less than significant**, and no mitigation measures are necessary.

Impact AE-2: The Waterfront Plan would not create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area. (*Less than Significant*)

While adoption of the Waterfront Plan would not immediately result in new development or result in direct physical changes in the environment, subsequent projects within the Plan area could generate additional lighting during hours of darkness in the future, but this change would not be substantial or adverse in the context of existing lighting in the Plan area. The new lighting would not exceed existing lighting at nearby buildings and could be lower in comparison on a per-building basis because requirements in the San Francisco Building Code and Green Building Code require energy conservation. In addition, Planning Commission Resolution 9212 generally prohibits the use of mirrored or reflective glass in new buildings. Therefore, impacts related to glare from new buildings would not be substantial. New lighting would use improved designs and technology, such as light-emitting diode (LED) technology, which allows individual lights to be directed downward at the public right-of-way at ground level, resulting in less spillage into surrounding buildings.

Therefore, compliance with existing regulations and citywide policies would ensure that subsequent projects that could occur with implementation of the Waterfront Plan would not result in obtrusive light or glare that would adversely affect daytime or nighttime views or substantially. This impact would be ***less than significant***, and no mitigation measures are necessary.

Impact C-AE-1: The Waterfront Plan, in combination with cumulative projects, would not result in a significant cumulative impact on aesthetics. (*Less than Significant*)

The context for the Waterfront Plan’s cumulative aesthetics impact analysis is based on consideration of the cumulative projects identified and described in Chapter 4, Environmental Setting, Impacts, and Mitigation Measures, p. 4-8. Smaller projects within and near the Plan area, even mid-rise developments, would not generally be discernable in long-range views of the Plan area, nor in shorter-range views from within the Plan area (unless a project were in immediate view). Thus, smaller projects would not combine with potential Plan area development to result in a significant cumulative impact.

When combined with other cumulative projects in the area, subsequent projects that could occur with adoption and implementation of the Waterfront Plan would alter the visual character of the Plan area and adjacent neighborhoods. However, cumulative projects would either be required to comply with applicable zoning and height and bulk requirements, or they would undergo project-level CEQA review, as applicable, to determine whether they would result in significant environmental impacts. Therefore, in the context of the highly developed Plan area and surroundings, this change would not conflict with applicable zoning or other regulations governing scenic quality.

The approved Mission Rock project, a 3.6-million-square-foot mixed-use development at Pier 48, will include retail, commercial, residential and parking uses, as well as 8 acres of parks and open space and historic rehabilitation of the pier. A portion of this project is shown in Figure 4.A-4 (View 3 – Proposed), p. 4.A-22. The approved Pier 70 project is a multi-phase 28-acre mixed-use development including parking spaces, parks, roads, public access, shoreline improvement and utility infrastructure. Phase 1 of this project is complete. The approved Potrero Power SUD project is a 5.4-million-square-foot mixed-use development that will include hotel, commercial, entertainment, residential, and parking uses, as well as 7 acres of open space. The buildings would range in height between 65 and 240 feet. The TZK Broadway and Teatro ZinZanni project will include three major components: a new permanent theater to serve as the permanent home for Teatro ZinZanni and its historic “Spiegeltent”; a boutique hotel with ancillary retail and commercial spaces; and an approximately 14,000-square-foot privately financed park at the northern end of the site. The Port of San Francisco’s Waterfront Resilience Program includes a series of coordinated projects working to ensure a resilient waterfront in the face of seismic and climate change related hazards; such as, a U.S. Army Corp of Engineers Flood Study for the entire Port waterfront, as well as a program to strengthen the three-mile-long Embarcadero seawall from earthquake, flooding, and sea-level rise risks. The Better Market Street Project will revitalize Market Street from Octavia Boulevard to The Embarcadero by optimizing sustainable mobility modes (transit, walking, rolling, and bicycling) so that Market Street will be pleasant, reliable, efficient, and safe for all users. The first phase of the project, between Fifth and Eighth streets, is anticipated to start construction in 2021. The San Francisco Housing Element 2022 Update will modify the policies of the general plan’s housing element to improve housing affordability and advance racial and social equity and shift an increased share of the city’s future housing growth to transit corridors and low-density residential districts within certain areas of the city

The Waterfront Plan, when combined with cumulative projects, would result in new development in the eastern areas of the city on and in proximity to the waterfront. Implementation of the above-noted projects, as well as development that could occur under the Waterfront Plan, would intensify the overall look and feel of the area. However, this visual change would not be considered adverse, nor would it conflict with applicable zoning or other regulations governing scenic quality, as cumulative projects would either be required to comply with applicable zoning and height and bulk requirements, or they would undergo project-level CEQA review, as applicable, to determine whether they would result in significant environmental impacts. Furthermore, as with the Waterfront Plan, new lighting for cumulative development projects would not exceed existing lighting at nearby buildings and could be lower by comparison because requirements in the San Francisco Building Code and Green Building Code require energy conservation. Therefore, the Waterfront Plan, combined with cumulative projects, would not result in a significant adverse impact on scenic resources, views, scenic vistas, or light and glare. Therefore, cumulative impact would be ***less than significant***, and no mitigation measures are necessary.

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4.B Historic Resources

4.B.1 Introduction

This section assesses impacts of the Waterfront Plan on historic resources. It outlines the regulatory framework, describes the existing environmental setting as it relates to historic resources, identifies potential historic resources near the project site, evaluates potential direct and indirect impacts on historic resources that could result from implementation of the Waterfront Plan, and identifies mitigation measures to reduce potential adverse impacts. Project-related impacts on archeological resources, human remains, and tribal cultural resources are addressed in Appendix B, Initial Study, of this environmental impact report (EIR).

DEFINITIONS AND DATA SOURCES

A historic resource is defined in CEQA Guidelines section 15064.5(a) as one that is listed in, or determined to be eligible for listing in, the California Register of Historical Resources (California Register). In addition, a resource that (i) is identified as significant in a local register of historic resources, such as San Francisco Planning Code Article 10 and/or Article 11, or (ii) is deemed significant due to its identification in a historic resources survey meeting the requirements of California Public Resources Code section 5024.1(g) is presumed to be a historic resource “unless the preponderance of the evidence demonstrates that the resource is not historically or culturally significant.” CEQA section 21084.1 also permits a lead agency to determine that a resource constitutes a historic resource even if the resource does not meet the foregoing criteria.

For the purposes of this analysis, the term *historic resource* is used to distinguish such resources from archeological resources, which may also be considered historic resources under CEQA. Archeological resources, including archeological resources that are potentially historic resources under CEQA Guidelines section 15064.5, are addressed in the initial study (see Appendix B).

The information and analysis included in this section are based on the *Port of San Francisco Historic Resources Summary Report*, which is included in Appendix D of this Draft EIR.⁴⁹

4.B.2 Regulatory Framework

The following section summarizes the plans and policies of federal, state, and local agencies that have regulatory oversight over historic resources within the Waterfront Plan area.

FEDERAL REGULATIONS

Although the Waterfront Plan is not anticipated to require compliance with Section 106 of the National Historic Preservation Act, the federal guidelines related to the treatment of cultural resources are relevant for the purposes of determining whether cultural resources, as defined under CEQA, are present and guiding the treatment of such resources. The sections below summarize the relevant federal regulations and guidelines.

⁴⁹ architecture + history llc, *Port of San Francisco Historic Resources Summary Report*, prepared for the Port of San Francisco, February 2022. Note that the updated inventory includes historic resources in and adjacent to all Port property, whereas the analysis in this chapter considers only those properties that are in and adjacent to the Waterfront Plan area.

NATIONAL HISTORIC PRESERVATION ACT

The National Historic Preservation Act of 1966 was passed primarily to acknowledge the importance of protecting our nation’s heritage from rampant federal development. The National Historic Preservation Act:

- Sets the federal policy for preserving our nation’s heritage;
- Establishes a federal-state and federal-tribal partnership;
- Establishes the National Register of Historic Places and National Historic Landmarks Programs;
- Mandates the selection of qualified State Historic Preservation Officers;
- Establishes the Advisory Council on Historic Preservation;
- Charges federal agencies with responsible stewardship; and
- Establishes the role of Certified Local Governments within the States.

While the National Historic Preservation Act sets federal policy for historic preservation, the actual regulations can be found in 36 Code of Federal Regulations part 800, Protection of Historic Properties. This provides guidelines on how to follow the policy set forth in the National Historic Preservation Act.

NATIONAL REGISTER OF HISTORIC PLACES

The National Register of Historic Places (National Register) is the nation’s official comprehensive inventory of historic resources. Administered by the National Park Service, the National Register includes buildings, structures, sites, objects, and districts that possess historic, architectural, engineering, archeological, or cultural significance at the national, state, or local level. Typically, a resource that is more than 50 years of age is eligible for listing in the National Register if it meets any one of the four eligibility criteria and retains sufficient historical integrity. A resource less than 50 years old may be eligible if it can be demonstrated that it is of “exceptional importance” or a contributor to a historic district. National Register criteria are defined in *National Register Bulletin Number 15: How to Apply the National Register Criteria for Evaluation*.⁵⁰

A structure, site, building, district, or object would be eligible for listing in the National Register if it can be demonstrated that it meets at least one of the following four evaluative criteria:

- Criterion A (Event): Properties associated with events that have made a significant contribution to the broad patterns of our history;
- Criterion B (Person): Properties associated with the lives of persons significant in our past;
- Criterion C (Design/Construction): Properties that embody the distinctive characteristics of a type, period, or method of construction; represent the work of a master; possess high artistic values; or represent a significant distinguishable entity whose components lack individual distinction; and
- Criterion D (Information Potential): Properties that have yielded, or may be likely to yield, information important in prehistory or history.

⁵⁰ U.S. Department of the Interior, National Park Service, *National Register Bulletin*, 1997, https://www.nps.gov/subjects/nationalregister/upload/NRB-15_web508.pdf, accessed May 10, 2021.

Although there are exceptions, certain kinds of resources are not usually considered for listing in the National Register: religious properties, moved properties, birthplaces and graves, cemeteries, reconstructed properties, commemorative properties, and properties that have achieved significance within the past 50 years.

In addition to meeting at least one of the four criteria, a property or district must retain integrity, meaning that it must have the ability to convey its significance through the retention of seven aspects, or qualities, that in various combinations define integrity:

- *Location*: Place where the historic property was constructed;
- *Design*: Combination of elements that create the form, plans, space, structure, and style of the property;
- *Setting*: The physical environment of the historic property, inclusive of the landscape and spatial relationships of the buildings;
- *Materials*: The physical elements that were combined or deposited during a particular period of time and in a particular pattern of configuration to form the historic property;
- *Workmanship*: Physical evidence of the crafts of a particular culture or people during any given period in history;
- *Feeling*: The property's expression of the aesthetic or historic sense of a particular period of time; and
- *Association*: Direct link between an important historic event or person and an historic property.

Properties that are listed in the National Register, as well as properties that are formally determined to be eligible for listing in the National Register, are automatically listed in the California Register and, therefore, considered historic resources under CEQA.⁵¹

THE SECRETARY OF THE INTERIOR'S STANDARDS FOR THE TREATMENT OF HISTORIC PROPERTIES

The *Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings* (Secretary's Standards) were published and codified as 36 Code of Federal Regulations 68 in 1995 and updated in 2017.⁵² The Secretary's Standards for rehabilitation have been adopted by local government bodies across the country, including the City and County of San Francisco, for reviewing proposed work on historic properties under local preservation ordinances. The Secretary's Standards provide a useful analytical tool for understanding and describing the potential impacts of changes to historic resources and are used to inform CEQA review. Developed by the National Park Service for reviewing certified rehabilitation tax credit projects, the rehabilitation standards provide guidance for reviewing work on historic properties. The rehabilitation standards are as follows:

1. A property will be used as it was historically or be given a new use that requires minimal change to its distinctive materials, features, spaces, and spatial relationships.

⁵¹ *California Code of Regulations*, title 14, chapter 11.5, § 4851, Historical Resources Eligible for Listing in the California Register of Historical Resources, [https://govt.westlaw.com/calregs/Document/IFF8DB730D48511DEBC02831C6D6C108E?viewType=FullText&originationContext=documenttoc&transitionType=CategoryPageItem&contextData=\(sc.Default\)](https://govt.westlaw.com/calregs/Document/IFF8DB730D48511DEBC02831C6D6C108E?viewType=FullText&originationContext=documenttoc&transitionType=CategoryPageItem&contextData=(sc.Default)), accessed May 10, 2021.

⁵² U.S. Department of the Interior, National Park Service (Kay D. Weeks and Anne E. Grimmer), *The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstruction Historic Buildings*, revised 2017, <http://www.nps.gov/tps/standards/treatment-guidelines-2017.pdf>, accessed May 10, 2021.

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2. The historic character of a property will be retained and preserved. The removal of distinctive materials or alteration of features, spaces, and spatial relationships that characterize a property will be avoided.
3. Each property will be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or elements from other historic properties, will not be undertaken.
4. Changes to a property that have acquired historic significance in their own right will be retained and preserved.
5. Distinctive materials, features, finishes, and construction techniques or examples of craftsmanship that characterize a property will be preserved.
6. Deteriorated historic features will be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature will match the old in design, color, texture, and, where possible, materials. Replacement of missing features will be substantiated by documentary and physical evidence.
7. Chemical or physical treatments, if appropriate, will be undertaken using the gentlest means possible. Treatments that cause damage to historic materials will not be used.
8. Archeological resources will be protected and preserved in place. If such resources must be disturbed, mitigation measures will be undertaken.
9. New additions, exterior alterations, or related new construction will not destroy historic materials, features, and spatial relationships that characterize the property. The new work will be differentiated from the old and will be compatible with the historic materials, features, size, scale, and proportion, and massing to protect the integrity of the property and its environment.
10. New additions and adjacent or related new construction will be undertaken in such a manner that, if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.

Conformance with all rehabilitation standards does not determine whether a project would cause a substantial adverse change in the significance of a historic resource under CEQA. Rather, projects that comply with the standards benefit from a regulatory presumption that they would have a less-than-significant adverse impact on a historic resource. Projects that do not comply with the rehabilitation standards may or may not cause a substantial adverse change in the significance of a historic resource and would require further analysis to determine whether the historic resource would be “materially impaired” by the project under CEQA Guidelines section 15064.5(b).

STATE REGULATIONS

California implements the National Historic Preservation Act through its statewide comprehensive cultural resource preservation programs. The California Office of Historic Preservation, an office of the California Department of Parks and Recreation, implements the policies of the National Historic Preservation Act on a statewide level. The California Office of Historic Preservation also maintains the California Historical Resources Inventory. The State Historic Preservation Officer is an appointed official who implements historic preservation programs within the state’s jurisdiction.

CALIFORNIA REGISTER OF HISTORICAL RESOURCES

The California Register, administered by the California Office of Historic Preservation, is the authoritative guide to historical and archeological resources that are significant within the context of California's history. Criteria for eligibility for inclusion in the California Register are based on and correspond to the National Register criteria. Certain resources are determined under CEQA to be automatically included in the California Register, including California properties formally eligible for or listed in the National Register. These resources are considered historic resources by the San Francisco Planning Department (planning department) for the purposes of CEQA. The evaluative criteria used for determining eligibility for listing in the California Register closely parallel those developed by the National Park Service for the National Register but include relevance to California history. To be eligible for listing in the California Register as a historic resource, a resource must meet at least one of the following criteria (Public Resources Code section 5024.1(c)):

- *Criterion 1 (Event):* Resources that are associated with events that have made a significant contribution to the broad patterns of local or regional history or the cultural heritage of California or the United States;
- *Criterion 2 (Person):* Resources that are associated with the lives of persons important to local, California, or national history;
- *Criterion 3 (Design/Construction):* Resources that embody the distinctive characteristics of a type, period, region, or method of construction, or represent the work of a master or possesses high artistic values; or
- *Criterion 4 (Information Potential):* Resources that have yielded, or has the potential to yield, information important to the prehistory or history of the local area, California or the nation.

As with the National Register, a significant historic resource must possess integrity in addition to meeting the significance criteria in order to be considered eligible for listing in the California Register. Consideration of integrity for evaluation of California Register eligibility follows the definitions and criteria defined in the *National Register Bulletin Number 15: How to Apply the National Register Criteria for Evaluation*.⁵³

CALIFORNIA ENVIRONMENTAL QUALITY ACT

CEQA, as codified in Public Resources Code section 21000 et seq. and implemented by the CEQA Guidelines (14 CCR section 15000 et seq.), is the principal statute governing environmental review of projects in California. As stated above, CEQA defines a historic resource as a property listed in, or eligible for listing in, the California Register; included in a qualifying local register; or determined by lead agency to be historically significant. In order to be considered a historic resource, a property must generally be at least 50 years old; when acting as the CEQA lead agency, the planning department uses a threshold of 45 years. A "historic resource" is defined in CEQA Guidelines section 15064.5 as a cultural resource (i.e., a built-environment resource, archeological resource, or human remains) that meets at least one of the following criteria:

1. A resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the California Register.
2. A resource included in a local register of historic resources, as defined in Public Resources Code section 5020.1(k) or identified as significant in a historic resource survey meeting the requirements of Public Resources Code section 5024.1(g), shall be presumed to be historically or culturally significant.

⁵³ U.S. Department of the Interior, National Park Service, *National Register Bulletin*, 1997, https://www.nps.gov/subjects/nationalregister/upload/NRB-15_web508.pdf, accessed May 10, 2021.

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Public agencies must treat any such resource as significant unless the preponderance of evidence demonstrates that it is not historically or culturally significant.

3. Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California may be considered to be a historic resource, provided the lead agency's determination is supported by substantial evidence in light of the whole record. Generally, a resource shall be considered by the lead agency to be "historically significant" if the resource meets the criteria for listing on the California Register.
4. The fact that a resource is not listed in, or determined to be eligible for listing in the California Register, not included in a local register of historic resources (pursuant to Public Resources Code section 5020.1(k)), or identified in a historic resources survey (meeting the criteria in Public Resources Code section 5024.1(g)) does not preclude a lead agency from determining that the resource may be a historic resource as defined in Public Resources Code section 5020.1(j) or 5024.1.

Therefore, under the CEQA Guidelines, even if a resource is not included in any local, state, or federal register, or identified in a qualifying historic resources survey, a lead agency may still determine that any resource is a historic resource for the purposes of CEQA if there is substantial evidence supporting such a determination. A lead agency must consider a resource to be historically significant if it finds that the resource meets the criteria for listing in the California Register.

CEQA requires a lead agency to determine if a proposed project would have a significant effect on important historic resources or unique archeological resources. If a resource is neither a unique archeological resource nor a historic resource, the CEQA Guidelines note that the effects of the project on that resource shall not be considered a significant effect on the environment (CEQA Guidelines section 15064.5(c)(4)). As noted above, projects that comply with the Secretary's Standards benefit from a regulatory presumption under CEQA that they would have a less-than-significant impact on a historic resource. Projects that do not comply with the Secretary's Standards may or may not cause a substantial adverse change in the significance of a historic resource and must be subject to further analysis to assess whether they would result in material impairment of a historic resource's significance.

LOCAL REGULATIONS, PLANS, AND POLICIES

SAN FRANCISCO GENERAL PLAN

The San Francisco General Plan (general plan) Urban Design, Recreation and Open Space, and Housing Elements address issues related to historic preservation by providing policies that emphasize preservation of notable landmarks and historic features, remodeling older buildings, and respecting the character of older buildings adjacent to new development. Policies in the general plan relevant to historic resources are identified below.

URBAN DESIGN ELEMENT

The Urban Design Element of the general plan includes the following policies related to historic preservation:

- *Policy 2.4:* Preserve notable landmarks and areas of historic, architectural or aesthetic value, and promote the preservation of other buildings and features that provide continuity with past development.

- *Policy 2.5:* Use care in remodeling of older buildings in order to enhance rather than weaken the original character of such buildings.
- *Policy 2.6:* Respect the character of older development nearby in the design of new buildings.

RECREATION AND OPEN SPACE ELEMENT

The Recreation and Open Space Element includes the following policies related to historic preservation:

- *Policy 1.12:* Preserve historic and culturally significant landscapes, sites, structures, buildings, and objects.
- *Policy 1.13:* Preserve and protect character-defining features of historical resources in City parks when it is necessary to make alterations to accommodate new needs or uses.

HOUSING ELEMENT

The Housing Element⁵⁴ of the general plan includes the following policy related to historic preservation:

- *Policy 11.7:* Respect San Francisco’s historic fabric, by preserving landmark buildings and ensuring consistency with historic districts.

SAN FRANCISCO PLANNING CODE

The City’s commitment to historic preservation is codified in San Francisco Planning Code section 101.1(b), which establishes eight general plan priority policies. Priority Policy 7 of planning code section 101.1(b) addresses the City’s desire to preserve landmarks and historic buildings and states “that landmarks and historic buildings be preserved.”

SAN FRANCISCO HISTORIC PRESERVATION COMMISSION AND PLANNING CODE ARTICLES 10 AND 11

The San Francisco Historic Preservation Commission (HPC) is a seven-member body that makes recommendations directly to the San Francisco Board of Supervisors regarding the designation of landmark buildings, historic districts, and significant buildings. The HPC approves certificates of appropriateness for individual landmarks and landmark districts designated under Article 10 and permits to alter individual properties and conservation districts listed under Article 11. The HPC reviews and comments on CEQA documents for projects that affect historic resources as well as projects that are subject to review under National Historic Preservation Act Section 106.

The San Francisco Charter gives the HPC the ability to identify, designate, and protect historic landmarks, including buildings, sites, objects, and districts, from inappropriate alterations. Article 10 of the planning code contains regulations regarding the way the HPC exercises its authority. Since the adoption of Article 10 in 1967, the City has designated 292 landmark sites and 14 historic districts under Article 10.⁵⁵ Any property that has

⁵⁴ The San Francisco Housing Element 2022 Update is currently underway. The housing element update includes policies designed to improve housing affordability and advance racial and social equity, and would shift an increased share of the city’s future housing growth to transit corridors and low-density residential districts within certain areas of the city. It would not include specific changes to existing land use controls (e.g., zoning) or approve any physical development, but the EIR will evaluate the potential physical environmental impacts that could result from future actions regarding implementation of the policies proposed under the housing element.

⁵⁵ City and County of San Francisco, Article 10: Preservation of Historical Architectural and Aesthetic Landmarks, 2019, [Article 10: Preservation of Historical Architectural and Aesthetic Landmarks \(amlegal.com\)](https://www.sfdph.org/dph/ehp/articles/Article_10_Preservation_of_Historical_Architectural_and_Aesthetic_Landmarks_(amlegal.com)), accessed May 10, 2021.

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been locally designated as an Article 10 landmark or a contributor to an Article 10 district is considered a historic resource for purposes of CEQA.

In the mid-1970s, San Francisco Architectural Heritage (later renamed San Francisco Heritage) undertook the completion of a survey of resources found in the City's downtown area. The findings of the downtown survey served as the genesis of the book *Splendid Survivors: San Francisco's Downtown Architectural Heritage*, which resulted in the creation of the City's Downtown Plan and planning code Article 11, which was adopted in 1985.⁵⁶ Article 11 contains an adopted local register of historic resources in the C-3 (Downtown) district. Under Article 11, category I and II buildings are buildings that are "judged to be Buildings of Individual Importance"; category III and IV buildings are called out as "Contributory Buildings"; both are presumed to be "historical resources." Article 11 contains designated conservation districts, which are also presumed significant. Any construction within a conservation district will be evaluated to determine its effect on the district as the "historical resource." Interiors of Article 11 buildings are also "historical resources" if the designating ordinance calls out the interior as a feature that should be preserved.⁵⁷

PORT OF SAN FRANCISCO WATERFRONT PLAN

The Waterfront Plan retains several policies from the 1997 Waterfront Land Use Plan and includes updated or new policies related to urban design and historic preservation. These are summarized and presented in Section 2.E.1, Waterfront Plan Goals and Policies, p. 2-24, and discussed in the impact analysis below.

CULTURAL DISTRICT INITIATIVE

A cultural district is a geographic area or location within San Francisco that embodies a unique cultural heritage. Cultural heritage is defined as containing a concentration of cultural and historic assets, culturally significant enterprise, arts, services, or businesses, and a significant portion of its residents or people who spend time in the area are members of a specific cultural community or ethnic group that historically has been discriminated against, displaced, or oppressed. Through a formalized, collaborative partnership between the City and communities, the mandate requires that the City coordinate resources to assist in stabilizing vulnerable communities facing, or at risk of, displacement or gentrification. If achieved, this will enable individuals, families, and the businesses that serve and employ them, as well as nonprofit, community arts, and educational institutions to live, work, and prosper within the city. Each cultural district is led by a community-based group with an executive director and advisory body and is expected to maintain a robust community engagement and communication effort.⁵⁸

Currently, cultural districts include: Japantown Cultural District, Calle 24 Latino Cultural District (in the Mission District), SoMa Pilipinas Filipino Cultural Heritage District, Compton's Transgender Cultural District (in the Tenderloin), Leather and LGBTQ Cultural District (in the South of Market Area), African American Arts and Cultural District (in the Bayview), Castro LGBTQ Cultural District, American Indian Cultural District (in the Mission District), and Sunset Chinese Cultural District.⁵⁹

⁵⁶ San Francisco Planning Department, *San Francisco Preservation Bulletin No. 10: Historic and Conservation Districts in San Francisco*, p. 4, https://sfplanning.org/sites/default/files/documents/preserv/bulletins/HistPres_Bulletin_10.pdf, accessed September 7, 2021.

⁵⁷ San Francisco Planning Department, *San Francisco Preservation Bulletin No. 16: CEQA Review Procedures for Historic Resources*, p. 4, https://sfplanning.org/sites/default/files/documents/preserv/bulletins/HistPres_Bulletin_16.pdf, accessed September 17, 2021.

⁵⁸ San Francisco Planning Department, "Cultural Districts Initiative," <https://projects.sfplanning.org/community-stabilization/cultural-districts-initiative.htm>, accessed December 22, 2021.

⁵⁹ Ibid.

Cultural districts are not considered to be historic districts or historic resources for the purposes of CEQA; however, the existence of a cultural district suggests the increased likelihood that culturally associated historic resources are present within the cultural district boundaries.

LEGACY BUSINESS REGISTRY

In March 2015, the Board of Supervisors approved Ordinance No. 29-15 amending the administrative code to direct the Small Business Commission to establish a Legacy Business Registry. The Legacy Business Registry works to save longstanding, community-serving businesses that so often serve as valuable cultural assets. The City intends that the registry be a tool for providing educational and promotional assistance to legacy businesses to encourage their continued viability and success. In November 2015, voters approved Local Measure J, establishing the Legacy Business Historic Preservation Fund. Measure J also expanded the definition of a legacy business to include those that have operated in San Francisco for more than 20 years, are at risk of displacement, and meet all other requirements of the registry.⁶⁰

While it may occupy a building that is considered to be a historic resource, a legacy business on its own is not considered to be a historic resource for the purposes of CEQA.

4.B.3 Environmental Setting

The Waterfront Plan area extends along 7.5 miles of San Francisco Bay and is generally bounded to the north by Hyde Street Pier and Jefferson Street in Fisherman's Wharf and by Cargo Way in India Basin to the south. It includes the piers and upland properties adjacent to The Embarcadero including Oracle Park; piers and waterfront properties adjacent to Terry A. Francois Boulevard in Mission Bay; and properties generally east of Illinois Street south of Mission Bay. It encompasses approximately 800 acres with many properties located over or adjacent to water.

The environmental setting of the Waterfront Plan with regard to historic resources consists of the known historic resources within and adjacent to the Waterfront Plan area, which is the area where potential impacts could occur.⁶¹ The Waterfront Plan divides the waterfront into the Northern Waterfront and Southern Waterfront, with five subareas. The Northern Waterfront includes the Fisherman's Wharf, Northeast Waterfront, and South Beach subareas. The Southern Waterfront includes the Mission Bay and Southern Waterfront subareas. See Section 2.D.1, The Northern Waterfront Subareas, p. 2-5, and Section 2.D.2, The Southern Waterfront Subareas, p. 2-16, for a detailed description of the waterfront subareas.

HISTORIC CONTEXT

ETHNOGRAPHY AND ETHNOHISTORY OF THE PLAN AREA

Below is a synopsis of the ethnography and ethnohistory of the Waterfront Plan area prepared in consultation with Ohlone Native American representatives. The full text is presented in the tribal cultural resources section of Appendix B, Initial Study, of this Draft EIR.

⁶⁰ San Francisco Planning Department, "Cultural Heritage," <https://sfplanning.org/cultural-heritage>, accessed December 22, 2021.

⁶¹ A prehistoric context and presentation of archeological sensitivities within the Waterfront Plan area is presented in Section 4, Cultural Resources, of the initial study (Appendix B).

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Humans have inhabited San Francisco for more than 7,600 years. Prior to the arrival of European explorers in central California in the 18th century, the entire San Francisco Bay region was occupied by Ohlone Native Americans, and the present boundaries of the City and County of San Francisco were inhabited by the *Ramaytush* Ohlone tribe.⁶² These peoples were hunter-gatherers and occupied various sites based on seasonal availability of resources, and both the population and location of villages were fluid. They managed the land through controlled burning (a practice that also delineated territories), tilling, planting seeds, irrigating, weeding, and pruning.⁶³ They produced woven baskets, stone and animal bone tools, and shell beads and other ornaments and engaged in local and regional trade with other tribes.⁶⁴

Major disruption of the Ohlone peoples' cultural practices and a continual decrease in population occurred following the initial colonization of the region by Spanish settlers. (This is discussed in more detail below.) In 2020, the San Francisco Board of Supervisors formally acknowledged the *Ramaytush* Ohlone community as the Indigenous and sovereign people of the City and County of San Francisco,⁶⁵ and the Planning and Historic Preservation commissions passed resolutions committing to policies and practices that center on racial and social equity.⁶⁶

SPANISH AND MEXICAN PERIODS (1769–1848)

Spanish navigation and exploration of the California coast began in 1542–1543,⁶⁷ and initial European exploration of the project vicinity began in 1769 and lasted until 1810. In spring 1776, the site of San Francisco was chosen by Juan Batista Anza for the establishment of a mission and military post. Later that same year, the Mission San Francisco de Asís (also known as Mission Dolores) and Presidio de San Francisco were officially dedicated, and Spain took formal possession in the name of King Carlos III.⁶⁸ Mission Dolores was located on land occupied seasonally by the *Yelamu* peoples, and most *Yelamu* were baptized and forced into the mission system as *neophytes* (converts) at Mission Dolores between 1777 and 1784.⁶⁹

The Spanish annexation and colonization of Alta California, as manifested in the religious-military mission system, produced profound and destructive changes in the cultures of the indigenous Ohlone peoples. The mission system at missions [San Carlos Borromeo](#), San Francisco de Asís, [Santa Clara de Asís](#), [Santa Cruz](#), and [San José](#) resettled and concentrated the aboriginal hunter-gatherer population into agricultural communities. The concentration of mission populations, coupled with the indigenous people's lack of immunity to European diseases, decimated the tribes' populations by common diseases, which were generally not fatal to Europeans.

⁶² Levy, R., "Costanoan" in *California, Handbook of the Indians of North America*, Vol. 8, R. Heizer, ed. Smithsonian Institution, Washington, D.C., 1978, p. 485; Levy, R., *Costanoan Internal Relationships*, Manuscript prepared for the Archaeological Research Facility, Department of Anthropology, University of California at Berkeley by Richard Levy, Department of Anthropology, University of Kentucky, 1976, Figure 1, p. 57.

⁶³ Lightfoot, K. G., O. Parrish, L. M. Panich, T. D. Schneider, and K. E. Soluri, *California Indians and Their Environment: An Introduction*. Berkeley, CA: University of California Press, 2009, pp. 82–83.

⁶⁴ Milliken, R. T., *A Time of Little Choice: The Disintegration of Tribal Culture in the San Francisco Bay Area, 1769–1810*, Menlo Park, CA: Ballena Press, 1995, p. 62.

⁶⁵ San Francisco Board of Supervisors, Motion amending the Rules of Order of the Board of Supervisors by adding Rule 4.7.1 to require the President to read a statement acknowledging the Ramaytush Ohlone community, approved December 8, 2020, <https://sfgov.legistar.com/View.ashx?M=F&ID=9014184&GUID=D71B710F-9C5C-4094-8133-ACC7507D47F1>.

⁶⁶ San Francisco Historic Preservation Commission, Resolution No. 1127 Centering Preservation Planning on Racial and Social Equity, adopted July 15, 2021, https://sfplanning.org/sites/default/files/documents/admin/R-1127_HPC_Equity_Resolution.pdf.

⁶⁷ Donley, Michael W., Stuart Allan, Patricia Caro and Clyde P. Patton, *Atlas of California*, Pacific Book Center, Culver City, California, 1979.

⁶⁸ Hoover, Mildred B., Hero E. Rensch, and Ethal G. Rensch, *Historic Spots in California*, fourth edition revised by Douglas E. Kyle, Stanford, California: Stanford University Press, 1990, 331–334.

⁶⁹ Milliken, Randall, Richard T. Fitzgerald, Mark G. Hylkema, Randy Groza, Tom Origer, David G. Bieling, Alan Leventhal, Randy S. Wiberg, Andrew Gottfield, Donna Gillette, Vaviana Bellifemine, Eric Strother, Robert Cartier, and David A. Fredrickson, *Punctuated Culture Change in the San Francisco Bay Area*, in *Prehistoric California: Colonization, Culture, and Complexity*, edited by T.L. Jones and K.A. Klar, pp. 99–124, AltaMira Press, 2007.

Additionally, many died as a result of austere living and working conditions imposed by the missionaries. It has been estimated that the Ohlone population decreased from 10,000 or more in 1770 to fewer than 2,000 in 1832.⁷⁰

Jurisdiction over Alta California was established by Mexico in April 1822. A small Mexican-period (1822–1848) settlement known as Yerba Buena was established on the shores of the cove by the same name. A public square that would later be named Portsmouth Square was established in the 1830s near the center of Yerba Buena (and located one block from the waterfront), and it became the primary space for public announcements and events and the nucleus around which municipal and business dealings occurred in Yerba Buena. Some Native American survivors of the mission system may have lived in Yerba Buena during the 1830s and 1840s, while others relocated to *ranchos* (privately owned cattle ranching estates) outside the townsite. The land south of Mission Bay was subdivided among numerous individuals in the 1830s and by 1840, the 4,400-acre Rancho Rincón de las Salinas y Potrero Viejo (Ranch of the Salt Marsh and Old Pasture) was granted to Don José Cornelio Bernal.⁷¹ Sometime before 1848, the inhabitants of Yerba Buena officially changed the name of their settlement to San Francisco.

Friction between Mexico and the United States ultimately led to the Mexican War of 1846–1847. On July 9, 1846, a crew from the sloop-of-war *USS Portsmouth* came ashore and raised the first American flag over San Francisco.⁷² However, as Mexico had ceased stationing regular troops in San Francisco following secularization,⁷³ the raising of the flag was a symbolic gesture rather than a result of heroic exuberance.

AMERICAN PERIOD (1848–PRESENT)

GOLD RUSH PERIOD AND THE ESTABLISHMENT OF THE PORT OF SAN FRANCISCO

Following the discovery of gold in the Sierra Nevada in January 1848, northern California experienced a significant population increase as immigrants poured into the territory seeking gold and other opportunities. San Francisco transformed quickly from an isolated hamlet into a bustling center of commerce around Yerba Buena Cove and on the surrounding sand dunes and hills.⁷⁴ The influx of thousands of newcomers included several immigrant communities. The Latin (i.e., Italian) quarter was established at the base of Telegraph Hill, and the Chinese community established itself in the area southwest of Portsmouth Square beginning around 1850. California became part of the United States as a consequence of the U.S. victory over Mexico. The territory was formally ceded in the treaty of Guadalupe Hidalgo in 1848 and was admitted as the 31st state on September 9, 1850.⁷⁵

To accommodate the growing population, the city rapidly expanded in all directions.⁷⁶ By the late 1840s, a shortage of wharfage in San Francisco was already apparent. During the early gold rush period, the urbanization and topographic changes occurring along the San Francisco waterfront led to a dramatic

⁷⁰ Levy, Richard, Costanoan, in *California*, edited by Robert F. Heizer, pp. 485–495, *Handbook of North American Indians*, Vol. 8, William C. Sturtevant, general editor, Smithsonian Institution, Washington, D.C., 1978, 486.

⁷¹ Architectural Resources Group, *Pier 90 Historic Resource Evaluation*, January 2018, p. 15.

⁷² Beck, Warren A., and Ynez D. Haase, *Historical Atlas of California*, University of Oklahoma Press, 1974, 47; Hoover, Mildred B., Hero E. Rensch, and Ethal G. Rensch, *Historic Spots in California*, fourth edition revised by Douglas E. Kyle, Stanford, California: Stanford University Press, 1990, 336.

⁷³ Hoover, Mildred B., Hero E. Rensch, and Ethal G. Rensch, *Historic Spots in California*, fourth edition revised by Douglas E. Kyle. Stanford University Press. Stanford, California, 1990, 331.

⁷⁴ Hoover, Mildred B., Hero E. Rensch, and Ethal G. Rensch, *Historic Spots in California*, fourth edition revised by Douglas E. Kyle. Stanford University Press. Stanford, California, 1990, 334–336; Kemble 1957:7.

⁷⁵ Beck, Warren A., and Ynez D. Haase, *Historical Atlas of California*, University of Oklahoma Press, 1974.

⁷⁶ Pastron, Allen G., James P. Delgado, and Emily Wick, *Draft Addendum Archaeological Research Design and Treatment Plan for the 8 Washington Street Project, City and County of San Francisco, California*, prepared for Turnstone Consulting, San Francisco, CA, June 2007.

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transformation of the contours of the bay shoreline, primarily due to the development of timber wharves and piers, as described below:

Wharf development was one of the most competitive areas of San Francisco's early economy. The city lacking the funds to construct the needed wharfs, the development of San Francisco's wharves was from the beginning proprietary ventures. The wharf-companies sought to maximize their interests by extending wharves as far as possible to reach deep-water and, thus, ocean-going vessels with deep drafts.⁷⁷

The subsequent filling between the wharves soon extended the city's shoreline (including the entire Waterfront Plan area) and further changed the topography of the northern peninsula:

Soon after the city's many wharves had been built out from the original shoreline of the bay for some distance, cross connecting streets on pilings were erected to join one wharf to the next. Soon, the enclosed areas were filled with sand or other materials and the shoreline began to advance bayward. The amount of filling necessary for a given piece of property was based on the need to bring it to the level of the officially established city grade. Landfill most commonly consisted mostly of dune sand, accessible almost everywhere; other fill included rubbish, building rubble, abandoned ships, or anything else which had no immediate value.⁷⁸

The gold rush sparked the development of a large-scale port in San Francisco. Until 1863, the City managed the Port, and private interests built the wharves, piers, and facilities that handled 83 percent of the cargo shipped out of the Pacific coast. In 1863, the State assumed ownership of the Port of San Francisco and created the Board of State Harbor Commissioners (BSHC) to bring consistency to the administration, development, and maintenance of the Port. The BSHC followed a policy of financing Port improvements through Port revenue, which supported incremental development. Permanent development of the Port began in 1881 with the construction of a 21-section seawall along the waterfront, which was completed in 1915 and resulted in the gently curving form of the waterfront. The seawall replaced the jagged waterfront developed between the 1840s and 1860s.⁷⁹ After the seawall was completed, the BSHC constructed new timber wharves and piers. The wood structures deteriorated quickly, and many were reconstructed using more resilient materials (e.g., Pier 7 was built with steel piles in 1895, and Piers 19, 21, 23, and 25 were built with unreinforced concrete piers in 1901), although these also failed in a matter of years.⁸⁰ The piers north of Market Street were given consecutive odd numbers, and the piers south of Market Street were given consecutive even numbers. The Union Ferry Depot (which is commonly known as the Ferry Building) was completed in 1898 at the intersection of The Embarcadero and Market Street and immediately became an iconic landmark that functioned as the gateway to San Francisco for thousands of people.⁸¹

The land south of Mission Bay, much of which was distant from downtown San Francisco and lacked transportation connections to the city, was sold to real estate buyers. Rather than struggle to establish

⁷⁷ Dean, Randall, *City Front Archaeological Research Design and Treatment Plan for the Mid-Embarcadero Surface Roadway Project*, prepared by Holman and Associates, prepared for the City and County of San Francisco, California Department of Transportation, and U.S. Federal Highway Administration, October 1997.

⁷⁸ Dow, Gerald Robert, *Bay Fill in San Francisco: A History of Change*, Master's Thesis, Department of History, California State University, San Francisco, CA, 1973.

⁷⁹ Architectural Resources Group, pp. 20–21.

⁸⁰ Michael Corbett et al., *National Register of Historic Places Registration Form: Port of San Francisco Embarcadero Historic District*, January 2006, Section 8: p. 130.

⁸¹ San Francisco Planning Department, "Ordinance No. 213-77, Designating the Ferry Building as a Landmark Pursuant to Article 10 of the City Planning Code," June 1977, https://sfplanningis.org/docs/landmarks_and_districts/LM90.pdf, accessed June 1, 2021.

residential communities in these relatively remote locations, many of the landowners turned to industrial development of the central and southern waterfront. Within the Waterfront Plan area, some of the major industries included gunpowder production, rope-making, shipbuilding, iron and steel works, barrel production, sugar refineries, butcheries, and power generation.^{82,83,84}

1906 EARTHQUAKE AND FIRES

On April 18, 1906, a major earthquake occurred that caused widespread damage across the San Francisco Bay area, and much of San Francisco was devastated by the ensuing fires. The earthquake ruptured water mains across the city, and the fires burned for three days, engulfing approximately 500 city blocks. Van Ness Avenue was used as a *firebreak*,⁸⁵ and the fire damage was generally contained to the area east of Van Ness Avenue.

Along the waterfront, tugboats pumped sea water from the bay into hoses and fire engines.⁸⁶ Some waterfront features, including the Ferry Building, were saved from extensive fire damage. However, many of the wharves and pier sheds were destroyed, as noted in a 1907 report by the U.S. Geological Survey, “Most of the structures built on piles along the bay suffered considerable damage, especially the [wood-] frame sheds on the wharves.” Another contemporary account by the Port’s former chief engineer, Marsden Manson, described the general condition of the Port, “The facilities upon our waterfront were utterly inadequate before the catastrophe. They are more so now.”⁸⁷ South of Mission Bay, the waterfront experienced relatively little damage.⁸⁸

RECONSTRUCTION AND DEVELOPMENT OF THE WATERFRONT THROUGH WORLD WAR II

The BSHC spent the two years following the 1906 earthquake and fire planning and financing major repairs and modernizing the Port. The new Port would not only be functional and resilient (i.e., constructed mostly of reinforced concrete with some creosoted timber piles), its design also would enhance San Francisco, which, like many other American cities, was undergoing large-scale changes that reflected the City Beautiful Movement. Beginning in 1908, the new pier bulkhead buildings constructed south of the Ferry Building were designed in the Mission Revival Style, such as the Pier 22½ Fireboat Station 35 and Piers 26, 28, and 38. Beginning in 1915, the new pier bulkhead buildings constructed north of the Ferry Building were designed in the Neoclassical Style, such as Piers 1, 1½, 3, 5, 7 (altered), 9, 15, 19, 23, 29, 31, 33, 35, and 43 (remnant). In the late 1920s, Piers 45 and 48 were built with bulkhead buildings designed in the Gothic Revival Style.⁸⁹ Today, these facilities constitute the majority of historic resources located within the Port of San Francisco Embarcadero Historic District (Embarcadero Historic District).

Beginning with the opening of the Panama Canal and the beginning of World War I in 1914, the waterfront was transformed. The Bethlehem Steel Corporation’s shipbuilding yard at Pier 70 (formerly the Union Iron Works) manufactured submarines and ships for the Royal British Navy, launching hundreds of freighters and

⁸² Architectural Resources Group, pp. 16–17.

⁸³ San Francisco Planning Department, *Potrero Power Station Mixed-Use Development Project EIR*, November 2018, pp. 4.D-2–4.D-7.

⁸⁴ Carey & Co., *National Register of Historic Places Registration Form for the Union Iron Works Historic District*, February 2014.

⁸⁵ A firebreak is an area that is cleared (or in this case properties that were dynamited) to prevent the spread of fire.

⁸⁶ Niderost, Eric, “The Great 1906 San Francisco Earthquake and Fire,” *American History*, April 2006, <https://www.historynet.com/the-great-1906-san-francisco-earthquake-and-fire.htm>, accessed June 1, 2021.

⁸⁷ Michael Corbett et al., *National Register of Historic Places Registration Form: Port of San Francisco Embarcadero Historic District*, January 2006, Section 8, p. 131.

⁸⁸ San Francisco Planning Department, *Central Waterfront Cultural Resources Survey Summary Report and Draft Context Statement*, October 2001, p. 11.

⁸⁹ Corbett, Section 8, pp. 156–158.

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4.B. Historic Resources

destroyers during the war.⁹⁰ While post-war production south of Mission Bay slowed significantly, San Francisco was the second largest port in the United States in terms of the value of its cargo through the 1920s and 1930s. As a *breakbulk*⁹¹ port with general cargo, all goods arrived on ships and were unloaded and stored in warehouses before being loaded onto trucks or trains. Goods that arrived in crates were opened and distributed to warehouses, then reloaded for delivery to their final destinations. Port workers handled a wide variety of finished products such as automobiles as well as agricultural produce, and port facilities accommodated the growing military needs of the area. The combination of a wide variety of goods coming through the port, the large number of warehouses constructed on each pier, and the direct access to labor and transportation to the rest of the state allowed the Port to weather the Great Depression better than other commercial centers in the country.⁹²

During World War II, port activities were focused on military support as it served as part of a major deployment center for troops leaving for the Pacific theater, and the Port was mostly occupied by the military as part of the San Francisco Port of Embarkation (SFPE). People, equipment, and supplies flowed through the SFPE and Fort Mason from the industrial centers of the Midwest to the bases and ships in and around the Pacific rim. Bethlehem Steel produced war ships through the duration of World War II. This period marked the peak of activity for San Francisco's waterfront, and shipping and manufacturing activities declined sharply after the war ended in 1946.^{93,94}

CONTAINERIZATION AND DECLINE IN THE MID-20TH CENTURY

After World War II, continued modernization included adapting the Port for containerized shipping. This method was pioneered in 1956 by the Sea-Land Company of New Jersey, which placed goods in large, sealed containers that were carried, unopened, from ship to rail to truck. The goods were then opened for distribution upon arrival at the final destination. As a result, shippers needed to move containers only, rather than individual goods. The containers were heavy and necessitated development of a new type of dockside crane to enable easy transport onto and off from the ships. The first such container crane in the world was developed by the Pacific Coast Engineering Company and first used in 1959 at the Encinal Terminal in nearby Alameda. The ships that carried these containers were larger than those needed for break-bulk shipping, requiring ports with larger wharves, deeper channels, and large, open places for storage of the containers.⁹⁵

At the Port of San Francisco, adaptation to containerized shipping included increasing the size of some piers up to 100 feet in width and several hundred feet in length to accommodate the new, larger cargo ships. The first project under this new plan was a two-phase development that resulted in the Mission Rock Terminal and expanded facilities at Pier 50. However, these improvements could not keep pace with other west coast ports in Oakland, Los Angeles, and Seattle where there was more space to expand.⁹⁶

⁹⁰ San Francisco Planning Department, *Central Waterfront Cultural Resources Survey Summary Report and Draft Context Statement*, October 2001, p. 15.

⁹¹ *Breakbulk cargo* are goods that must be stowed individually, and will be listed on multiple bills of lading each covering a different commodity.

⁹² Corbett, Section 8, pp. 23–24.

⁹³ San Francisco Planning Department, *The 34th America's Cup and James R. Herman Cruise Terminal and Northeast Wharf Area Volume 1 Environmental Impact Report*, 2011, 5.5-14.

⁹⁴ For more information, see Corbett.

⁹⁵ Woodruff Minor, *Historic American Buildings Survey: Grove Street Pier (Charles P. Howard Terminal)*, HABS No. CA-2406, 1994.

⁹⁶ Corbett, Section 8, pp. 41-42.

Various efforts were made to enhance specialized shipping and cargo handling at the Port through the 1950s. By the 1960s, as ships became larger and needs became more specialized, the Port of San Francisco was at a distinct disadvantage compared to Oakland.⁹⁷

REVIVAL IN THE LATE 20TH CENTURY

The present-day San Francisco waterfront is largely a reflection of redevelopment efforts unrelated to shipping and cargo. In 1959, a one-mile-long elevated freeway known as the Embarcadero Freeway opened to vehicular traffic within the Waterfront Plan area from Folsom Street to Broadway. The freeway visually separated the waterfront from downtown San Francisco, and calls for its removal began as soon as it was constructed. When the Embarcadero Freeway partially collapsed after the 1989 Loma Prieta Earthquake, the Port of San Francisco used the event as an opportunity to redevelop its property to reflect changing needs, just as it had done after the 1906 earthquake and fires. The resulting 1997 Waterfront Plan allowed for buildings and facilities that historically housed cargo and shipping activities to be adaptively reused for non-shipping uses including offices, restaurants, event spaces, parking, and storage. The Embarcadero Freeway was removed, and a wide boulevard—The Embarcadero—was constructed in its place.⁹⁸ Today, the Waterfront Plan area hosts a variety of public and private, commercial and industrial, recreational, and retail functions.

PREVIOUS HISTORIC RESOURCES SURVEYS

Several previous historic resources surveys have evaluated much of the Waterfront Plan area. Some of these surveys constitute local registers of historic resources, having been formally adopted by the San Francisco Board of Supervisors (and/or the San Francisco Planning Commission or HPC. Buildings identified in these surveys as having historical significance are considered historical resources under CEQA. Other surveys have not been formally adopted by the City and therefore are not considered local registers of historic resources. Buildings identified as historically significant in those surveys are considered potential historic resources, for which further consultation and review is required prior to a determination as to whether the building is a historic resource. Historic resource surveys applicable to the Waterfront Plan area are described below.

JUNIOR LEAGUE OF SAN FRANCISCO ARCHITECTURAL SURVEY, 1968

Here Today: San Francisco's Architectural Heritage (Here Today) is one of San Francisco's first architectural surveys, undertaken by the Junior League of San Francisco and published in book form in 1968. Although the *Here Today* survey did not assign ratings, it did provide brief historical and biographical information about what the authors believed to be significant buildings. The findings of the survey were adopted by the Board of Supervisors on May 11, 1970 (Resolution No. 268-70), and resources listed in *Here Today* are therefore considered to be historical resources for purposes of CEQA.⁹⁹ While the *Here Today* survey included the entire Waterfront Plan area, only two buildings in the Plan area are mentioned: the Ferry Building and the Hyde Street Pier.

SAN FRANCISCO DEPARTMENT OF CITY PLANNING ARCHITECTURAL SURVEY, 1976

The 1976 Architectural Quality Survey reviewed the entire city to identify and rate what was thought to be the top 10 percent of architecturally significant buildings and structures. Twelve separate aspects of the selected 10,000 buildings were evaluated on a scale of -2 (detrimental) to +5 (extraordinary), with a summary rating of 0 to 5 assigned to each building as a whole. Buildings rated with a summary rating of 3 or higher in the 1976

⁹⁷ *Ibid.*, Section 8, pp. 42-43.

⁹⁸ *Ibid.*, Section 8, pp. 193-194, 198.

⁹⁹ San Francisco Planning Department, *Central SoMa Plan EIR*, December 2016, p. IV.C-19.

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survey represent approximately the top two percent of San Francisco’s buildings in terms of architectural significance. Summary ratings of 0 or 1 are generally interpreted to mean that the property has some contextual importance. Properties were assessed only for architectural merit; other elements of historic significance were not considered.¹⁰⁰ The Architectural Quality Survey examined approximately 19 properties in the Waterfront Plan area, of which 13 were rated 3 or higher. The survey was not formally adopted, and inclusion in the 1976 survey rating is an indication that the planning department has additional information on the building, but not that the building is a historical resource under CEQA. Further research is necessary to determine whether a property included in the 1976 survey qualifies as a historical resource.

SAN FRANCISCO ARCHITECTURAL HERITAGE SURVEYS, 1979

San Francisco Heritage (Heritage) is the oldest not-for-profit organization in the city dedicated to increasing awareness and advocating for preservation of San Francisco’s unique architectural and cultural heritage. Heritage has sponsored or was commissioned by the City to conduct several historical resource inventories in San Francisco, including surveys for area plans in Downtown, the Van Ness Corridor, Civic Center, Chinatown, the Northeast Waterfront, and South of Market, as well as surveys in the Inner Richmond District and the Dogpatch neighborhood. The earliest and most influential of these surveys was the Downtown Survey. Completed in 1977–1978 for Heritage by Charles Hall Page & Associates and published in 1979 as the book *Splendid Survivors* by Michael Corbett, this survey serves as the intellectual foundation for much of the historical discussion in the Downtown Plan. The methodology improved upon earlier surveys inasmuch as it consists of both intensive field work and thorough archival research. Buildings were evaluated using the Kalman Methodology, a pioneering set of evaluative criteria based on both qualitative and quantitative factors. A team of outside reviewers analyzed the survey forms and assigned ratings to each of the pre-1945 buildings within the survey area. The ratings include “A” (highest importance), “B” (major importance), “C” (Contextual Importance), and “D” (minor or no importance). The Heritage surveys have not been formally adopted by the City, and thus a building listed by Heritage is not a historical resource under CEQA by virtue of Heritage listing alone; however, many Heritage-rated buildings have been otherwise determined to be historical resources.¹⁰¹ Approximately 12 buildings in the Waterfront Plan area were assigned Heritage ratings, all of which are either A or B.

PORT OF SAN FRANCISCO HISTORIC RESOURCES DATA BASE, 1996

The *Port of San Francisco Historic Resources Data Base* (1996 database) was prepared by Architectural Resources Group in November 1996. Its purpose was to “consolidate existing historic information (current as of 1996) for all Port structures” (excluding historic resources located within Port jurisdictional boundaries that are neither owned nor managed by the Port) and “to provide additional input into the Port’s current effort to develop an Urban Design and Public Access element to implement the [1997] Waterfront Land Use Plan.”¹⁰² The 1996 database was completed prior to the establishment of several historic districts by the Port of San Francisco, namely the Embarcadero Historic District (listed in the National Register in 2006) and the Union Iron Works Historic District (listed in the National Register in 2014).

¹⁰⁰ Ibid., p. IV.C-20.

¹⁰¹ Ibid.

¹⁰² ARG, *Port of San Francisco Historic Resources Data Base*, prepared for the Port of San Francisco, November 1996, p. 1.

CENTRAL WATERFRONT SURVEY, 2001

In 2000–2001, the planning department conducted a cultural resources survey of the approximately 500-acre area bounded by 16th Street to the north, Interstate 280 to the west, Islais Creek to the south, and San Francisco Bay to the east. The Central Waterfront Survey identified significant concentrations of mixed-use industrial properties, associated residential and commercial properties, and civic infrastructure oriented to water, railroad, and road transportation. The survey was adopted in 2001 and amended in 2008.¹⁰³ Within the Waterfront Plan area, the survey area includes the National Register-listed Union Iron Works Historic District.

SOUTH OF MARKET AREA HISTORIC RESOURCE SURVEY, 2011

Within the Waterfront Plan area, the South of Market Historic Resource Survey area includes properties on the west side of The Embarcadero between Bryant and Colin P. Kelly streets and on the east side of The Embarcadero/King Street between Townsend and Third streets. At the time of the survey in 2011, all of the properties within the Waterfront Plan area were either vacant, not age eligible (i.e., less than 50 years old), or found ineligible for the federal, state, or local designation.¹⁰⁴

PORT OF SAN FRANCISCO HISTORIC RESOURCES SUMMARY REPORT, 2022

The 1996 inventory of historic resources located on Port property was reviewed to identify age-eligible properties (i.e., those that are at least 45 years old) outside of the boundaries of the National Register-listed Embarcadero Historic District and the Union Iron Works Historic District properties that may require further evaluation at such time a subsequent project is proposed. The *Port of San Francisco Historic Resources Summary Report* (February 2022) is included as Appendix D in the Draft EIR.¹⁰⁵

HISTORIC RESOURCES IN THE WATERFRONT PLAN AREA

HISTORIC DISTRICTS WITHIN THE WATERFRONT PLAN AREA

A majority of the properties in the Waterfront Plan area are located within the Embarcadero Historic District or the Union Iron Works Historic District, both of which are listed in the National Register. However, a number of smaller historic districts are also located within the Plan area. **Table 4.B-1** includes a list of the historic districts located within the Waterfront Plan area and is followed by a description of each district. The historic districts are identified in **Figure 4.B-1** through **Figure 4.B-5**, pp. 4.B-19 to 4.B-23.

CENTRAL EMBARCADERO PIERS HISTORIC DISTRICT

The Central Embarcadero Piers Historic District (Piers 1–5) was listed in the National Register and California Register in 2002. As the only group of piers within the Port that was dedicated primarily to inland trade and transport, the historic district is significant for its association with commerce and transport in San Francisco and the larger region. The district is also one of the two largest remaining pier groupings of Beaux-Arts-style buildings along the Northeast Waterfront. This district is located within and was the precursor to the Embarcadero Historic District described below.

¹⁰³ San Francisco Planning Department, *Pier 70 Mixed-Use District Project EIR*, December 2016, p. 4.D-63.

¹⁰⁴ San Francisco Planning Department, South of Market Historic Resource Survey Map, <https://sfplanning.org/resource/south-market-historic-resource-survey-map>, accessed June 15, 2021.

¹⁰⁵ architecture + history llc, *Port of San Francisco Historic Resources Summary Report*, prepared for the Port of San Francisco, February 2022.

Table 4.B-1 Historic Districts in the Waterfront Plan Area

Name	Location within Waterfront Plan Area	National Register		California Register		Article 10
		Listed	Eligible	Listed	Eligible	
Central Embarcadero Piers Historic District	Northeast Waterfront subarea	X		X		
Port of San Francisco Embarcadero Historic District	Fisherman’s Wharf, Northeast Waterfront, South Beach, and Mission Bay subareas	X		X	X ^a	
Union Iron Works Historic District	Southern Waterfront subarea	X		X		
Northeast Waterfront Historic District	Within and adjacent to the Northeast Waterfront subarea					X
India Basin Scow Schooner Boatyard Vernacular Cultural Landscape ^b	Southern Waterfront subarea				X	
Auxiliary Water Supply System Historic District	Fisherman’s Wharf, Northeast Waterfront, South Beach, Mission Bay, and Southern Waterfront subareas		X		X	

SOURCES: architecture + history llc, *Port of San Francisco Historic Resources Summary Report*, prepared for the Port of San Francisco, February 2022, San Francisco Planning Department, Property Information Map, <https://sfplanninggis.org/PIM>, accessed May 2021.

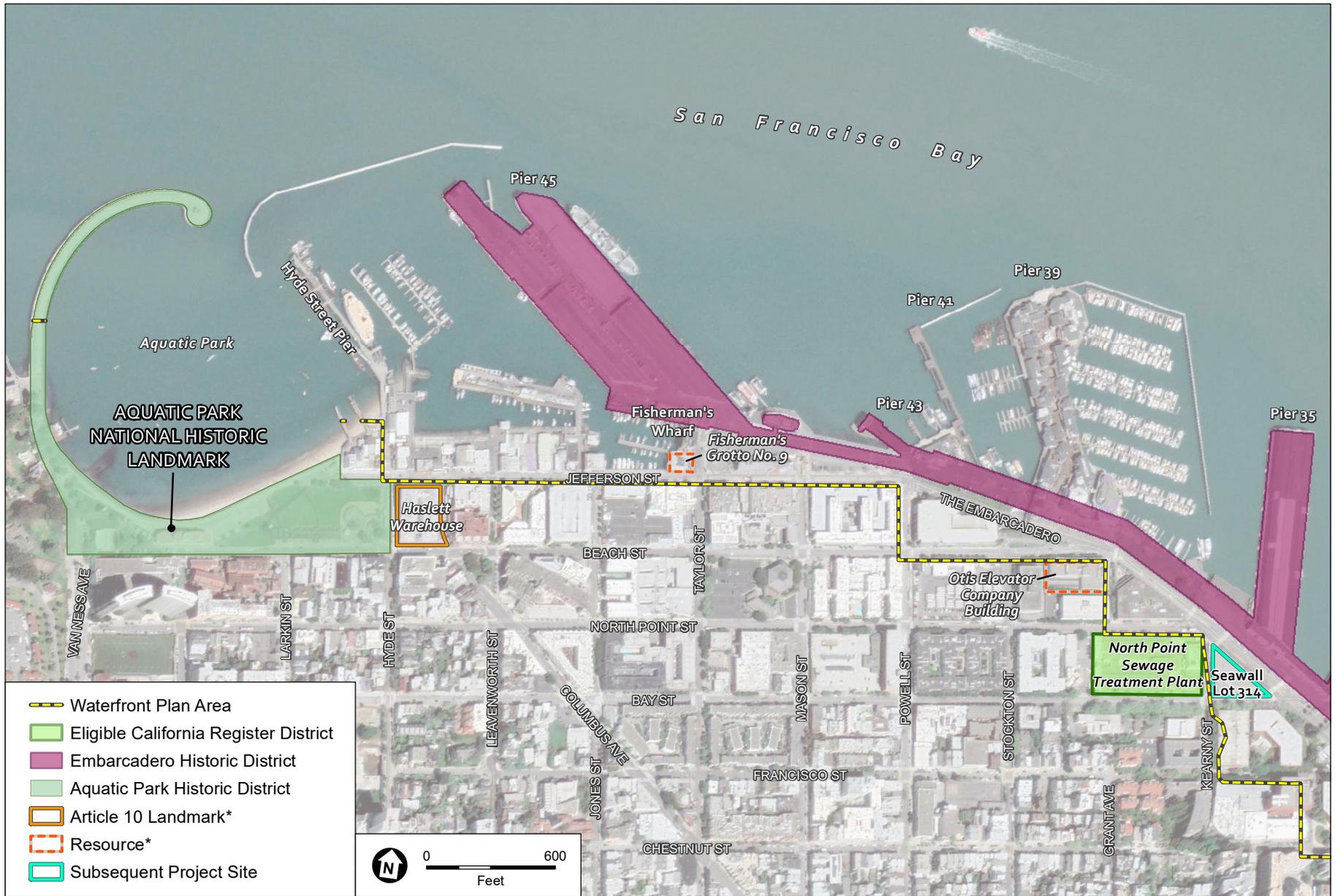
- ^a Red’s Java House and Pier 48 ½ are California Register-eligible contributors to the Embarcadero Historic District. While they are not part of the officially listed historic district, they were determined to be contributors through environmental review.
- ^b No contributing resources to the India Basin Scow Schooner Boatyard Vernacular Cultural Landscape are owned or managed by the Port.

PORT OF SAN FRANCISCO EMBARCADERO HISTORIC DISTRICT

The Embarcadero Historic District encompasses three miles of waterfront including the seawall, bulkhead wharf, pier, and bulkhead buildings from Pier 45 to the north to Pier 48 in China Basin to the south. The district’s period of significance is 1878 to 1946. The district includes the Ferry Building, the Agriculture Building, and the Fire Station at Pier 22½, all of which contribute to the overall character of the district. Portions of Pier 39 and Piers 30–32 are non-contributing to the Embarcadero Historic District because they lack integrity. The Embarcadero Historic District was listed in the National Register and California Register in 2006. Red’s Java House and Pier 48½ were determined to be contributors to the Embarcadero Historic District through environmental review in 2011 and 2015, respectively.^{106,107}

¹⁰⁶ San Francisco Planning Department, *The 34th America’s Cup and James R. Herman Cruise Terminal and Northeast Wharf Area Volume 1 Environmental Impact Report*, 2011.

¹⁰⁷ San Francisco Planning Department, *CEQA Categorical Exemption Determination for 295 Terry Francois Boulevard (Pier 48½)*, Case No. 2014.1224E, March 31, 2015.

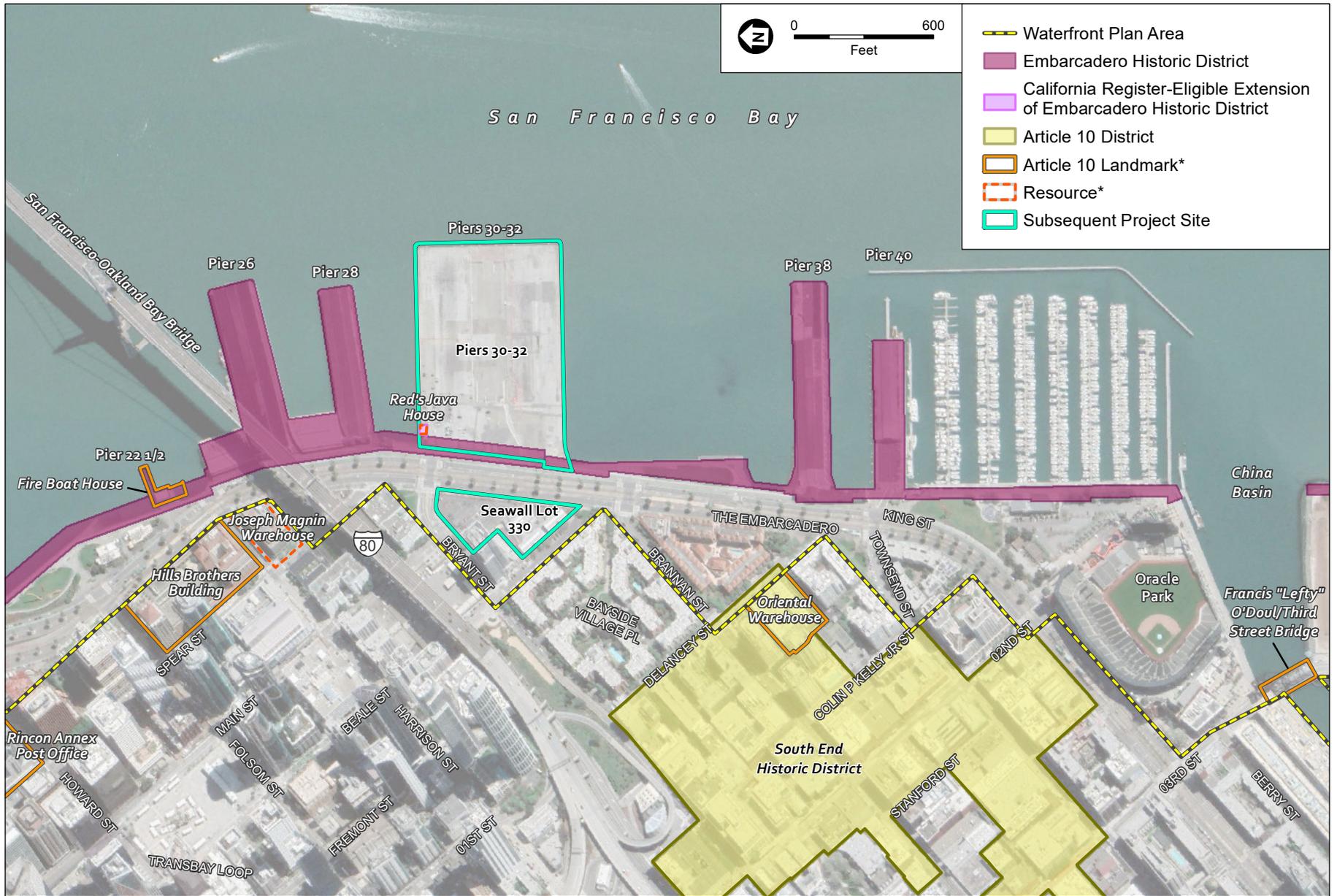


SOURCE: Google, 2020; San Francisco Planning Department, 2018; SF Port, 2020; ESA, 2021

Waterfront Plan

* Only historic resources adjacent to the Waterfront Plan Area are shown on the map. Components of the Auxiliary Water Supply System Historic District are located throughout the five subareas.

FIGURE 4.B-1
FISHERMAN'S WHARF SUBAREA
PORT HISTORIC RESOURCES INVENTORY



SOURCE: Google, 2020; San Francisco Planning Department, 2018; SF Port, 2020; ESA, 2021

Waterfront Plan

* Only historic resources adjacent to the Waterfront Plan Area are shown on the map. Components of the Auxiliary Water Supply System Historic District are located throughout the five subareas.

FIGURE 4.B-3
SOUTH BEACH SUBAREA
PORT HISTORIC RESOURCES INVENTORY

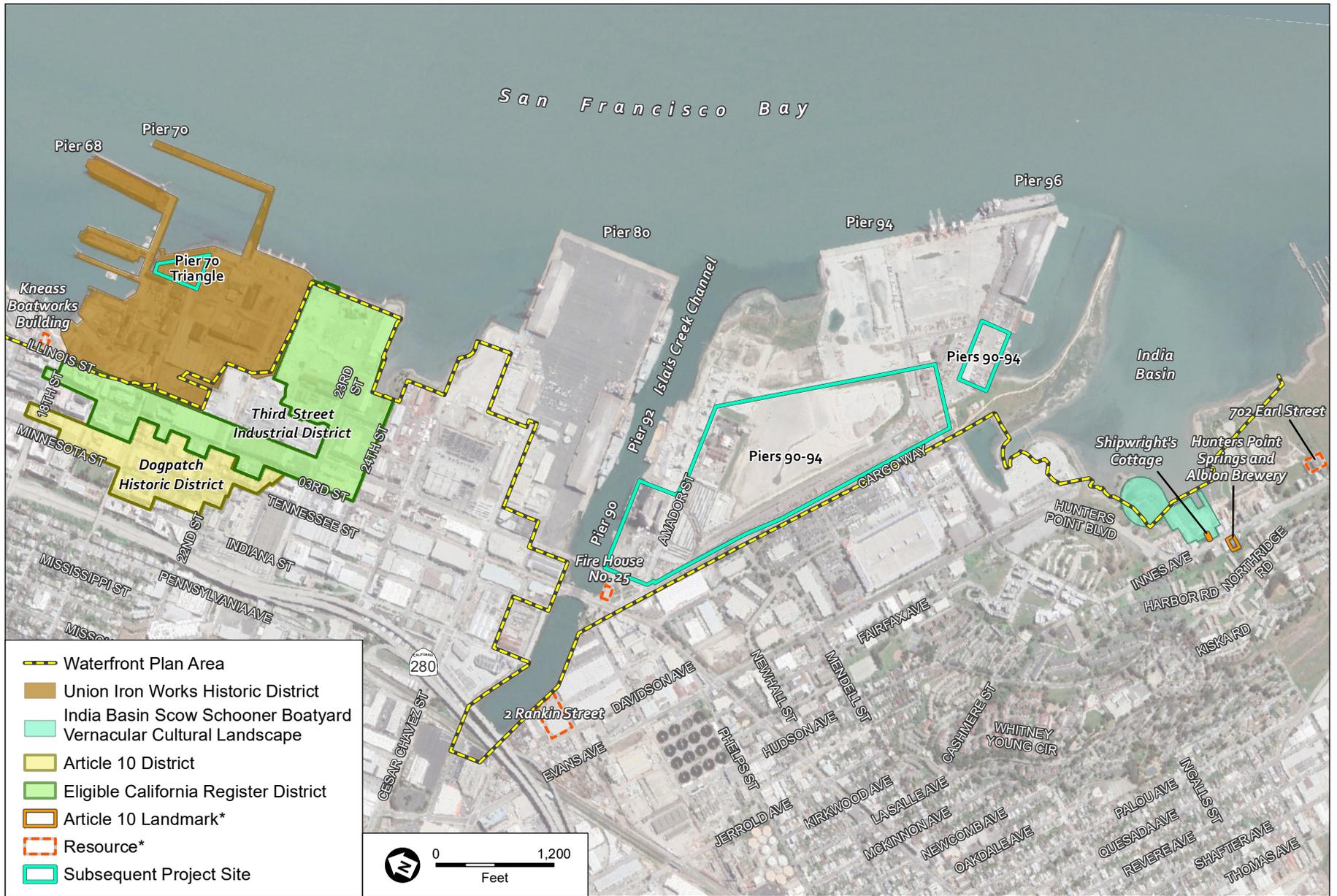


SOURCE: Google, 2020; San Francisco Planning Department, 2018; SF Port, 2020; ESA, 2021

Waterfront Plan

* Only historic resources adjacent to the Waterfront Plan Area are shown on the map. Components of the Auxiliary Water Supply System Historic District are located throughout the five subareas.

FIGURE 4.B-4
MISSION BAY SUBAREA
PORT HISTORIC RESOURCES INVENTORY



SOURCE: Google, 2020; San Francisco Planning Department, 2018; SF Port, 2020; ESA, 2021

Waterfront Plan

* Only historic resources adjacent to the Waterfront Plan Area are shown on the map. Components of the Auxiliary Water Supply System Historic District are located throughout the five subareas.

FIGURE 4.B-5
SOUTHERN WATERFRONT SUBAREA
PORT HISTORIC RESOURCES INVENTORY

UNION IRON WORKS HISTORIC DISTRICT

The Union Iron Works Historic District at Pier 70 encompasses the 68-acre former Union Iron Works/Bethlehem Steel Shipyard between Mariposa, Illinois, and 22nd streets and is a part of the Central Waterfront and Dogpatch/Potrero Hill neighborhoods. The district's period of significance is 1884 to 1945 and includes numerous contributing industrial resources that formed the physical plant of the shipyard. A 14-acre portion of the former shipyard remains in maritime use. The Union Iron Works Historic District was listed in the National Register and California Register in 2014.

NORTHEAST WATERFRONT HISTORIC DISTRICT – SAN FRANCISCO ARTICLE 10 HISTORIC DISTRICT

The Northeast Waterfront Historic District contains commercial warehouse buildings from nearly every decade of San Francisco's history. The area reflects the waterfront and maritime activities which were an important aspect of San Francisco's commercial history. These buildings range in age from the early clipper ship warehouses of the 1850's to the properties owned by shipbuilding companies that contributed to major Pacific maritime support during World War II. Six seawall lots in the Waterfront Plan area are located within this locally designated historic district.¹⁰⁸ However, none of these seawall lots contain historic resources that contribute to the Northeast Waterfront Historic District.

INDIA BASIN SCOW SCHOONER BOATYARD VERNACULAR CULTURAL LANDSCAPE

The India Basin Scow Schooner Boatyard Vernacular Cultural Landscape¹⁰⁹ (India Basin Cultural Landscape) is a historic boatyard that is characterized by its location on San Francisco Bay and views to the east, sloping topography, roads and paths, structures such as marine ways and docks, staging and storage areas, and buildings that were in use between 1875 (the year the boatyard was established) and 1936 (the year the San Francisco-Oakland Bay Bridge was completed, marking the end of the wood boatbuilding industry's role in local transport economy). Several historic maritime archeological resources (i.e., sunken and buried vessels that together form the Hunters Point Ship Graveyard) also contribute to the significance of the India Basin Cultural Landscape. As the site of the longest consecutively operating boatyards at India Basin, the India Basin Cultural Landscape is the best remaining physical representation of the area's significant working-class community.¹¹⁰ None of the contributing features of the India Basin Cultural Landscape is owned or managed by the Port.

AUXILIARY WATER SUPPLY SYSTEM HISTORIC DISTRICT

The Auxiliary Water Supply System (AWSS) is a *discontiguous*¹¹¹ historic district that has been determined to be eligible for listing in the National Register and California Register under Criteria A/1 and C/3 for its association with post-1906 earthquake reconstruction and engineering in San Francisco, with a period of significance of 1906 to 1913. The AWSS is a citywide gravity-fed water supply system for fire suppression that comprises numerous buildings, structures, and infrastructural features that extends across the Waterfront Plan area and beyond. Elements that contribute to the AWSS and are present within the Waterfront Plan area

¹⁰⁸ The seawall lots located in the Waterfront Plan include Lots 320, 321, 322, 322-I, 323, and 324.

¹⁰⁹ The National Park Service defines a cultural landscape as "a geographic area, including both cultural and natural resources and the wildlife or domestic animals therein, associated with a historic event, activity, or person, or exhibiting other cultural or aesthetic values. There are four non-mutually exclusive types of cultural landscapes: historic sites, historic designed landscapes, historic vernacular landscapes, and ethnographic landscapes." National Park Service, *Management Policies 2006*, Washington, DC: U.S. Government Printing Office, 2006, p. 157, <https://www.nps.gov/policy/MP2006.pdf>, accessed May 26, 2021.

¹¹⁰ San Francisco Planning Department, *India Basin Mixed-Use Project EIR*, 2017, pp. 3.4-22–3.4-25.

¹¹¹ The AWSS is characterized as a *discontiguous* historic district because some of its contributing features, such as cisterns, are not physically connected to the remainder of the system. However, all elements of the AWSS are functionally linked.

include four fireboat manifolds and the numerous high-pressure water hydrants within the public right-of-way along The Embarcadero, Third Street, Pier 90, and many of the cross streets. None of the contributing features of the AWSS Historic District is owned or managed by the Port.

INDIVIDUAL HISTORIC RESOURCES WITHIN THE WATERFRONT PLAN AREA

Table 4.B-2 includes a list of the individual historic resources located within the Waterfront Plan area. The historic resources are identified in Figure 4.B-1 through Figure 4.B-5, pp. 4.B-19 to 4.B-23.

HISTORIC DISTRICTS ADJACENT TO THE PLAN AREA

Table 4.B-3 includes a list of the historic districts located adjacent to the Waterfront Plan area and is followed by a description of each district. The historic districts are identified in Figure 4.B-1 through Figure 4.B-5, pp. 4.B-19 to 4.B-23.

AQUATIC PARK NATIONAL REGISTER HISTORIC DISTRICT

Aquatic Park, developed from 1936 to 1939, was one of California's largest Works Progress Administration (WPA) projects reflecting President Franklin D. Roosevelt's policy of providing employment to architects and artists during the Great Depression. The historic district is composed of a Streamline Moderne-style building that contains a bathhouse, concession stand, and lounge as well as lifeguard stations, stadium, Sea Scout building, a seawall, and a semicircular pier. The Aquatic Park Historic District is part of the San Francisco Maritime National Historical Park. There are no Port properties in this historic district.

NORTH POINT SEWAGE TREATMENT PLANT

The North Point Sewage Treatment Plant was determined eligible for listing in the California Register as a historic district in 2017. The district includes 18 buildings and structures, 14 of which contribute to its significance as a plant designed in the Streamline Moderne style. The period of significance is 1951, which is the date of construction of all contributing buildings and structures.¹¹²

NORTHEAST WATERFRONT HISTORIC DISTRICT – SAN FRANCISCO ARTICLE 10 HISTORIC DISTRICT

See p. 4.B-24 for a description of the Northeast Waterfront Historic District.

SOUTH END NATIONAL REGISTER HISTORIC DISTRICT – SAN FRANCISCO ARTICLE 10 HISTORIC DISTRICT

The South End Historic District is located adjacent the South Beach subarea; Oracle Park; and Seawall Lots 331, 332, and 333 and was locally designated in 1991. The district is comprised of significant concentration of warehouses with easy access to the southern waterfront that were constructed between 1867 and 1935. Warehouses built in the 19th century are generally one story, and those built in the 20th century are up to six stories. The district includes the Oriental Warehouse of the Pacific Mail Steamship Company (1867) and the Southern Pacific Warehouse (1903). This district was designated by the City of San Francisco in 1990. This district is adjacent to Port properties.

¹¹² San Francisco Planning Department, Preservation Team Review Form for 1 North Point Street (BPA/Case No. 2017-010521ENV), October 2, 2017.

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4.B. Historic Resources

Table 4.B-2 Individual Historic Resources in the Waterfront Plan Area

Name	Address(es) and/or APN(s)	Location within Waterfront Plan Area	Designation/Eligibility					Significance Summary
			National Register		California Register		Article 10 Landmark	
			Listed	Eligible	Listed	Eligible		
Ferry Building (Union Ferry Depot)	The Embarcadero at Market Street APNs 9900/274 and 275	Northeast Waterfront subarea	X		X		X	Listed in the National Register for its architecture and engineering significance (presumably under Criterion C) with a period of significance of 1895–1903. Also locally designated as an individual resource under local criteria related to architecture; a period of significance is not identified.
Ferry Station Post Office	The Embarcadero at Market Street APN 9900/278	Northeast Waterfront subarea	X		X			Listed in the National Register under Criteria A and C with a period of significance of 1915.
Beltline Railroad Roundhouse Complex	1500 Sansome Street APN 0058/001	Northeast Waterfront subarea	X		X		X	Listed in the National Register for its commercial, engineering, and transportation significance (presumably under Criteria A and C) with a period of significance of 1913–1914. Also locally designated as an individual resource under local criteria related to architecture; a period of significance is not identified.
Pier One	The Embarcadero at Washington Street APN 9900/001	Northeast Waterfront subarea	X		X			Listed in the National Register under Criteria A and C with a period of significance of 1931–1948.
Fireboat House (Fire Station No. 35)	Pier 22½ APN 9900/022H	South Beach subarea		X			X	Determined eligible for listing in the National Register (criteria and period of significance are not identified). Also locally designated as an individual resource under local criteria related to architecture with a period of significance of 1915.
Kneass Boatworks Building	671 Illinois Street APN 3941/029	Mission Bay subarea		X		X		Determined eligible for listing in the National Register and California Register under Criteria A/1 with a period of significance of 1854–1948.

Name	Address(es) and/or APN(s)	Location within Waterfront Plan Area	Designation/Eligibility					Significance Summary
			National Register		California Register		Article 10 Landmark	
			Listed	Eligible	Listed	Eligible		
Fire House No. 25	3305 Third Street APN 4502A/002	Southern Waterfront subarea		X	X			Determined eligible for listing in the National Register under Criterion C and listed in the California Register (presumably under Criterion 3; period of significance is not identified).
Fishermen's Grotto No. 9	2581 Taylor Street, 206 Jefferson Street APNs 0005/001, 9900/049	Fisherman's Wharf subarea				X		Determined eligible for listing in the California Register under Criterion 1 with a period of significance of 1935–1955.
Fourth Street Bridge	Fourth Street at Mission Creek Channel	Mission Bay subarea				X		Determined eligible for listing in the California Register (criteria and period of significance are not identified).
Pier 50 Office Building	Pier 50 APN 9900/050H	Mission Bay subarea				X		Determined eligible for listing in the California Register (criteria and period of significance are not identified).
Pier 52 – Atchison Topeka & Santa Fe Railroad Car Ferry Slip	APN 9900/052	Mission Bay subarea				X		Determined eligible for listing in the California Register (criteria and period of significance are not identified).
Francis “Lefty” O’Doul/Third Street Bridge	Third Street at Mission Creek Channel	On border between South Beach and Mission Bay subareas					X	Locally designated as an individual resource under local criteria related to architecture; a period of significance is not identified.

SOURCES: architecture + history llc, *Port of San Francisco Historic Resources Summary Report*, prepared for the Port of San Francisco, February 2022, San Francisco Planning Department, Property Information Map, <https://sfplanninggis.org/PIM>, accessed May 2021; San Francisco Planning Department, *Seawall Lot 337 and Pier 48 Mixed-Use Project EIR*, April 2017; San Francisco Planning Department, *Pier 70 Mixed-Use District Project EIR*, December 2016; Page & Turnbull, *San Francisco Fire Stations Historic Resource Study*, October 2015.

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4.B. Historic Resources

Table 4.B-3 Historic Districts Adjacent to the Waterfront Plan Area

Name	Location Relative to Waterfront Plan Area	National Register		California Register		Article 10
		Listed	Eligible	Listed	Eligible	
Aquatic Park Historic District	Adjacent to (immediately west of) the Fisherman’s Wharf subarea	X		X		
North Point Sewage Treatment Plant	Adjacent to (immediately west of) the Northeast Waterfront subarea				X	
Northeast Waterfront Historic District	Within and adjacent to (immediately west of) the Northeast Waterfront subarea					X
South End Historic District	West of The Embarcadero in the South Beach subarea	X		X		X
Third Street Industrial District	Adjacent to the Union Iron Works Historic District in the Southern Waterfront subarea				X	
Dogpatch Historic District	One block west of the Union Iron Works Historic District in the Southern Waterfront subarea					X

THIRD STREET INDUSTRIAL HISTORIC DISTRICT

The Third Street Industrial District is a sub-district of the Central Waterfront Historic District (also known as the Potrero Point Historic District) and was determined eligible for listing in the California Register in 2008. The Third Street Industrial District is a narrow, linear district that includes the blocks bounded by 18th Street to the north, Illinois Street to the east, 24th Street to the south, Third Street to the west, and the parcels that once constituted PG&E’s Potrero Power Station and the remnants of the Western Sugar Refinery. The district also includes several properties on the west side of Third Street between 20th and 22nd streets and the contiguous block bounded by 19th, 20th, and Tennessee streets. The Third Street Industrial District is significant under Criterion 1 (Events) for association with the industrial development of San Francisco and under Criterion 3 (Architecture) based on its collection of late-19th- and early-20th-century American industrial buildings and structures that remain substantially intact.

DOGPATCH HISTORIC DISTRICT – SAN FRANCISCO ARTICLE 10 HISTORIC DISTRICT

The Dogpatch Historic District, located east of Potrero Hill in San Francisco's Central Waterfront district, is an approximately nine-block enclave that contains the oldest and most intact concentration of industrial workers’ housing in the city. The neighborhood is comprised of almost 100 flats and cottages, as well as several industrial, commercial, and civic buildings, most of which were erected between 1870 and 1930. The residential buildings reflect a variety of architectural styles including Queen Anne, Italianate, Eastlake, Classical Revival, and hybrid styles. The historic district was locally designated in 2008.

INDIVIDUAL HISTORIC RESOURCES ADJACENT TO THE PLAN AREA

Table 4.B-4 includes a list of the historic resources located adjacent to the Waterfront Plan area. The historic resources are identified in Figure 4.B-1 through Figure 4.B-5, pp. 4.B-19 to 4.B-23.

Table 4.B-4 Individual Historic Resources Adjacent to the Waterfront Plan Area

Name and Address	Location Relative to Waterfront Plan area	National Historic Landmark	National Register		California Register		Article 10	Article 11	Source(s)
			Listed	Eligible	Listed	Eligible			
Aquatic Park National Historic Landmark	Adjacent to the Fisherman’s Wharf subarea	X	X		X				National Historic Landmark No. 84001183 (1988); National Register nomination (1983)
Haslett Warehouse – 680 Beach Street	Adjacent to the Fisherman’s Wharf subarea		X		X		X		National Register Part I Tax Certification (2005); City Ordinance No. 11-74 (1974)

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4.B. Historic Resources

Name and Address	Location Relative to Waterfront Plan area	National Historic Landmark	National Register		California Register		Article 10	Article 11	Source(s)
			Listed	Eligible	Listed	Eligible			
Otis Elevator Co. – 1 Beach Street	Adjacent to the Fisherman’s Wharf subarea		X		X				National Register nomination (1999)
Merchant’s Ice and Cold Storage Co. – 1 Lombard Street	Adjacent to the Northeast Waterfront subarea		X		X				National Register nomination (2009)
Italian Swiss Colony Warehouse – 1265 Battery Street	Adjacent to the Northeast Waterfront subarea						X		City Ordinance No. 537-77 (1977)
Gibb-Sanborn Warehouse (North)	Adjacent to the Northeast Waterfront Subarea		X		X		X		National Register nomination (1977); City Ordinance No. 214-77 (1977)
Gibb-Sanborn Warehouse (Trinidad)	Adjacent to the Northeast Waterfront Subarea						X		City Ordinance No. 214-77 (1977)
Fuller Co. Glass Warehouse – 50 Green Street	Adjacent to the Northeast Waterfront Subarea		X		X				National Register nomination (2001)
Embarcadero Plaza	Adjacent to the Northeast Waterfront subarea			X		X			Better Market Street EIR, 2019
Audiffred Building – 1-21 Mission Street	Adjacent to the Northeast Waterfront subarea		x		X		X	X	National Register survey (1981); City Planning Commission Resolution No. 6232 (1968); Article 11
Rincon Annex Post Office – 99 Mission Street	Adjacent to the Northeast Waterfront subarea						X		City Ordinance No. 10-80 (1980)

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Name and Address	Location Relative to Waterfront Plan area	National Historic Landmark	National Register		California Register		Article 10	Article 11	Source(s)
			Listed	Eligible	Listed	Eligible			
Army-Navy YMCA – 166–169 The Embarcadero	Adjacent to the Northeast Waterfront subarea			X				X	National Register survey (no date); Article 11
Hills Brothers Coffee Plant – 2 Harrison Street	Adjacent to the South Beach subarea						X		City Ordinance No. 491-82 (1982)
Joseph Magnin Warehouse – 1–35 Harrison Street	Adjacent to the South Beach subarea					X			Rincon Hill Area Plan (2005); Rincon Hill Plan EIR (2004)
Oriental Warehouse – 650 Delancey Street	Adjacent to the South Beach subarea			X			X		South of Market Area Historic Resource Survey (2011); City Ordinance No. 396-77 (1977)
Hunters Point Springs and Albion Brewery – 881 Innes Avenue	Adjacent to the Southern Waterfront subarea						X		City Ordinance No. 119-74 (1974)
Shipwright’s Cottage – 900 Innes Avenue	Adjacent to the Southern Waterfront subarea						X		Bayview-Hunters Point Area B Survey Historic Context Statement (2010); City Ordinance No. 76-08 (2008)
702 Earl Street	Adjacent to the Southern Waterfront subarea			X		X			India Basin Mixed-Use Project EIR (2018)

SOURCES: San Francisco Planning Department, Property Information Map, <https://sfplanninggis.org/PIM>, accessed, May 2021.

4.B.4 Impacts and Mitigation Measures

This section analyzes impacts related to historic resources for the Waterfront Plan. It describes the methods used to determine the impacts of subsequent projects that could occur with implementation of the Waterfront Plan and lists the criteria used to conclude whether an impact would be significant. Mitigation measures are identified as necessary to reduce or avoid significant impacts. Note that subsequent projects that could occur with implementation of the Waterfront Plan include new development on the subsequent project sites identified in Chapter 4, Environmental Setting, Impacts, and Mitigation Measures, as well as infill development of existing buildings from property leasing, waterfront and open space improvements along the shoreline, enhancement of recreational uses in the bay, rehabilitation of existing piers, improvements to existing maritime uses, and development of a resilience program for Port facilities, all of which could occur with under the Waterfront Plan.

SIGNIFICANCE CRITERIA

Subsequent projects under the Waterfront Plan would have a significant impact on historic resources if it would:

- Cause a substantial adverse change in the significance of a historic resource as defined in CEQA Guidelines section 15064.5, including those resources listed in Article 10 or Article 11 of the San Francisco Planning Code.

A “substantial adverse change” is defined by CEQA Guidelines section 15064.5 as “physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historic resource would be materially impaired.” The significance of a historic resource is “materially impaired,” according to CEQA Guidelines section 15064.5(b)(2), when a project “demolishes or materially alters in an adverse manner those physical characteristics” of the resource that:

- (A) Convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register; or
- (B) Account for its inclusion in a local register of historic resources pursuant to Public Resources Code section 5020.1(k) or its identification in a historic resources survey meeting the requirements of Public Resources Code section 5024.1(g), unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or
- (C) Convey its historical significance and that justify its eligibility for inclusion in the California Register as determined by a lead agency for purposes of CEQA.

As noted above, a project that would comply with the Secretary’s Standards is considered to have mitigated its impact to a less-than-significant level (CEQA Guidelines section 15064.5(b)(3)). However, CEQA Guidelines section 15126.4(b)(2) states that, “[i]n some circumstances, documentation of a historic resource, by way of historic narrative, photographs or architectural drawings, as mitigation for the effects of demolition of the resource will not mitigate the effects to a point where clearly no significant effect on the environment would occur.” In such cases, the demolition or substantial alteration of a historic resource would remain a significant and unavoidable impact on the environment even after the historical documentation has been completed.

APPROACH TO ANALYSIS

The following section analyzes potential impacts on historic resources that could result with implementation of the Waterfront Plan. For historic resources within the Waterfront Plan area that meet the definition of a historic resource, as outlined in Public Resources Code section 21084.1 and CEQA Guidelines section 15064.5. Per CEQA Guidelines section 15064.5(b)(2). The analysis considers programmatically the potential for subsequent projects to materially impair the significance of a historic resource by causing direct or indirect changes to the physical characteristics of the resource that convey its historic significance, as well as by causing changes in its immediate setting. This includes consideration of how new development within the vicinity of a historic resource could feasibly cause material impairment if new construction removes or obscures components of the resource's immediate setting that allow it to convey its significance.

Direct impacts on historic resources include such actions as physical destruction, damage, alteration, or relocation. Indirect impacts include the introduction of visual, auditory, or vibration impacts, as well as neglect of a historic resource. Cumulative impacts include multiple small changes that individually may not diminish the integrity of a historic resource, but when considered together result in a more substantial reduction of those qualities that qualify the property for listing in the California Register or as a San Francisco Landmark.

The Waterfront Plan includes policies for continued support of current and future maritime uses; implementation of a wide range of uses to encourage diversity of activities and users; development of increased public access and open space along the waterfront; new development that is sensitive to the urban environment and celebrates historic resources; continued and expanded economic vitality for the Port; improvements for transportation and increased mobility for people and goods, future development, and investment that is environmentally sustainable and forward-thinking for long-term protection of Port facilities; and increased development of strategic partnerships to accomplish policy objectives. Of these policies, those that include increased or changes in use, including new development are most likely to have impacts on historic resources.

The Waterfront Plan also includes a number of policies and goals related to historic preservation, which are identified below. The Waterfront Plan also would amend the planning code by adding section 240.4 to create Waterfront Special Use District 4 (SUD 4). Waterfront SUD 4 would require waterfront design review process and procedures for future non-maritime development on Port piers and seawall lots located south of China Basin/Mission Creek that are not included in the Seawall Lot 337 and Pier 48 Mixed-Use Project (Mission Rock), Pier 70 Mixed-Use District Project (Pier 70), or Potrero Power Station Mixed-Use Development Project (Potrero Power Station) projects.

Considered at the program level, subsequent projects that could occur with implementation of the policies in the Waterfront Plan could cause material impairment to the significance of historic resources, including both individually significant resources and historic districts, because these changes may intensify development within the Waterfront Plan area, which has the potential to result in the demolition or alteration of historic resources and/or the substantial alteration of their historic setting. Additionally, implementation of policies to address sea-level rise and resiliency have the potential to result in demolition or alteration of historic resources and their setting. As part of the historic resource analysis, the potential for subsequent projects that could be implemented under the policies in the Waterfront Plan to cause a substantial adverse change to historic districts located within the Waterfront Plan area also is considered. Material impairment to the significance of a historic district can feasibly occur as a result of the demolition or alteration in an adverse manner of district contributors as well as the construction of infill development or public realm improvements

within or adjacent to the district boundaries that is incompatible with the physical characteristics that convey the district's historic significance. If one or more district contributors are demolished or altered in an adverse manner, the district may not automatically experience a substantial adverse change. Rather, substantial adverse change to a historic district would occur if it were demonstrated that subsequent projects would disrupt the concentration, linkage, or continuity of district contributors that allow the district as a whole to convey its significance and remain discernible as a geographically and/or thematically linked entity.

IMPACT EVALUATION

Impact CR-1: The Waterfront Plan could cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines section 15064.5. (*Less than Significant with Mitigation*)

As described above, the Waterfront Plan includes several goals policies that could result in new development within the Plan area, including new development on the subsequent project sites,¹¹³ infill development of existing buildings from property leasing, waterfront and open space improvements along the shoreline, enhancement of recreational uses in the bay, rehabilitation of existing piers, improvements to existing maritime uses, and development of a resilience program for Port facilities. The goals and policies outlined in the Waterfront Plan that could affect historic resources are identified below.

WATERFRONT PLAN POLICIES RELATED TO HISTORIC RESOURCES

The Waterfront Plan includes nine goals to guide future development along the waterfront, several of which include policies related to historic resources. The goals and their respective policies that could result in impacts to historic resources include:

Maritime

- Maintain and enhance maritime facilities by providing long-term leases and other incentives for maritime industries and encouraging the development of new commercial and recreation-oriented maritime activities (Policies 7-8).
- Promote shared public access on pier aprons where it is safe and compatible with maritime berthing, particularly in the Embarcadero Historic District (Policy 26).

Diversity of Activities and People

- In historic properties, include tenant improvements that enhance visitor enjoyment of the Port's maritime history and architecture, consistent with Waterfront Plan urban design and historic preservation policies (Policy 6).
- Maintain leasing opportunities for maritime and general uses in existing office building developments, historic buildings that are listed in the National Register, and as permitted (Policy 12).
- Promote a greater range of land uses and defined public trust objectives to increase certainty and financial viability of historic pier repair and rehabilitation projects in the Embarcadero Historic District, including requirements that all improvements be consistent with the Secretary of the Interior's Standards for Rehabilitation, and to include flood protection measures (Policies 23-33).

¹¹³ See Chapter 4, Environmental Setting, Impacts, and Mitigation Measures, for a description of new development that could occur on the subsequent project sites with implementation of the Waterfront Plan.

- Promote design of seawall lot developments along The Embarcadero so they provide physical and visual access to the west side of the Embarcadero Historic District, and the bay, and access to a diverse range of users (Policy 36).

Financially Strong Port

- Support investments in Port lands and facilities to advance public aspirations and trust objectives for historic rehabilitation, maritime use, public access and open space, recreation, and natural resource protection (Policy 1).

Environmental Sustainability

- Promote the adoption of green building practices in Port leasing and development, including adaptive reuse of existing buildings (Policy 5).

Resilient Port

- Reduce seismic risks to life safety and emergency response capabilities through continued seismic retrofit programs, including the Embarcadero seawall (Policies 2a–2c).
- Develop a resilience program for Port facilities (including historic assets) that is transparent and coordinated with San Francisco’s Resilience Program (Policies 4a–4h).
- Encourage and design resilience projects that achieve multiple public objectives (including historic preservation), consistent with the Waterfront Plan goals and policies (Policies 5a–5f).

In addition, subarea-specific objectives that could result in impacts to historic resources include:

Fisherman’s Wharf

- Maintain a colorful mix of maritime and water-dependent activities at Fisherman’s Wharf, including providing public access to a number of historic sites (Objective 2).
- Enhance the public access experience and open space programming in Fisherman’s Wharf, specifically plaza improvements at the Pier 43 Historic Arch (Objective 3).
- Maintain the Wharf’s diverse mix of public, commercial, and maritime activities, and include activities that attract local residents and dispel the Wharf’s image as a tourist-only attraction. This includes opportunity sites at Pier 45 and the Fish Alley Architectural Character District (Objective 4).
- Work closely with longstanding Fisherman’s Wharf Restaurants and businesses to coordinate investments in infrastructure improvements that maintain public safety and economic vitality and adapt to sea-level rise (Objective 5).

Northeast Waterfront

- Protect and enhance the historic maritime character of the Northeast Waterfront (Objective 1).
- Maximize opportunities to retain and enhance maritime operations in the Northeast Waterfront (Objective 2).
- On seawall lots, create new developments that complement the surrounding neighborhood and highlight connections between upland neighborhoods and the waterfront (Objective 4).

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- Provide a mix of uses in the Northwest Waterfront that emphasizes the civic importance of the Ferry Building area, generates waterfront activity, and serves San Franciscans and visitors alike (Objective 6).

South Beach

- Preserve and improve existing maritime uses and provide focal points for public enjoyment of maritime and water-dependent activities in South Beach (Objective 1).
- Promote activities and public access in South Beach pier projects within the Embarcadero Historic District (Objective 3).
- Create opportunity for the design of new development in South Beach to create a new architectural identity while respecting the Embarcadero Historic District (Objective 4).
- Coordinate closely with resilience proposals produced through the Embarcadero Seawall Program to build understanding and support for innovations required to adapt to the impacts of climate change while respecting the history, character, and authenticity of the South Beach Waterfront (Objective 7).

Mission Bay

- Preserve berthing for maritime and deep-water vessels at piers along the Mission Bay waterfront (i.e., Piers 48, 50, and 54) (Objective 2).
- Maintain and, where possible, increase services and amenities to enhance businesses, recreational boating uses, and public use, safety, and enjoyment of water recreation along the Mission Bay Waterfront (Objective 3).
- Rehabilitate Pier 48 to recall the Mission Bay waterfront historic use and to accommodate new uses (Objective 4).

Southern Waterfront

- Continue inter-agency coordination to align maritime, industrial, and development priorities and investments in the Southern Waterfront (Objective 1).
- Implement approved development plans for the Pier 70 Special Use District, Historic Core, and Crane Cove Park projects to connect and integrate all areas within Pier 70, which will give new life to the Union Iron Works Historic District and create a unique waterfront neighborhood addition in the Dogpatch area (Objective 3).
- Explore new business partnerships to operate the Pier 70 ship repair and dry-dock facility, as part of a broader maritime strategy that evaluates additional maritime opportunities for the shipyard site and facilities (Objective 4).
- In the Piers 90–94 Backlands, pursue development of industrial warehouse facilities that are compatible with cargo terminal operations and provide space for maritime support uses, generate economic value and benefits to the Port and community, and productively improve land to support a stable industrial base in San Francisco (Objective 6).

Waterfront Plan Policies Related to Supporting Historic Resource Stewardship

While the abovementioned goals, policies, and objectives have the potential to result in significant impacts to historic resources, the Waterfront Plan also includes a variety of urban design and historic preservation policies designed to protect or reduce impacts to historic resources. These include:

Urban Design and Historic Preservation

- Ensure that new waterfront buildings and improvements contribute to the historic and maritime form of the city and preserve the character of adjacent neighborhoods (Policies 1a–1d, 1f, 1g).
- Recognize the Embarcadero Historic District and Pier 70 Union Iron Works Historic District, and requirements for repair or rehabilitation of historic resources to be consistent with the Secretary of the Interior’s Standards for Rehabilitation (Policy 4a).
- Promote historic resource stewardship through a variety of partnerships, funding and leasing strategies, and cultural programs that promote public awareness of Port maritime history (Policies 4b–4e, 4g–4i).
- Integrate protection of historic and cultural assets with resilience planning (Policies 6a–6d).
- Produce design guidelines and criteria to guide development that strengthens city pattern character, document design precedents and best practices for treatments to historic resources that are consistent with the Secretary of the Interior’s Standards for Rehabilitation, and programs for pedestrian wayfinding and waterfront lighting improvements, and public art installations (Policies 1e, 4f, 5e).

No changes to the underlying zoning or height and bulk districts are proposed as part of the Waterfront Plan. Rather, the Plan focuses predominantly on adaptive reuse and rehabilitation of existing buildings and piers, infill development of existing buildings from property leasing, waterfront and open space improvements along the shoreline, enhancement of recreational uses in the bay, improvements to existing maritime uses, and development of a resilience program for Port facilities, and some new development on discrete sites in the Waterfront Plan. Six subsequent project sites where new development is anticipated to occur have been identified and are shown in Figure 4.B-1 through Figure 4.B-5, pp. 4.B-19 to 4.B-23. These include the following sites (listed from north to south):

- Seawall Lot 314 is located in the Northeast Waterfront subarea and bounded by The Embarcadero and Bay and Kearny streets. This parcel was formerly occupied by a gas station. Currently, there are no buildings or structures on the site, which contains a surface parking lot. Seawall Lot 314 is located across the street from the Embarcadero Historic District and the California Register-eligible North Point Water Pollution Control Plant Historic District (adjacent to the Waterfront Plan area).
- Seawall Lot 321 is located within the Northeast Waterfront subarea and bounded by The Embarcadero and Green, Union, and Front streets. The lot is a non-contributing property within the Northeast Waterfront Historic District. Currently, there are no buildings or structures on the site, which contains a surface parking lot. Seawall Lot 321 is located in the northeast corner of the historic district, and adjacent contributors to the historic district are located on the west side of Front Street between Union and Green streets.
- Piers 30–32 are located within the South Beach subarea. The bulkhead wharf of Piers 30–32 contributes to the significance of the Embarcadero Historic District; however, the piers themselves are outside the historic district’s boundaries. There is one historic resource on Pier 30: Red’s Java House. While it is outside of the Embarcadero Historic District, it has been determined to be a potential non-contiguous contributor to the historic district, eligible for listing on the California Register, and a historic resource under CEQA. A surface parking lot covers the majority of Piers 30–32.
- Seawall Lot 330 is located within the South Beach subarea and bounded by The Embarcadero and Beale, Main, and Bryant streets. Currently, there are no buildings or structures on the site, which contains a surface parking lot. Seawall Lot 330 is located across The Embarcadero from the Embarcadero Historic District.

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- The Pier 70 Triangle is located within the Southern Waterfront subarea. This subsequent project site is an open area of Pier 70 with no buildings or structures but is located within the boundaries of the Union Iron Works Historic District. This area was not identified as a character-defining feature of the historic district. However, contributing elements to the historic district are immediately adjacent to this subsequent project site.
- The Piers 90–94 Backlands are located within the Southern Waterfront subarea. Based on a historic resource evaluation prepared for Pier 90, the planning department determined that the structures on that pier are ineligible for listing in the California Register.¹¹⁴ Piers 90–94, which are located on the south side of Islais Creek, are currently occupied by various maritime and construction materials companies including Cemex, Central Concrete Co., Allied Concrete Redy Mix Services Inc., Hanson Aggregates, and Recology. The Piers 90–94 Backlands is a largely undeveloped area upland of the maritime and construction company uses, a portion of which has been used for a COVID-19 temporary trailer housing facility.

HISTORIC RESOURCE EVALUATION AND RESPONSE PROCESS

Over the lifetime of the Waterfront Plan, there may be previously unevaluated properties that become age-eligible potential historic resources. Should a subsequent project be proposed in the Plan area that involves demolition or alteration of an age-eligible property at such time that the project is proposed, the property would need to be evaluated to determine whether or not it is eligible for listing in the National or California Registers to determine if the property is a historic resource pursuant to CEQA. The historic resource evaluation (HRE) and historic resource evaluation response (HRER) is an assessment of the property’s potential historic significance based on the information available at the time of the assessment. When a subsequent project would potentially cause a substantial adverse change to an unevaluated, age-eligible property, the Port would select a consultant from the planning department’s Historic Resources Consultant Pool to prepare the HRE for the subject property. Planning department preservation staff would subsequently review the consultant-prepared report and issue an HRER to confirm the historic status of the property. This historic resource determination would be added to the historic resource inventory database maintained by the Port and department preservation staff.

DESIGN REVIEW OF SUBSEQUENT PROJECTS WITHIN THE WATERFRONT PLAN AREA

Depending on its specific location within the Waterfront Plan area, subsequent projects would be subject to the design review process established in San Francisco Planning Code section 240, which requires major non-maritime development projects on Port-owned properties, including historic rehabilitation projects, to be reviewed by a Waterfront Design Advisory Committee to ensure projects are consistent with the architectural, urban design, and historic preservation policies in the Waterfront Plan. Port development projects located within the permitting jurisdiction of the San Francisco Bay Conservation and Development Commission (BCDC) undergo review by the Design Review Board to review the project’s consistency with design and public access policies.¹¹⁵ In addition, consistent with Port Commission Resolution # 04-89 (approved October 2004), which would be reinforced by proposed new historic preservation policies in the updated Waterfront Plan, alterations or rehabilitation of Port historic resources are required to comply with Secretary’s Standards. Subsequent projects that propose alterations to or major rehabilitation of historic resources are required to undergo review by a qualified historic preservation professional to determine that the improvements are

¹¹⁴ San Francisco Planning Department, *Part 1 Historic Resource Evaluation Response, Port of San Francisco 2019 Draft Waterfront Plan – Pier 90*, March 31, 2021.

¹¹⁵ Port of San Francisco, *Port of San Francisco Waterfront Plan*, Draft for Public Review and Comment, republished version, December 2019, p. 62.

consistent with the Secretary's Standards, which is then confirmed by planning department preservation staff in a historic resources impacts analysis through an HRER. Furthermore, historic rehabilitation projects that apply for funding under the Federal Rehabilitation Historic Tax Credit program undergo review by the National Park Service and State Office of Historic Preservation Office to determine consistency with the Secretary's Standards. Historic preservation review and determinations are integrated with the review conducted by the Waterfront Design Advisory Committee process. These reviews and completion of the Waterfront Design Advisory Committee and BCDC Design Review Board process (as applicable) must be completed prior to Port Commission approval of leases and development agreements and issuance of Port building permits to implement construction.

San Francisco Planning Code section 240 currently establishes the design review process for Port properties in the Northern Waterfront subarea between Fisherman's Wharf and China Basin Channel/Mission Creek, which are designated in two areas: Port piers in Waterfront Special Use District 1 (Waterfront SUD 1); and Port seawall lots in Waterfront SUD 3.¹¹⁶ As noted above, the Waterfront Plan would amend the planning code to create Waterfront SUD 4, which would require waterfront design review for future non-maritime development on Port piers and seawall lots, including historic rehabilitation projects, located south of China Basin/Mission Creek that are not included in the Mission Rock, Pier 70, or Potrero Power Station projects.¹¹⁷ With the creation of Waterfront SUD 4, non-maritime development projects on Port properties in the northern and southern waterfront would undergo design review by the Waterfront Design Advisory Committee to ensure subsequent projects are consistent with the architectural, urban design, and historic preservation policies in the Waterfront Plan, as noted above. When the planning department is the CEQA lead agency, planning department preservation staff are responsible for determining if proposed projects are consistent with the Secretary's Standards or if the proposed project would result in material impairment to an historic resource, as documented in a HRER. Port staff have authority to review projects for consistency with the Secretary's Standards, which may also include qualified historic preservation professional consultants, also applies to properties within designated historic districts, designated landmarks, and eligible and potentially eligible properties where specified in a Port lease agreement. Projects on properties designated under Articles 10 and 11 also are subject to review by the HPC.

IMPACTS WITHIN THE PUBLIC RIGHT-OF-WAY

The Waterfront Plan area includes policies to improve transportation, expand public spaces, and create a more resilient waterfront area. Projects associated with these improvements are within the public right-of-way and may include modifications to utilities both above and below grade. These activities have the potential to impact contributing features of the AWSS.

The AWSS extends into the Waterfront Plan area and is composed primarily of infrastructural features in the public realm and below grade. It does not occupy any sites that would experience land use changes with implementation of the Waterfront Plan. However, contributing features of this district are located within the Waterfront Plan area's streetscape and street network. The AWSS high-pressure fire hydrants, the most ubiquitous features belonging to the system, are found along The Embarcadero and are connected to the below-grade AWSS distribution main. Four fireboat manifolds and numerous AWSS hydrants are found in locations where streetscape and street network improvements could occur under the Waterfront Plan. It is not currently known how the AWSS fireboat manifolds or hydrants would be treated with implementation of the

¹¹⁶ Waterfront SUD 2 does not include Port properties.

¹¹⁷ Development of the Mission Rock, Pier 70, and Potrero Power Station projects are subject to design review guidelines and procedures separate from the Waterfront SUDs.

streetscape and street network improvements that could occur under the Waterfront Plan. San Francisco Public Works (public works) has developed contract specifications related to the protection of existing water and AWSS facilities, which require preparation of a work plan and drawings detailing existing conditions, protection, and proposed work, as well as close conformance to contract specifications to protect and provide uninterrupted service for these facilities. It is not currently known what subsequent projects, if any, could include modifications to utilities both above and below grade. Although the sub-surface pipes are character-defining features of the AWSS, their most important contribution to the significance of the resource is their continuing functionality supplying high-pressure water to aboveground features. Because relocation of AWSS hydrants has the potential to materially impair the significance of the AWSS, the impact of subsequent projects under the Waterfront Plan on the AWSS is considered to be significant. However, upon evaluation of each subsequent project, if it is determined that the project could result in a significant impact on the AWSS, **Mitigation Measure M-CR-1a, New Locations for Contributing Auxiliary Water Supply System Element to Preserve Historic District Character**, would apply:

Mitigation Measure M-CR-1a: New Locations for Contributing Auxiliary Water Supply System Element to Preserve Historic District Character. Where a streetscape or street network improvement proposed under the Waterfront Plan would require moving an Auxiliary Water Supply System (AWSS) hydrant, the project sponsor at the direction of the San Francisco Planning Department and SF Port staff shall conduct additional study to determine if it contributes to the historic significance of the AWSS. If the element is determined to be a contributing feature of the AWSS, the project sponsor shall work with the San Francisco Planning Department’s preservation staff and SF Port staff along with San Francisco Fire Department and San Francisco Public Works as needed to determine a location where the contributing AWSS hydrant could be reinstalled to preserve the historic relationships and functionality that are character-defining features of the AWSS. Generally, hydrants shall be reinstalled near the corner or the intersection from where they were removed. Any hydrant found not to contribute to the significance of the AWSS could be removed or relocated without diminishing the historic integrity of the district. Furthermore, the project sponsor in coordination with the San Francisco Planning Department, the San Francisco Port, the San Francisco Fire Department and San Francisco Public Works as needed, will protect existing AWSS facilities remaining in place during implementation of streetscape and street network improvements under the Waterfront Plan.

Implementation of Mitigation Measure M-CR-1a would ensure that subsequent projects would not materially impair the AWSS. Therefore, this impact would be ***less than significant with mitigation***.

IMPACTS ON INDIVIDUALLY SIGNIFICANT HISTORIC RESOURCES

No changes to the underlying zoning or height and bulk districts are proposed as part of the Waterfront Plan. However, subsequent projects that could occur with implementation of policies outlined in the Waterfront Plan include infill development of existing buildings from property leasing, waterfront and open space improvements along the shoreline, enhancement of recreational uses in the bay, rehabilitation of existing piers, improvements to existing maritime uses, and development of a resilience program for Port facilities.

As described above, subsequent projects involving proposed alteration or demolition of historic resources would be reviewed by a qualified historic preservation professional and a determination would be made by planning department preservation staff in an HRER for consistency with the Secretary’s Standards to ensure the project would not result in a significant adverse impact on the historic resource. As outlined under “Design Review of Subsequent Projects within the Waterfront Plan Area” above, demolition of individually significant

historic resources or alterations that are not consistent with the Secretary's Standards would not meet Waterfront Plan goals and policies nor would they meet Port requirements and design review processes. Additionally, the subsequent project sites where new construction could occur, listed above, do not include the demolition or major alteration of individually significant historic resources. As discussed above, a new subsequent project proposing alteration of a historic resource would also be required to undergo design review by a Waterfront Design Advisory Committee as well as the BCDC's Design Review Board to ensure its compatibility with the historic resource and waterfront area.

Regarding indirect impacts to individually significant historic resources, a subsequent project that would require pile-driving or large impact construction equipment could generate construction-related vibration adjacent to a historic resource, which could damage onsite and directly adjacent historic resources. This would be a significant impact. Implementation of Mitigation Measure M-NO-2a, Protection of Adjacent Buildings/Structures and Vibration Monitoring during Construction would be required to reduce construction-related vibration impacts to a less-than-significant level.¹¹⁸ A subsequent project using heavy-duty construction equipment, including overhead cranes, could also result in additional damage to onsite or directly adjacent historic resources beyond construction-related vibration activities. **Mitigation Measure M-CR-1b, Best Practices and Construction Monitoring Program for Historic Resources**, would be required to reduce construction-related impacts to a less-than-significant level.

Mitigation Measure M-CR-1b: Best Practices and Construction Monitoring Program for Historic Resources. The project sponsor of a development project using heavy-duty construction equipment onsite or directly adjacent to an historic resource, as determined by department preservation staff or listed in historic inventory maintained by the Port and department preservation staff, shall incorporate into contract specifications a requirement that the general and sub-contractor(s) use all feasible means to protect and avoid damage to onsite and directly adjacent historic resources as identified by the planning department, including, but not necessarily limited to, staging of equipment and materials so as to avoid direct damage, maintaining a buffer zone when possible between heavy equipment and historic resources, and, when applicable, covering the roof of adjacent structures to avoid damage from falling objects. Specifications shall also stipulate that any damage incurred to historic resources as a result of construction activities shall be immediately reported to the ERO. Prior to the start of construction activities, the project sponsor shall submit to the planning department preservation staff for review and approval, a list of measures to be included in contract specifications to avoid damage to historic resources.

If damage to a historic resource occurs during construction, the project sponsor shall hire a qualified professional who meets the standards for history, architectural history, or architecture (as appropriate), as set forth by the Secretary of the Interior's Professional Qualification Standards (36 CFR, Part 61). Damage incurred to the historic resource shall be repaired to match pre-construction conditions per the Secretary of the Interior's Standards for the Treatment of Historic Properties in consultation with the qualified professional and planning department preservation staff. If directed by planning department preservation staff, the project sponsor shall engage a qualified preservation professional to undertake a monitoring program to ensure that best practices are being followed. If monitoring is required, the

¹¹⁸ See Section 4.D, Noise and Vibration, for a description of Mitigation Measure M-NO-2a, Protection of Adjacent Buildings/Structures and Vibration Monitoring during Construction.

qualified preservation professional shall prepare a monitoring plan to direct the monitoring program that shall be reviewed and approved by planning department preservation staff.

With regard to construction-related impacts, implementation of Mitigation Measure M-NO-2a and Mitigation Measure M-CR-1b would ensure that impacts to individually-significant historic resources due to construction-related activities would be ***less than significant with mitigation***.

IMPACTS ON HISTORIC DISTRICTS

No changes to the underlying zoning or height and bulk districts are proposed as part of the Waterfront Plan. However, subsequent projects that could occur with implementation of policies outlined in the Waterfront Plan include infill development of existing buildings from property leasing, waterfront and open space improvements along the shoreline, enhancement of recreational uses in the bay, rehabilitation of existing piers, improvements to existing maritime uses, and development of a resilience program for Port facilities. These subsequent projects could occur within a historic district, which could result in a significant adverse impact on the historic district with regard to a substantial alteration of a contributing resource so that it no longer conveys its historic significance; design that is incompatible with the historic district; or construction-related impacts to historic resources within the historic district.

As described above, subsequent projects involving rehabilitation or renovation of historic resources would be reviewed by a qualified historic preservation professional and a determination would be made by department preservation staff in an HRER for consistency with the Secretary's Standards to ensure the project would not result in a significant adverse impact on the historic resource or district. In addition, a new subsequent project in a historic district would be required to undergo design review by a Waterfront Design Advisory Committee as well as the BCDC's Design Review Board to ensure its compatibility with the historic district and waterfront area. Furthermore, a certificate of appropriateness is required prior to exterior alterations, demolition, or new construction within an Article 10 landmark district. As outlined under "Design Review of Subsequent Projects within the Waterfront Plan Area" above, subsequent projects that are not consistent with the Secretary's Standards, such as projects that are incompatible with surrounding historic districts, would not meet Waterfront Plan goals and policies nor would they meet Port requirements and design review processes.

However, a subsequent project within a historic district that would require pile-driving or large impact construction equipment could generate construction-related vibration that could result in impacts to contributing resources. Therefore, implementation of Mitigation Measure M-NO-2a, Protection of Adjacent Buildings/Structures and Vibration Monitoring during Construction,¹¹⁹ and Mitigation Measure M-CR-1b, Best Practices and Construction Monitoring Program for Historic Resources, would be required to reduce construction-related impacts to a less-than-significant level. With regard to construction-related impacts, implementation of Mitigation Measure M-CR-1b and Mitigation Measure M-NO-2a would ensure that impacts on historic districts would be ***less than significant with mitigation***.

IMPACTS ON ADJACENT HISTORIC DISTRICTS

Subsequent projects that could occur with implementation of policies outlined in the Waterfront Plan include new development on subsequent project sites, as well as infill development of existing buildings from property leasing, waterfront and open space improvements along the shoreline, enhancement of recreational

¹¹⁹ See Section 4.D, Noise and Vibration, for a description of Mitigation Measure M-NO-2a, Protection of Adjacent Buildings/Structures and Vibration Monitoring during Construction.

uses in the bay, rehabilitation of existing piers, improvements to existing maritime uses, and development a resilience program for Port facilities. Adjacent new construction also has the potential to degrade a historic district's setting. The assessment of potential impacts must take into consideration the specific characteristics of the historic district that qualify it for historic register listing in order to determine how new construction adjacent to the historic district may have an impact on the significance of the district as a whole.

As described above, subsequent projects involving rehabilitation or renovation of historic resources would be reviewed by a qualified historic preservation professional and a determination by department preservation staff in an HRER for consistency with the Secretary's Standards to ensure the project would not result in a significant adverse impact on the adjacent historic district. In addition, a new subsequent project adjacent to a historic district also would be required to undergo design review by a Waterfront Design Advisory Committee as well as the BCDC's Design Review Board to ensure its compatibility with the adjacent historic district and waterfront area.

However, a subsequent project adjacent to a historic district that would require pile-driving or large impact construction equipment could generate construction-related vibration that could result in impacts to contributing resources. Therefore, implementation of Mitigation Measure M-NO-2a and Mitigation Measure M-CR-1b would be required to reduce construction-related impacts to a less-than-significant level. As such, because subsequent projects adjacent to a historic district would be required to undergo design review to ensure its compatibility with the historic district, it is not anticipated that they would result in a significant adverse impact on a historic resource. With regard to construction-related impacts, implementation of Mitigation Measure M-NO-2a and Mitigation Measure M-CR-1b would ensure that impacts to adjacent historic districts would be ***less than significant with mitigation***.

Significance after Mitigation: Because subsequent projects involving rehabilitation or renovation of historic resources would be reviewed by a qualified historic preservation professional for consistency with the Secretary's Standards, new subsequent projects in the historic district would be required to undergo design review to ensure its compatibility with the historic district, and because the Waterfront Plan policies require subsequent projects to meet the Secretary's Standards it is not anticipated that these projects would result in a significant adverse impact on a historic resource. In addition, implementation of Mitigation Measure M-CR-1a would reduce any impacts resulting from subsequent projects that could modify or relocate AWSS features to a less-than-significant level. However, upon further review of a subsequent project at such time that it is proposed, should it be determined that it could result in a significant adverse impact on a historic resource, the project may be subject to further environmental review. With regard to construction-related impacts, implementation of Mitigation Measure M-NO-2a and Mitigation Measure M-CR-1b would ensure that impacts to historic resources due to construction-related activities would be ***less than significant with mitigation***.

CUMULATIVE IMPACTS

Impact C-CR-1: The Waterfront Plan, in combination with cumulative projects, could cause a substantial adverse change in the significance of a historical resource, as defined in CEQA Guidelines section 15064.5. (*Less than Significant with Mitigation*)

The context for the Waterfront Plan's cumulative historic resources impact analysis is based on consideration of the cumulative projects identified and described in Chapter 4, Environmental Setting, Impacts, and Mitigation Measures, p. 4-8. These projects include the approved Mission Rock project, which is a 3.6-million-square-foot mixed-use development that will include retail, commercial, residential, and parking uses, as well

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as 8 acres of parks and open space and historic rehabilitation of Pier 48. The cumulative historic resources impact analysis also considers the approved Pier 70 project, which is a multi-phase 28-acre mixed-use development that includes parking spaces, parks, roads, public access, shoreline improvement, and utility infrastructure, and the approved Potrero Power Station project, which is a 5.4-million-square-foot mixed-use development that will include hotel, commercial, entertainment, residential, and parking uses, as well as 7 acres of open space. The EIRs for the Mission Rock and Pier 70 projects determined that project-specific and cumulative impacts to historic resources would be less than significant with mitigation. The EIR for the Potrero Power Station Mixed-Use Development Project determined that project-specific and cumulative impacts to historic resources would be significant and unavoidable, even with implementation of mitigation measures.

Other cumulative projects that have the potential to materially alter historic resources include the Port's Waterfront Resilience Program, which includes a series of coordinated projects working to ensure a resilient waterfront in the face of seismic and climate change related hazards, as well as a program to strengthen the three-mile-long Embarcadero seawall from earthquake, flooding, and sea-level rise risks. Development that could occur under the San Francisco Housing Element 2022 Update also could have the potential to materially alter historic resources in the vicinity of the Waterfront Plan. The cumulative analysis for historic resources also considers the East SoMa Area plan, which would lead to changes in the physical environment in neighborhoods adjacent to the Southern Waterfront. As such, these cumulative projects also could result in a substantial adverse change in the significance of a historic resource.

For these reasons, subsequent projects that could occur with implementation of the Waterfront Plan, in combination with the cumulative projects, could result in a significant cumulative impact on historic resources. However, because subsequent projects involving rehabilitation or renovation of historic resources would be reviewed by a qualified historic preservation professional for consistency with the Secretary's Standards, new subsequent projects within or adjacent to a historic district would be required to undergo design review to ensure their compatibility with the historic district, and because the Waterfront Plan policies require subsequent projects to meet the Secretary's Standards, they would result in a significant adverse direct impact on a historic resource. Furthermore, implementation of Mitigation Measure M-CR-1a would ensure that modification or relocation of any AWSS hydrants, which could occur pursuant to the Waterfront Plan, would not result in a considerable contribution to a significant cumulative impact on the AWSS. In addition, implementation of Mitigation Measure M-CR-1b and Mitigation Measure M-NO-2a would ensure that impacts related to construction-related vibration from subsequent projects also would not result in a considerable contribution to a significant cumulative impact. Therefore, implementation of the Waterfront Plan would not result in a considerable contribution to a significant cumulative impact on historic resources, and the impact would be ***less than significant with mitigation***.

4.C Transportation and Circulation

4.C.1 Introduction

This section presents existing transportation and circulation conditions in the study area and analyzes potential impacts on transportation and circulation with implementation of the Waterfront Plan. Transportation and circulation topics consist of walking, bicycling, driving hazards, transit, emergency access, vehicle miles traveled (VMT), commercial and passenger loading, and vehicle parking. Supporting detailed technical information is included in Appendix E, Waterfront Plan EIR – Estimation of Proposed Travel Demand.

Issues identified in response to the Notice of Preparation (NOP) of an EIR and Notice of Public Scoping Meeting (see Appendix A) related to the Waterfront Plan’s physical environmental impacts were considered in preparing this analysis. The San Francisco Planning Department (planning department) received comments related to transportation and circulation that focused on consistency with the San Francisco Bay Plan transportation policies; impacts to ferry transit, passenger cruise, rail freight and truck access; and opportunities to expand ferry and water taxi (i.e., open air) transit services (see Chapter 1, Introduction).

4.C.2 Environmental Setting

The transportation study area encompasses those locations near the waterfront where subsequent projects under the Waterfront Plan could potentially affect transportation and circulation. The transportation study area encompasses approximately 7.5 miles of the city’s waterfront and is generally bounded by the Hyde Street Pier and Jefferson Street to the north, The Embarcadero, King Street, Third Street, Terry A. Francois Boulevard, and Illinois Street to the west, and Cargo Way to the south (see Figure 2-1, p. 2-2). The transportation study area encompasses five waterfront subareas: Fisherman’s Wharf (north of Bay Street), Northeast Waterfront (between Bay and Howard streets), South Beach (between Howard and Third streets), Mission Bay (between Mission Creek and Mariposa Street), and Southern Waterfront (from Mariposa Street to Cargo Way).

The volume of vehicles and people walking and bicycling presented in this section are from counts collected from various sources conducted in 2017 and 2018 before the COVID-19 pandemic caused changes in travel patterns (i.e., before reduction in public transit service, and peak-period travel by all modes declined).¹²⁰ Field observations of transportation-related conditions along the waterfront were also conducted on multiple days in 2020 and 2021.

REGIONAL AND LOCAL ROADWAYS

The closest regional roadways to the waterfront, including on- and off-ramps, are described below. The existing local roadways in the transportation study area are also described, including their geographic extent

¹²⁰ The long-term effects of the ongoing COVID-19 pandemic on the transportation system are unknown at this time. It would be unreasonable to speculate how the transportation system and travel behavior could change in the future. For these reasons, to establish the existing setting, the analysis relies on transportation data before COVID-19.

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and their San Francisco General Plan,¹²¹ Better Streets Plan, Key Walking Street, and High Injury Corridor designations. For the existing streets within the Plan area, the number of travel lanes and any potentially or observed vehicle-to-vehicle hazardous conditions are noted. Information on the number of vehicles on roadway segments in the vicinity of the Waterfront Plan is also presented.

REGIONAL ROADWAYS

U.S. 101 serves San Francisco and the Peninsula/South Bay and extends north via the Golden Gate Bridge to Marin County and the rest of the North Bay. Within the northern area of the city, U.S. 101 follows the local street network, primarily along Van Ness Avenue and the portion of Lombard Street west of Van Ness Avenue, providing regional access to the Fisherman’s Wharf and Northeast Waterfront subareas via Bay Street and Broadway. In the southern area of the city, U.S. 101 becomes a generally north/south freeway (Bayshore Freeway) with four to five lanes each way. There is a northbound off-ramp at Bayshore Boulevard/Jerrold Avenue, and a pair of southbound on- and off-ramps at Cesar Chavez Street, providing access to the Southern Waterfront subarea via Cesar Chavez Street and Evans Avenue. U.S. 101 intersects with Interstate (I-)280 approximately 1 mile south of Cesar Chavez Street, and with I-80 approximately 1.3 miles to the north.

I-80 is a generally eight- to ten-lane freeway that provides regional access to the Northeast Waterfront, South Beach, and Mission Bay subareas. I-80 merges with U.S. 101 approximately 1.6 miles west of the waterfront. Westbound access to the waterfront is provided via off-ramps at Fremont, Folsom, and Fifth streets, while eastbound access is provided via on-ramps at First, Essex, Sterling/Bryant, and Fifth streets.

I-280 is a generally six- to eight-lane north–south freeway that connects San Francisco with the Peninsula and the South Bay. I-280 intersects with U.S. 101 approximately 3 miles southwest of its terminus at King Street in the South of Market/Mission Bay area. I-280 provides access to and from the South Beach and Mission Bay Waterfront subareas via on- and off-ramps at King Street/Fifth Street and Mariposa Street/18th Street. It also provides access to and from the Southern Waterfront subarea via on- and off-ramps at Pennsylvania Street/Cesar Chavez Street (from the south), at Pennsylvania Street/25th Street (from the north and to the south), and at Indiana Street/25th Street (to the north).

LOCAL ROADWAYS

This section provides a description of the existing local roadway system serving the Waterfront Plan subareas. It includes information regarding the San Francisco General Plan (general plan) roadway designation, the number of travel lanes, vehicular traffic flow direction, and bicycle facilities. This section presents the roadways adjacent to the waterfront first (i.e., from north to south Jefferson Street, The Embarcadero, Terry A. Francois Boulevard, Illinois Street, Amador Street and Cargo Way), followed by roadways connecting with or parallel to the waterfront (in alphabetical order). Waterfront Plan subareas that the roadways serve are indicated in parentheses adjacent to the roadway name.

¹²¹ City and County of San Francisco, *San Francisco General Plan*, Transportation Element, 2007, http://generalplan.sfplanning.org/14_Transportation.htm#TRA_REG_5_4, accessed May 5, 2021. City road designations within the general plan include the following (listed in the order of potential vehicle capacity): freeways, major arterials, transit conflict streets, secondary arterials, recreational streets, collector streets, and local streets. Each of these roadways has a different potential capacity for mixed-traffic travel and changes that might alter traffic patterns on the given roadway. The general plan also identifies certain Transit Preferential Streets from among the city’s various roadways, each of which is identified as a Primary Transit Street-Transit Oriented, Primary Transit Street-Transit Important, or Secondary Transit Street. The Pedestrian Network classifies streets throughout the City. It identifies streets that have been developed primarily for use by people walking and includes the Citywide Pedestrian Network Streets and Neighborhood Pedestrian Streets.

Jefferson Street (Fisherman’s Wharf) is a two-way east–west roadway, continuing west from The Embarcadero (at the intersection with Powell Street) to Hyde Street. In addition to two traffic lanes, there is a transit-only lane for the westbound streetcar on its north side, and metered on-street parking on both sides of the street. The eastern four intersections (at Powell, Mason Taylor and Jones streets) are signalized, whereas the western two intersections (at Leavenworth and Hyde streets) are all-way stop-sign controlled. The signalized intersections of Jefferson/Mason and Jefferson/Jones employ an all-red phase, where people walking do not proceed at the same time as adjacent vehicular traffic flow but instead are provided a separate phase, allowing people walking to cross the intersection diagonally. The general plan identifies Jefferson Street as a recreational street in the CMP Network, a transit preferential street (transit important), and part of the Bay, Ridge, and Coast Trail. The Better Streets Plan designates the entire length of Jefferson Street as a neighborhood commercial street. In addition, Jefferson Street is designated as a Key Walking Street¹²² and part of the Vision Zero High Injury Network.^{123,124}

The Embarcadero (Fisherman’s Wharf, Northeast Waterfront, South Beach) The Embarcadero is a two-way north–south roadway that runs between Taylor Street in the Fisherman’s Wharf subarea and King Street in the South Beach subarea near Oracle Park. In general, The Embarcadero has two travel lanes each way, with a wide, physically separated median where the E Embarcadero and F Market & Wharves historic streetcar lines, and the N Judah and T Third light-rail lines operate. All intersections are signalized, and left turns are permitted in the northbound direction with separate left-turn channelization and signal phasing at most intersections, except at Harrison, Mission, and Market streets. In the southbound direction, no left turns are permitted into the pier buildings fronting The Embarcadero, although left turn pockets are provided at several intersections for drivers wishing to make U-turns or access public parking facilities at the piers. No left turns are permitted out of midblock pier driveways onto The Embarcadero going southbound; exits from those driveways are restricted to right turns only. Class II bicycle lanes are located on both sides of The Embarcadero between North Point and Washington streets, and between Harrison and King streets. Between Washington and Mission streets, class IV bicycle lanes are provided on the west side of the roadway,¹²⁵ and class II bicycle lanes are provided on the east side of the roadway, while between Mission and Harrison streets class II bicycle lanes are provided on the west side and class IV bicycle lanes are provided on the east side.

On-street time-limited metered parking is generally permitted on either side of the street, although most of the spaces on the east side are allocated to passenger loading/unloading, commercial vehicle parking, and Port or other City-designated vehicles. A 10-foot-wide sidewalk is provided on the west side of The Embarcadero, and a 25-foot-wide promenade, known as Herb Caen Way, runs approximately 3.2 miles along

¹²² San Francisco Planning Department, *WalkFirst Map of Key Walking Streets*, https://default.sfplanning.org/Citywide/WalkFirst/phase3/WalkFirst_Key_Walking_Streets.pdf, accessed June 29 2021. As part of the City’s WalkFirst project, the planning department determined the Key Walking Streets network. This map is intended to eventually update the general plan’s Transportation Element. Key Walking Streets are characterized by street segments in close proximity to significant pedestrian generators such as schools, parks, tourist activities and shopping districts. The WalkFirst project is a multi-agency effort to improve pedestrian safety and walking conditions, encourage walking as a mode of transportation, and enhance pedestrian connections to key destinations.

¹²³ Vision Zero is a policy that assists in focusing traffic safety investments to reduce severe and fatal injuries to people walking, bicycling, and driving on streets where most severe or fatal injuries are concentrated. The City adopted Vision Zero as a policy in 2014, with the goal of zero traffic deaths for all ways people travel. The Embarcadero Enhancement Project is an example of a City project to address safety issues and achieve Vision Zero. City and County of San Francisco, *Vision Zero High Injury Network Map*, <https://sfgov.maps.arcgis.com/apps/webappviewer/index.html?id=f37f1274b4446f1bddd7bdf9e708ff>, accessed June 29 2021.

¹²⁴ See *Walking Conditions*, for additional description of Vision Zero High-Injury Network.

¹²⁵ The Embarcadero runs along the waterfront generally in the northwest/southeast directions and is considered a north–south roadway. Transportation characteristics of The Embarcadero, such as travel lanes, bicycle facilities, transit routes and sidewalks, are referred to either by direction of travel (e.g., northbound or southbound) or by the east or west side of the roadway. However, location of piers and parcels are typically described as being located on the water side (i.e., to the east of The Embarcadero) or land side (i.e., to the west of The Embarcadero).

the east (water) side between the Fisherman’s Wharf and South Beach subareas. The Embarcadero is designated as part of the Bay, Ridge, and Coast Trail, which is a recreational pedestrian/bicycle path connecting destinations and cities around the San Francisco Bay, and The Embarcadero Promenade is also part of the San Francisco Bay Trail (Bay Trail), which runs along the San Francisco waterfront (see Bicycling Conditions for further description of the Bay Trail).

The general plan identifies The Embarcadero as a major arterial in the Congestion Management Program (CMP) Network, a Metropolitan Transportation System (MTS) Street, a transit preferential street (transit important), and a neighborhood pedestrian street. The Better Streets Plan designates the entire length of The Embarcadero as a parkway. In addition, The Embarcadero is designated as a Key Walking Street and The Embarcadero between Lombard and King streets is part of the Vision Zero High Injury Network.

Terry A. Francois Boulevard (Mission Bay) is a two-way, north–south roadway to the east of Third Street, extending between Third Street and Mariposa Street (at Illinois Street); it provides access to the Port’s maintenance center and maritime uses at Pier 50. It generally has two travel lanes each way, with metered on-street parking on both sides of the street. All intersections are controlled by all-way stop signs, except for the intersections with Third, 16th, and Mariposa/Illinois streets. A protected bikeway (class IV facility) runs on the east side of Terry A. Francois Boulevard between Mariposa and Third streets. The Bay Trail runs on the east side of the street, and is currently being enhanced and completed at the northern end, as part of the Mission Bay Bayfront Park and the Seawall Lot 337 and Pier 48 Mixed-Use Project (i.e., the Mission Rock project). The general plan identifies Terry A. Francois Boulevard as a citywide pedestrian network street. In addition, the Better Streets Plan designates Terry A. Francois Boulevard between Third and Mission Rock streets as neighborhood residential, between Mission Rock and 16th streets as park edge, and between 16th and Mariposa/Illinois streets as mixed-use. In addition, Terry A. Francois Boulevard between Mission Bay Boulevard North and 16th Street is designated as a Key Walking Street.

Illinois Street (Mission Bay, Southern Waterfront) is a two-way, north–south roadway to the east of Third Street that extends between 16th Street and Cargo Way and is a key truck route serving industrial, and Port facilities in the area; the Illinois Street Bridge connects Pier 80 with Piers 90–96 over Islais Creek, providing access for freight rail, vehicles, bicyclists and people walking. Illinois Street has one travel lane each way with on-street parking generally allowed on both sides of the street. Bicycle lanes (class II or class IV facilities) are provided both ways, between Mariposa Street and Cargo Way. Light-rail tracks are located in a striped transit-only median between 18th and 19th streets, which are part of Muni’s T Third Mission Bay Loop. The general plan identifies Illinois Street between Mariposa and 24th streets as a citywide pedestrian network street. The Better Streets Plan designates Illinois Street between 16th and 20th streets as mixed-use, and between 20th and Marin streets as industrial. In addition, the entire length of Illinois Street is part of the Bay Trail.

Amador Street (Southern Waterfront) is an east–west two-way roadway owned by the Port that extends east from Cargo Way to the Pier 92 Intermodal Container Transfer Facility (ICTF); public access is not restricted. Amador Street has one travel lane each way and angled parking is permitted on the south side of the street; parking is prohibited on the north side of the street. The Better Streets Plan identifies Amador Street as unimproved.

Cargo Way (Southern Waterfront) is a two-way northwest–southeast roadway that extends between Third and Jennings streets, providing direct access to the ICTF and Piers 94–96, as well as Heron’s Head Park, the southernmost Port property along the bay shoreline. Cargo Way has two travel lanes each way separated by a landscaped median with dedicated left-turn lanes; a two-way protected bikeway (class IV facility) is provided

on the south side of the street. An active single track railroad line serving the ICTF and Piers 94-96 runs parallel and north of the street for almost its entire length; on-street parking is prohibited on both sides of the street. The general plan designates Cargo Way as freight traffic route¹²⁶, while the Better Streets Plan identifies it as industrial. In addition, Cargo Way is part of the Bay Trail, leading to Heron's Head Park and to the India Basin Open Space.

Bay Street (Northeast Waterfront) is a two-way east-west roadway that runs between The Embarcadero and Fillmore Street, with two travel lanes in each direction. Metered and time-limited on-street parking is permitted on both sides of the street, except weekdays between 4 p.m. and 7 p.m., when parking is prohibited on the north side of the street to create a third westbound travel lane. Bay Street functions as an arterial street for through traffic and provides access to and from the Golden Gate Bridge, via Marina Boulevard. All intersections between The Embarcadero and Marina Boulevard are signalized. The general plan identifies Bay Street as major arterial in the CMP Network, an MTS Street, and a Neighborhood Commercial Street. The Better Streets Plan designates Bay Street between The Embarcadero and Van Ness Avenue as a residential and commercial throughway. In addition, Bay Street between The Embarcadero and Van Ness Avenue is part of the Vision Zero High Injury Network.

Brannan Street (South Beach) is a two-way roadway that operates in the east-west direction between The Embarcadero and 10th Street. It has one travel lane each way, and metered on-street parking is available near the waterfront, on both sides of the street. Class II bicycle lanes are provided on both sides of the street between Second and Seventh streets. A class II bicycle lane is provided between The Embarcadero and Second Street in the westbound direction, and the eastbound direction is designated as a class III bicycle facility (shared with vehicles). Brannan Street provides a direct connection to and from the I-280 freeway ramps at Sixth Street. In addition, the Better Streets Plan designates Brannan Street between The Embarcadero and Collin P. Kelly Street as downtown residential, and west of Collin P. Kelly Street as mixed-use.

Bryant Street (South Beach) is a two-way roadway that extends from Precita Avenue in Bernal Heights to the west to The Embarcadero on the waterfront. From The Embarcadero to Second Street, Bryant Street operates two-ways in the east-west direction with two to three lanes. Near the waterfront, metered on-street parking is provided on both sides of the street between Main and Beale streets, and time-limited parking is available on the south side of the street between Beale and Rincon streets; on-street parking is prohibited at all times on both sides of the street between The Embarcadero and Main Street. Bryant Street provides direct access to I-80 eastbound (Bay Bridge) via the Sterling Street on-ramp (carpool vehicles only on weekdays between 3:30 p.m. and 7 p.m.). The general plan identifies Bryant Street as a major arterial in the CMP Network between The Embarcadero and Division Street, and as a transit preferential street (primary transit) between Fourth and Seventh streets. The Better Streets Plan designates Bryant Street between The Embarcadero and Beale Street as downtown residential, between Beale and Rincon streets as an alley, and west of Rincon Street as mixed-use.

Broadway (Northeast Waterfront) is a two-way east-west roadway that runs between The Embarcadero and Lyon Street, with two travel lanes each way; the Robert Levy Tunnel runs below Broadway, between Hyde Street and Mason Street. Broadway provides access from the waterfront to U.S. 101 north and south (Van Ness

¹²⁶ San Francisco Planning Department, *General Plan Transportation Element Map 15*, https://generalplan.sfplanning.org/images/14.transportation/tra_map15.pdf. San Francisco does not have a network of signed truck routes, although the San Francisco Municipal Transportation Agency (SFMTA) has identified major Freight Traffic Routes in the transportation element of the general plan that are not designed or signed truck routes. Nevertheless, a number of streets in San Francisco have "Truck Route" signage. More commonly, streets are designated with truck weight restrictions to discourage through truck traffic from using these streets. Streets with truck weight restrictions are identified in the San Francisco Transportation Code, section 501, https://www.sfmta.com/sites/default/files/pdf_map/2017/12/streetrestrictions.pdf.

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Avenue and Lombard Street); metered on-street parking is available on both sides of the street near the waterfront. In the general plan, Broadway, between Franklin Street and The Embarcadero is identified as a major arterial, and an MTS Street. The Better Streets Plan designates Broadway between The Embarcadero and Davis Street as downtown residential, and between Davis and Kearny streets as neighborhood commercial. In addition, Broadway between Davis and Powell streets part of the Vision Zero High Injury Network.

Cesar Chavez Street (Southern Waterfront) is a two-way east–west roadway that runs between Douglass Street to the west and the 's Pier 80 cargo terminal, east of Third Street. Near the waterfront, Cesar Chavez Street has one to two travel lanes each way, with a painted center median and left-turn-only lanes provided at some locations; major intersections are signalized. Cesar Chavez Street has eastbound and westbound protected (class IV) bicycle lanes on the segment between U.S. 101 and Connecticut Street, and eastbound and westbound striped (class II) bicycle lanes between Connecticut and Third streets. Light-rail tracks run in the center of the roadway between Third and Michigan streets, and provide access to Muni’s Metro East vehicle maintenance and storage facility, located at the northeast corner of the intersection of Illinois and Cesar Chavez streets.

Nearby direct access to the waterfront from I-280 northbound is provided from an off-ramp located immediately east of the intersection of Cesar Chavez and Pennsylvania streets, while access to and from I-280 southbound is available near the intersection of Pennsylvania Avenue and 25th Street, about 1,000 feet to the north of Cesar Chavez Street. Access to I-280 northbound is provided at the intersection of Indiana and 25th streets. The general plan designates Cesar Chavez Street as a Major Arterial in the CMP Network and an MTS Street between San Jose Avenue and Third Street, as a secondary arterial east of Third Street, and as freight traffic route east of U.S. 101. The Better Streets Plan designates Cesar Chavez Street between U.S. 101 and Pier 80 as industrial. In addition, Cesar Chavez Street between Third Street and Pier 80 is part of the Vision Zero High Injury Network.

Folsom Street (South Beach) runs east–west between The Embarcadero and Duboce Avenue, and north–south between Duboce Avenue and Alemany Boulevard. It is primarily a four-lane roadway, operating one-way eastbound between 11th and Essex streets and two-ways between Essex Street and The Embarcadero; metered on-street parking is provided on both sides of the street near the waterfront. Folsom Street is a primary connector to and from the I-80 freeway ramps in the South of Market area. The general plan designates Folsom Street as a major arterial in the CMP Network between The Embarcadero and 13th Street. The Better Streets Plan designates Folsom Street between The Embarcadero and Essex Street as downtown residential, and between Essex and Fourth streets as downtown commercial. In addition, the segments of Folsom Street between Beale and Third streets and between Fourth and Seventh streets are part of the Vision Zero High Injury Network.

Harrison Street (South Beach) runs east–west between 13th/Division streets to the west and The Embarcadero on the waterfront. It operates one-way westbound between Third and 10th streets, and two-way west of 10th Street. Harrison Street runs north–south to the west of 13th/Division streets, ending near Cesar Chavez Street in the Bernal Heights neighborhood. In the vicinity of the waterfront, Harrison Street is a primary route to and from the I-80 freeway; metered on-street parking is available on both sides of the street near the waterfront. The general plan designates Harrison Street as a Major Arterial in the CMP Network between The Embarcadero and Division Street, as a primary transit preferential street between Fourth and Seventh streets, and as a neighborhood commercial pedestrian street between Fourth and 16th streets. The Better Streets Plan

designates Harrison Street between The Embarcadero and Essex Street as downtown residential, and between Essex and 20th streets as mixed-use. In addition, Harrison Street between The Embarcadero and 21st Street is part of the Vision Zero High Injury Network.

King Street (South Beach, Mission Bay) is a two-way east–west roadway with four to five lanes and a semi-exclusive center median for light-rail operations, connecting the I-280 northern terminus at Fifth Street with The Embarcadero. Muni light-rail lines N Judah and T Third and the E Embarcadero streetcar line operate on a physically separated median along King Street. A class II bicycle lane is located on the south side of the street between Third Street and The Embarcadero. There is on-street parking on the north side of the street between The Embarcadero and Fourth Street, and on the south side of the street between Fourth and Fifth streets. The general plan designates King Street as a major arterial in the CMP Network and an MTS Street between Second and Fourth streets, a primary transit preferential street (transit important Street), and a neighborhood pedestrian network connection street. The Better Streets Plan designates King Street between The Embarcadero and Third Street as mixed-use, between Third and Fourth streets as commercial throughway, and between Fourth and Fifth streets (I-280 ramps) as neighborhood residential. In addition, King Street is also designated as a Key Walking Street and King Street between The Embarcadero and Fourth Street is part of the Vision Zero High Injury Network.

Mission Rock Street (Mission Bay) is a two-block two-way, east–west roadway extending between Fourth Street and Terry A. Francois Boulevard; it provides access to the Port’s maintenance center and maritime uses at Pier 50, and to the 2,000-space surface parking lot on Seawall Lot 337 (currently partially closed for construction of the Mission Rock project). Between Fourth and Third streets, Mission Rock Street has one lane each way, with metered on-street parking on both sides of the street. Between Third Street and Terry A. Francois Boulevard Mission Rock Street has one lane each way with exclusive left-turn lanes, and on-street parking is prohibited on both sides of the street. The intersection with Terry A. Francois Boulevard is controlled by all-way stop signs, while the intersection with Third Street is signalized, and the intersection with Fourth Street is stop sign-controlled for the minor (Mission Rock Street) approach. The Better Streets Plan designates Mission Rock Street as neighborhood residential.

Sixteenth Street (Mission Bay) is a two-way east–west roadway that runs between Castro Street to the west and Terry A. Francois Boulevard on the waterfront. Between Third Street and Terry A. Francois Boulevard near the waterfront, 16th Street has two travel lanes each way, with class IV bicycle lanes and metered on-street parking provided on both sides of the street. West of Third Street, up to Seventh/Mississippi streets, 16th Street has one travel lane, one transit-only lane, and one class II bicycle lane each way; on-street parking is prohibited on both sides of the street. All intersections between Seventh/Mississippi streets and the waterfront are signalized, except Illinois Street, which is all-way stop sign controlled; dedicated left-turn lanes are provided at all the intersections. The San Francisco General Plan identifies 16th Street as a secondary arterial in the CMP Network and an MTS Street between Market and Third streets. The Better Streets Plan designates 16th Street between Terry A. Francois Boulevard and Capp Street as mixed-use.

Third Street (Mission Bay, Southern Waterfront) is the principal north–south arterial in the southeast part of San Francisco, extending from its interchange with Highway 101 at Bayshore Boulevard to the intersection with Market Street in downtown San Francisco. It serves as a through street and an access way to the industrial areas north and east of U.S. 101; a light-rail and vehicle bridge connects Marin Street with Cargo Way over Islais Creek. Between King Street and Evans Avenue (i.e., adjacent to the waterfront) Third Street has two travel lanes each way, with the T Third light-rail line operating in a physically separated median. All intersections are

signalized, and left turns are permitted at most intersections, with separate left-turn channelization and signal phasing. No left turns are permitted at Warriors Way, 18th, 19th, 22nd, 24th, 25th, 26th, Marin, and Burke streets. Minor T intersections¹²⁷ and driveways are restricted to right-in/right-out turns only. A class IV bikeway across the Third Street bridge connects the San Francisco Giants promenade with Terry A. Francois Boulevard.

The San Francisco General Plan identifies Third Street as a major arterial in the CMP Network, as part of the MTS Network, and as a primary transit preferential street (transit important street) between Mission Rock Street and Bayshore Boulevard, a citywide pedestrian network street and trail between 24th Street and Yosemite Avenue, and a neighborhood commercial pedestrian street. In addition, the general plan identifies Third Street between Jerrold Avenue and Market Street as a freight traffic route. The Better Streets Plan designates Third Street between Townsend and 23rd streets as a residential and commercial throughway, and between 23rd Street and Jerrold Avenue as industrial. In addition, Third Street is designated as a Key Walking Street and the segments of Third Street between Market Street and Terry A. Francois Boulevard, and between 23rd Street and south of Evans Avenue are part of the Vision Zero High Injury Network.

Townsend Street (South Beach) is a two-way roadway that operates in the east-west direction between The Embarcadero and Eighth/Division streets. It has one travel lane each way, and metered on-street parking is available near the waterfront on both sides of the street. Between The Embarcadero and Second Street, Townsend Street is designated as a class III bicycle facility (shared with vehicles), while class II bicycle lanes are provided on both sides of the street between Second and Fourth streets, and class IV protected bicycle lanes are provided between Fourth and Eighth/Division streets. In addition, the Better Streets Plan designates Townsend Street between The Embarcadero and Second Street as downtown residential, and west of Second Street as mixed-use. Townsend Street, between Third and Fifth streets is part of the Vision Zero High Injury Network.

VEHICULAR COUNTS/TRAFFIC CONDITIONS

Weekday p.m. peak period intersection turning movement counts were collected on multiple days at various locations on the waterfront between 4 p.m. and 6 p.m. The counts were obtained from multiple sources from counts collected in 2017 and 2018. Appendix E1 contains a summary of the vehicular traffic volumes by movement at the study intersections. **Table 4.C-1** summarizes the existing weekday p.m. peak hour traffic volumes for three roadway segments within each subarea that would be most affected by implementation of subsequent projects under the Waterfront Plan.¹²⁸ As expected, p.m. peak hour traffic volumes are greater on the major streets providing access to and from the waterfront, such as Bay Street, The Embarcadero, King Street, and Third Street. In terms of directionality, p.m. peak hour traffic volumes on the waterfront are generally higher in the northbound and westbound directions (i.e., from the south towards downtown and the Ferry Building, and from the downtown/Ferry Building area towards the west side of San Francisco and the North Bay).

Intersections located on the major arterials, such as Bay Street, The Embarcadero, King Street, and Third Street, are all signalized and generally equipped with pedestrian countdown signal heads. Major intersections located on minor arterials and connector streets (e.g., Terry A. Francois Boulevard, Illinois Street, Cargo Way) are generally signalized, while lower volume roadways are stop-sign controlled, either two- or all-way.

¹²⁷ A T intersection is an intersection where two roadways meet in a perpendicular manner and one roadway does not continue across the other road, forming a "T" shape.

¹²⁸ The peak hour traffic volume is the volume of vehicles during the peak 60 minutes of the two-hour p.m. (4 p.m. to 6 p.m.) peak period during which the highest volumes of vehicles were observed.

Table 4.C-1 Existing Weekday P.M. Peak Hour Roadway Segment Traffic Volumes

Roadway Segment Location	Northbound/ Eastbound	Southbound/ Westbound	Total Both Ways
FISHERMAN'S WHARF SUBAREA			
North Point Street between Powell and Stockton streets	317	231	548
Bay Street between The Embarcadero and Kearny Street	416	878	1,294
The Embarcadero between Beach and North Point streets	290	306	596
NORTHEAST WATERFRONT SUBAREA			
The Embarcadero between Green and Vallejo streets	948	630	1,578
The Embarcadero between Broadway and Washington Street	1,268	833	2,101
Mission Street between The Embarcadero and Steuart Street	187	146	333
SOUTH BEACH SUBAREA			
The Embarcadero between Harrison and Bryant streets	868	889	1,757
Bryant Street between The Embarcadero and Main Street	412	231	643
King Street between Second and Third streets	1,005	1,080	2,085
MISSION BAY SUBAREA			
Third Street between Terry A. Francois Blvd and Channel Street	918	173	1,091
Third Street between Mission Bay Blvd and Warriors Way	931	489	1,420
Third Street between 16th and Mariposa streets	965	741	1,706
SOUTHERN WATERFRONT SUBAREA			
Third Street between 26th and Cesar Chavez streets	753	701	1,454
Cargo Way between Illinois and Mendell streets	84	129	213
Evans Avenue between Third and Newhall streets	446	548	994

SOURCE: LCW Consulting and Advant Consulting, 2021 (see Appendix E2).

NOTE:

The p.m. peak hour is the 60 minutes of the 4 p.m. to 6 p.m. peak period during which the highest volume of vehicles was observed.

Field observations on the waterfront conducted in April and May 2021 did not identify any unusual or potentially hazardous conditions. On King Street, vehicle queues were observed on the westbound approach to I-280, occasionally extending to The Embarcadero. Vehicle queuing was also observed on northbound The Embarcadero on the approach to the Broadway left turn. In both instances, vehicles were delayed, but the queues did not result in hazardous conditions. Some vehicle queuing was observed under non-event conditions in the Mission Bay and Southern Waterfront subareas, which did not result in vehicle conflicts.

CONDITIONS DURING EVENTS AT ORACLE PARK AND CHASE CENTER

The transportation network in the South Beach and Mission Bay subareas is affected when events occur at Oracle Park and at the Chase Center. On weekdays, events such as baseball and basketball games and concerts generally occur in the evening (i.e., after 6 p.m.) and effects of travel to and from these venues mostly occur in

their immediate vicinity. Although the transportation analysis in this study focuses on non-event conditions during the weekday p.m., the following description is provided for informational purposes.

The two major event facilities on the waterfront are located in the South Beach and the Mission Bay subareas, the San Francisco Giants Oracle Park (42,000 seats) at the corner of King and Third streets, and the Chase Center sports and entertainment arena (18,000 seats) at the corner of 16th Street and Terry A. Francois Boulevard. Each facility implements a transportation management plan (TMP) during events to facilitate safe and efficient access to their facilities and encourage non-automobile travel to the events. The San Francisco Municipal Transportation Agency (SFMTA) coordinates the implementation on the TMP measures for both facilities and is responsible for the implementation of those measures that affect street closures, parking prohibitions, deployment of parking control officers (PCO), and provision of supplemental transit service.

For example, during evening baseball games at Oracle Park, the SFMTA closes eastbound King Street between Third and Second streets to all vehicle traffic from the seventh inning until post-game traffic dissipates, in order to better manage flows of people walking and access to Muni in front of the ballpark. In addition, the northbound portion of the Fourth Street Bridge is closed to all traffic except Muni, taxis and bicycles during the post-game period. Similarly, during an evening basketball game or a concert with a projected high level of attendance at the Chase Center, the SFMTA closes the streets surrounding or leading to the Chase Center (16th Street, Warriors Way, Third Street, Illinois Street) from two hours before the start of the event until one hour after its conclusion. The TMP measures are increased and reinforced in case of closely scheduled evening events occurring at both facilities (i.e., dual event day). The SFMTA coordinates with the San Francisco Giants, Golden State Warriors, and other involved entities such as the University of California, San Francisco (UCSF), the Port, and neighborhood associations, and regularly reviews and updates the TMP measures, as needed. No potentially hazardous conditions have been identified as a result of the implementation of these measures.

WALKING CONDITIONS

This subsection describes the absence, discontinuity, or presence of facilities for people walking¹²⁹ within the transportation study area. It also identifies any potentially or observed existing hazardous conditions at locations where people walk and describes the number of people walking at adjacent study intersections.

As noted above, several streets within the transportation study area are designated a Vision Zero Corridor as well as Vision Zero High Injury Network¹³⁰ for people walking and people bicycling. Vision Zero is a policy that assists in focusing traffic safety investments to reduce severe and fatal injuries to people walking, bicycling, and driving on streets where most severe or fatal injuries are concentrated. The City adopted Vision Zero as a policy in 2014, with the goal of zero traffic deaths for all ways people travel. Projects such as the ongoing The Embarcadero Enhancement Program are an example of City projects to address safety issues and achieve Vision Zero along the waterfront. Within the waterfront transportation study area, streets on the Vision Zero High-Injury Network for 2017 include:

- Jefferson Street, between Hyde Street and The Embarcadero
- Beach Street, between Powell Street and The Embarcadero

¹²⁹ People walking includes people with disabilities who may or may not require personal assistive mobility devices (e.g., wheelchairs, walkers, crutches, canes).

¹³⁰ The Vision Zero High Injury Network maps corridors with a high concentration of severe injuries and deaths, with an emphasis on those involving people walking and people bicycling. The High Injury Network analysis is based on a multiyear corridor-level analysis of collision data, helping inform transportation injury prevention initiatives and investments to save lives and reduce the severity of injuries.

- Bay Street, between Van Ness Avenue and The Embarcadero
- The Embarcadero, between Lombard and King streets
- King Street, between The Embarcadero and Fourth Street
- Third Street, between King Street and Terry A. Francois Boulevard, and between 23rd Street and Evans Avenue
- 23rd Street, east of Third Street
- Cesar Chavez Street, east of Third Street
- Evans Avenue, between Cesar Chavez and Mendell streets

In the Fisherman's Wharf and Northeast Waterfront subareas of the waterfront, the pedestrian network is generally well developed, with continuous sidewalks, striped crosswalks, and signalized intersections. Most of the signalized intersections include pedestrian signal heads and countdown displays, and many of those located along The Embarcadero also include pedestrian push buttons. The blocks in these subareas are relatively short and the streets are generally narrow facilitating travel for people walking. Variations in sidewalk width depend on the type and function of the street. Typical sidewalks are 10 to 12 feet wide but can reach 15 feet in some locations with higher volumes of people walking such as in Fisherman's Wharf (e.g., Jefferson Street) or Herb Caen Way, the public promenade east of The Embarcadero (part of the Bay Trail).

The Fisherman's Wharf and Northeast Waterfront subareas include major tourist and local attractions, including Pier 39, Alcatraz Ferry Landing, the Exploratorium, and the Ferry Plaza Farmer's Market. As such, conditions for people walking can be crowded at times, particularly during the summer tourist season. During peak demand periods, generally 11 a.m. to 6 p.m., pedestrian volumes are relatively high, sometimes causing overcrowded conditions. In the Fisherman's Wharf subarea, tables and chairs, street furniture, signs, street performers, and vendors can obstruct portions of the sidewalk, and people sometimes walk on the street in order to avoid crowding on sidewalks. People crossing The Embarcadero are unimpeded.

Most active uses on The Embarcadero are located on the water side (east side) where most activity occurs. The water side of The Embarcadero has fewer interruptions from cross streets and driveways than the landside, and therefore is an attractive facility for people walking.

The James R. Herman Cruise Terminal is located on the south side of Pier 27, with direct access onto The Embarcadero; it has the capacity for handling cruise ships with up to 4,000 passengers. Circulation for passenger drop-off, taxis, buses and provisioning all occur within the interior of the pier. Given the substantial vehicular traffic occurring when a cruise ship is in berth, the Port, in coordination with the SFMTA, implements a traffic control plan to manage conflicts between vehicles and people walking and bicycling that can occur on the promenade.

A secondary cruise terminal is located at Pier 35, which is used when the main berth at the Pier 27 terminal is in use; on such occasions, a similar traffic control plan is implemented in front of Pier 35.

The Ferry Plaza Farmer's Market takes place on Tuesdays and Thursdays between 10 a.m. and 2 p.m., and on Saturdays between 8 a.m. and 2 p.m. Farmers occupy a portion of the promenade in front of the north and south wings of the Ferry Building. Drop-off and pick-up operations in front of the Ferry Building are actively managed.

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The pedestrian network in the South Beach subarea of the waterfront is also generally well developed, with continuous sidewalks, striped crosswalks, and signalized intersections. The signalized intersections across The Embarcadero and King Street include pedestrian signal heads and countdown displays, with pedestrian push buttons. The blocks in this subarea are long (about 900 feet long) in the east–west direction and some streets are relatively wide, often with four travel lanes; to facilitate travel for people walking, midblock crossings are provided across The Embarcadero and King Street.

Active recreational uses on the waterfront side of The Embarcadero include Rincon Park, Brannan Street Park, South Beach Park, Pier 40 and the adjacent South Beach Harbor; several restaurants and offices are also located on that side of the road.

Similar to the Northeastern Waterfront subarea, most people walk on the water side of The Embarcadero, which has fewer interruptions. The volume of people walking in the subarea are moderate (see **Table 4.C-2**), except when baseball games and other events take place at Oracle Park (45,000 seats), located on the south side of King Street between Second and Third streets.

Table 4.C-2 Existing Weekday P.M. Peak Hour Counts of People Walking within Crosswalks ^a

Study Intersection	North Crosswalk	South Crosswalk	East Crosswalk	West Crosswalk	Intersection Total
FISHERMAN’S WHARF SUBAREA					
The Embarcadero and North Point Street	72	124	683	141	1,020
NORTHEAST WATERFRONT SUBAREA					
The Embarcadero and Broadway	115	194	967	320	1,596
The Embarcadero and Mission Street	444	510	1,309	299	2,562
SOUTH BEACH SUBAREA					
The Embarcadero and Bryant Street	147	55	651	258	1,111
The Embarcadero and Townsend Street	64	77	384	199	724
MISSION BAY SUBAREA					
Third Street and 16th Street	51	50	93	98	292
SOUTHERN WATERFRONT SUBAREA					
Third Street and Cesar Chavez Street	7	15	13	26	61
Illinois Street and Cesar Chavez Street	7	12	8	5	32

SOURCE: LCW Consulting and Adavant Consulting, 2021 (see Appendix E1 for a summary of the counts of people walking at the study intersections).

NOTES:

Counts of people walking collected in 2017 and 2019. **Bold** values represent people walking on The Embarcadero Promenade.

The promenade is a popular walking path between downtown, BART’s Embarcadero Station, as well as the Piers 30–32 parking lot and the ballpark, and crowded conditions have been observed in the hours prior to the start of a game. On event days, the SFMTA and the San Francisco Giants implement a TMP, which includes the temporary closure of King Street and the Third Street bridge to automobile traffic, before and after a large event to accommodate the increase in people walking and facilitate access to Muni Metro.

The Mission Bay subarea includes a well-connected network for people walking with pedestrian-scale block sizes. The facilities for people walking along the waterfront have almost been completed, except for the area surrounding the Mission Rock project (northern portion of Terry A. Francois Boulevard) currently under construction, and the future Bayfront Park (from Mission Bay Boulevard to 16th Street). It is possible, however, to walk on the adjacent sidewalks along both sides of Terry A. Francois Boulevard, which are about 12.5 feet wide on the east (city) side, and 15 to 20 feet wide on the water side, and offer a continuous path through the area. All crosswalks are striped, and signalized intersections include pedestrian signal heads with pedestrian countdown displays, pedestrian push buttons, and Americans with Disabilities Act (ADA) curb ramps.

The volume of people walking in the area is low to moderate (see Table 4.C-2), except when a basketball game or a concert takes place at the Chase Center (18,000 seats), located at the northwest corner of 16th Street and Terry A. Francois Boulevard. On such event days, Terry A. Francois Boulevard is a natural path between downtown and the Mission Rock project (Lot A) parking lot and Chase Center, and crowded conditions have been observed before and after a game. As noted previously, on event days the SFMTA and the Golden State Warriors implement a TMP, which includes the temporary closure of 16th Street, Warriors Way, Illinois Street and the northbound lanes on Third Street to automobile traffic, in order to accommodate the increase in people walking and facilitate access to Muni's T Third light-rail line.

In the northern part of the Southern Waterfront subarea, in the Dogpatch neighborhood, some of the north/south blocks are fairly long (minimum of 500 feet and up to 900 feet in length), while the east/west blocks are shorter (300 feet in length). General impediments to people walking in this subarea are most prevalent along Illinois Street, which lacks complete facilities, such as continuous sidewalks in good condition, as a result of the area's industrial uses (e.g., on the east side of Illinois Street between 19th and 20th streets). These gaps make some locations difficult for people to traverse and can make walking in the subarea challenging. Where available, sidewalks along Illinois Street range between 10 and 14 feet in width. Most of the intersections along Illinois Street are unsignalized with striped crosswalks provided at most of them; most of the intersections along Illinois Street also provide ADA ramps. The Bay Trail follows Illinois Street between Mariposa Street and Cargo Way, and turns east along Cargo Way, before continuing southward at Heron's Head Park at the end of the street (refer to Bicycling Conditions section below for Bay Trail description).

Along Third Street, the sidewalk network is complete, with sidewalks generally 10 feet wide (wider at locations where new buildings have been set back). Intersections along Third Street are signalized, with pedestrian countdown signal heads with a leading pedestrian interval and ADA ramps.

The volume of people walking in this subarea is generally low, concentrated around the cafes and shops located on 20th, 22nd, and 23rd streets, with higher activity occurring on Third Street near the light-rail stops at 20th and 23rd streets, and at the recently opened Crane Cove Park at Illinois and 18th streets.

Across Islais Creek, in the vicinity of Piers 90–96, an 8-foot-wide sidewalk is provided on the north side of Cargo Way and the sidewalk is discontinuous at a few locations to accommodate the adjacent rail tracks; there are no sidewalks on Amador Street. The volume of people walking in this subarea is low.

Table 4.C-2 presents counts of the number of people crossing within a given crosswalk at key intersections in the waterfront subareas during the weekday p.m. peak hour. As shown in the table, the number of people walking near the waterfront is substantially higher in the Fisherman's Wharf, Northeast Waterfront and South Beach subareas, due to the various tourist and recreation activities available and the presence of The Embarcadero Promenade.

BICYCLING CONDITIONS

This subsection describes the facilities for people bicycling within the transportation study area, such as the presence, absence or discontinuous nature of bicycle lanes, and identifies any potentially or observed existing hazardous conditions at locations where people bicycle. In addition, it describes the number of people bicycling in the Plan area.

Bicycle facilities are typically classified as class I, class II, class III, or class IV facilities.¹³¹ Class I bikeways are bike paths with exclusive rights-of-way for use by people bicycling or people walking. Class II bikeways are striped within the paved areas of roadways and established for the preferential use of people bicycling in separated bicycle lanes. Separated bicycle lanes provide a striped, marked, and signed lane that is buffered from vehicular traffic. These facilities, which are located on roadways, reserve 4 to 5 feet of space for bicycle traffic exclusively. Class III bikeways are signed bicycle routes that allow people bicycling to share travel lanes with vehicles and may include sharrows. A class IV bikeway is an exclusive bicycle facility that is separated from vehicular traffic by a buffer zone. The separation from vehicular traffic could be by grade separations, flexible posts, inflexible physical barriers, or on-street vehicular parking.

Figure 4.C-1 through Figure 4.C-5 present the bicycle facilities along and connecting with the five waterfront subareas. Bicycle facilities are provided on roadways along the waterfront parcels, including The Embarcadero, King Street, Terry A. Francois Boulevard, Illinois Street, and Cargo Way:

- The Embarcadero has class II bicycle lanes both ways between North Point and Townsend streets. Sections of The Embarcadero that have class IV protected facilities recently built as part of The Embarcadero Enhancement Project include the segment of North Point Street to Bay Street in both directions, Bay Street to Green Street in the southbound direction, between Harrison and Folsom streets in the northbound direction, and a two-way protected bikeway adjacent to the promenade (i.e., Herb Caen Way) between Mission and Folsom streets. In addition, the promenade is a shared path where people can walk and bike, and cyclists are required to ride slowly and yield to people walking. However, because the promenade is not a designated sidewalk, motorized bikes, scooters, and other devices are not allowed and must use designated bicycle lanes in the roadway.
- On King Street, a class II bicycle lane is provided for eastbound travel between Third and Second streets along the north side of the ballpark, while the San Francisco Giants promenade, a shared path where people can walk and bike, is available between the ballpark and Mission Creek. A class IV bikeway across the Third Street bridge connects the San Francisco Giants promenade with Terry A. Francois Boulevard.
- A two-way class IV bikeway is provided on the full extension of Terry A. Francois Boulevard between Third Street and the intersection of Mariposa and Illinois streets.
- Class II bicycle lanes run both ways on Illinois Street between 16th Street and Cargo Way, with a few locations where the bicycle lanes are protected with safe hit posts, and are therefore considered as class IV facilities. These include Illinois Street both ways between 18th and 19th streets, and in the southbound direction between Marin and Tulare streets.
- On Cargo Way, a protected bicycle lane (class IV facility) is provided between Jennings and Third streets. It is a two-way facility, separated from the adjacent travel lane with a raised curb and fence, and is part of the Bay Trail.

¹³¹ California Streets and Highways Code section 890.4, 2016, <https://codes.findlaw.com/ca/streets-and-highways-code/shc-sect-890-4.html>.



SOURCE: Port of San Francisco, Waterfront Plan, 2019

Waterfront Plan

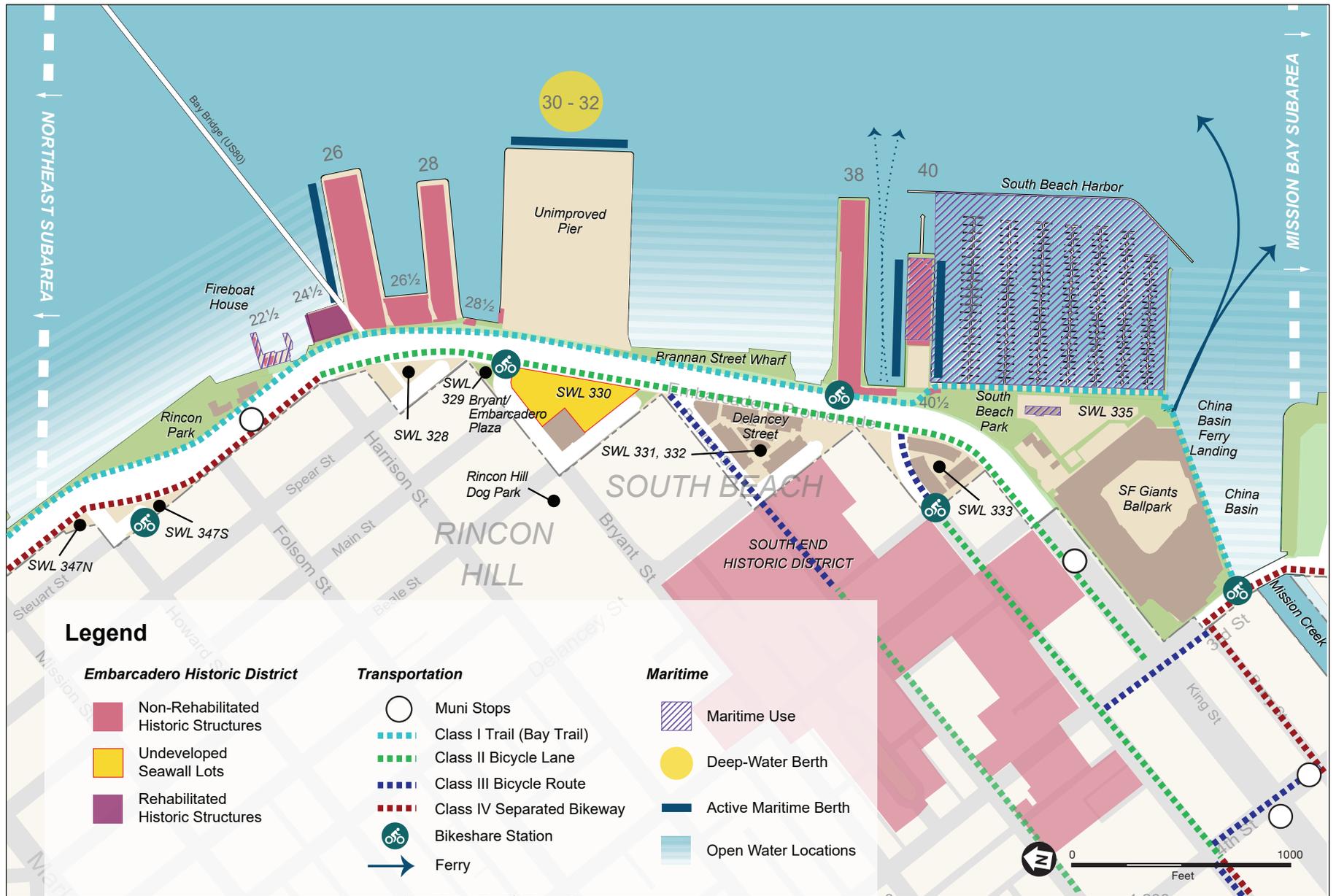
FIGURE 4.C-1
EXISTING BICYCLE ROUTE NETWORK
FISHERMAN'S WHARF SUBAREA



SOURCE: Port of San Francisco, Waterfront Plan, 2019

Waterfront Plan

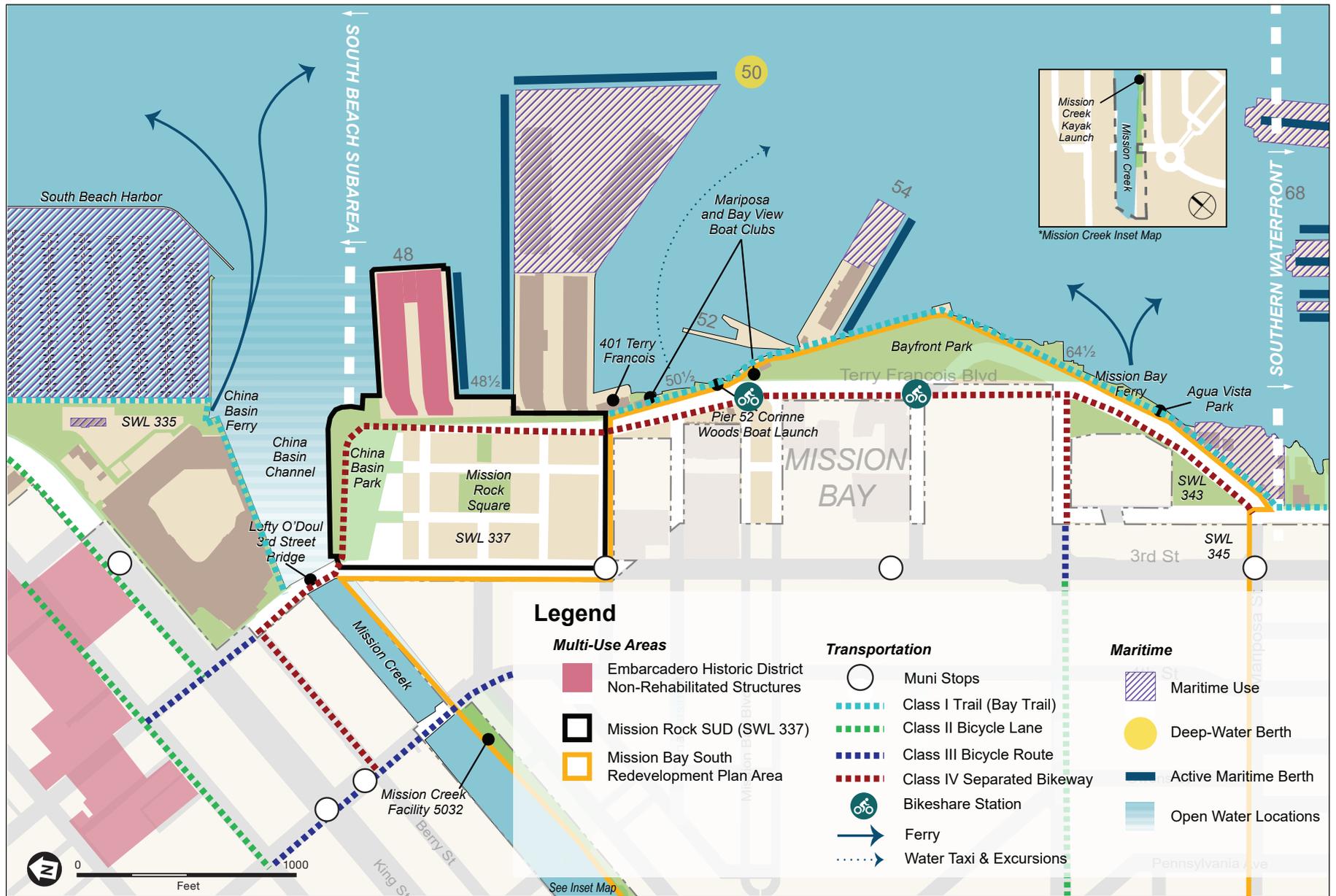
FIGURE 4.C-2
EXISTING BICYCLE ROUTE NETWORK
NORTHEAST WATERFRONT SUBAREA



SOURCE: Port of San Francisco, Waterfront Plan, 2019

Waterfront Plan

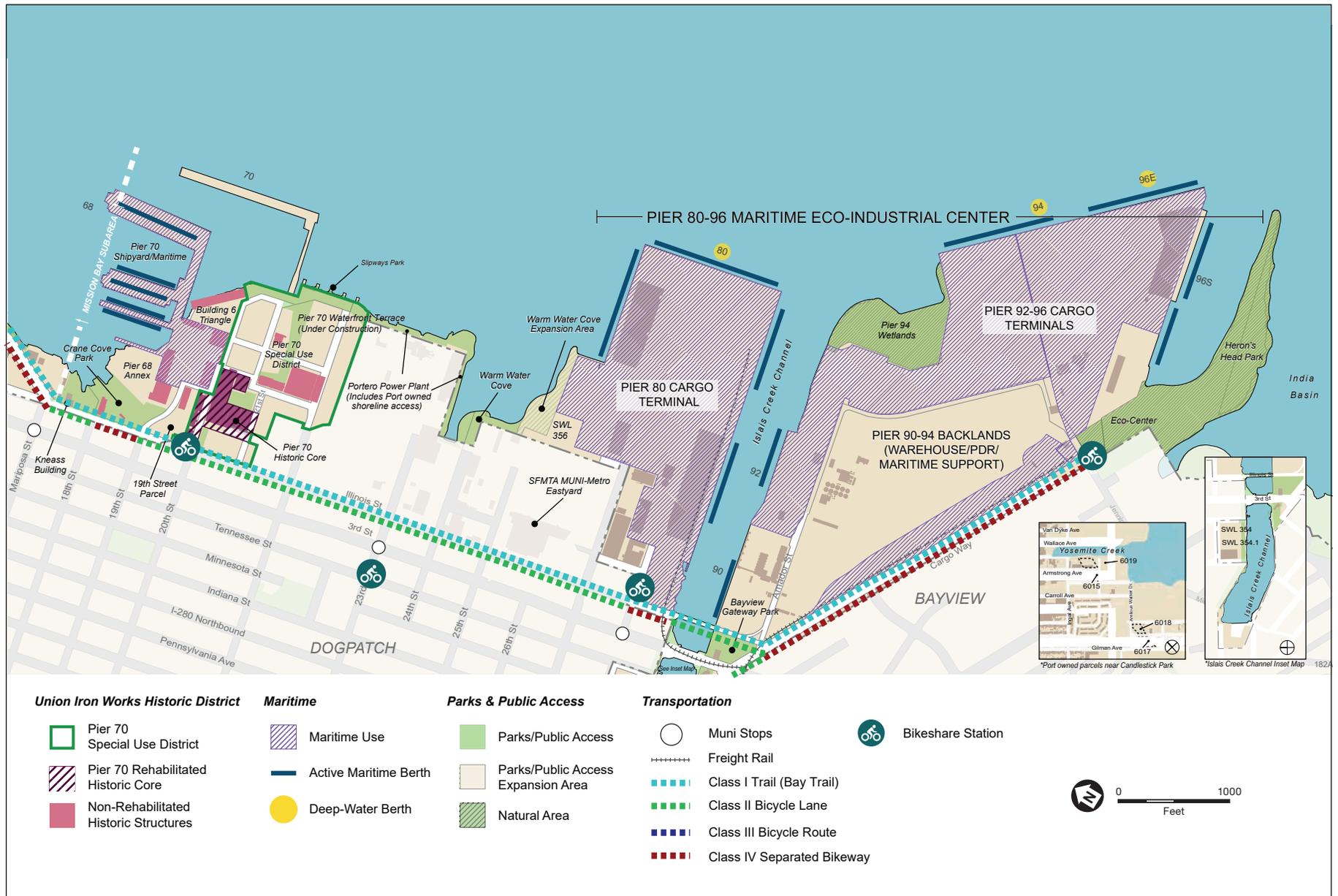
FIGURE 4.C-3
EXISTING BICYCLE ROUTE NETWORK
SOUTH BEACH SUBAREA



SOURCE: Port of San Francisco, Waterfront Plan, 2019

Waterfront Plan

FIGURE 4.C-4
EXISTING BICYCLE ROUTE NETWORK
MISSION BAY SUBAREA



SOURCE: Port of San Francisco, Waterfront Plan, 2019

Waterfront Plan

FIGURE 4.C-5
EXISTING BICYCLE ROUTE NETWORK
SOUTHERN WATERFRONT SUBAREA

Chapter 4. Environmental Setting, Impacts, and Mitigation Measures

4.C. Transportation and Circulation

Other bicycle facilities connecting with the waterfront include class II bicycle lanes on North Point, Battery, Sansome, Brannan and Townsend streets (portions of the bicycle facilities on Brannan and Townsend streets are class IV facilities), 16th and Cesar Chavez streets, and Evans Avenue east of Third Street. In addition to portions of Brannan and Townsend streets, class IV separated bikeways are provided on Howard, Folsom and Berry streets, while Broadway, Market and Mariposa streets, and Evans Avenue west of Third Street are designated as class III facilities (shared with vehicles).

Figure 4.C-1 through Figure 4.C-5, pp. 4.C-15 to 4.C-19, also show the Bay Trail. The Bay Trail is designed to provide recreational pathway links to the commercial, industrial and residential neighborhoods that abut the San Francisco Bay. In addition, the trail connects points of historic, natural, and cultural interest as well as recreational areas such as beaches, marinas, fishing piers, boat launches, and numerous parks and wildlife preserves. The Bay Trail's mission is a class I, fully separated facility for people walking and bicycling located as close to the shoreline as possible. At various locations, the Bay Trail currently consists of paved multiuse paths, dirt trails, bicycle lanes, sidewalks or city streets signed as bicycle routes. In the Northern Waterfront, the Bay Trail runs along The Embarcadero Promenade (i.e., Herb Caen Way) between North Point and Townsend streets, curves around the edge of South Beach Harbor and follows the San Francisco Giants Promenade around the south side of Oracle Park. It crosses Mission Creek via the Third Street bridge as a separate bikeway, connecting with Terry A. Francois Boulevard in the Mission Bay subarea. The Bay Trail then continues south parallel and to the east of Terry A. Francois Boulevard as a paved path along the shoreline within the subarea currently being developed as part of the Mission Bay Plan as the Mission Bay Bayfront Park, across from the Chase Center. It then continues south as an on-street segment along Illinois Street between Terry A. Francois Boulevard and Cargo Way as a class IV separated bikeway, turning then southeast and continuing along the class IV separated bikeway along Cargo Way to Heron's Head Park.

As shown in the figures, there are numerous bike-share stations nearby the waterfront. One or more class 2 bicycle racks (two bicycle parking spaces per rack) are provided on most sidewalks nearby the Northern Waterfront, and fewer in the Southern Waterfront.

Counts of people bicycling during the weekday p.m. peak hour are presented in **Table 4.C-3**. Similar to the number of people walking, the number of people bicycling is substantially higher in the Fisherman's Wharf, Northeast Waterfront, and South Beach subareas, with volumes between approximately 250 and 350 bicyclists per hour per location (excluding those bicycling on The Embarcadero Promenade). Bicycling levels in the Mission Bay and Southern Waterfront subareas are lower, between approximately 15 and 65 bicyclists per hour per location.

Along the waterfront, streets are generally flat, with minimal changes in grades, facilitating bicycling within the waterfront subareas.

In general, the class II bicycle lanes on The Embarcadero are not comfortable for many recreational cyclists, who then choose to ride on the promenade, resulting in crowded conditions during high demand periods and creating potential conflicts between bicyclists and people walking or sightseeing. Conflicts have also been observed between bicyclists and large trucks parked on the street in the northbound direction on The Embarcadero in the Northeast Waterfront subarea. In those instances, the 8-foot-wide parking lane is not sufficient to accommodate a large vehicle, which combined with the relatively narrow width of the bicycle lane (5 feet), typically forces bicyclists to enter the adjacent traffic lane, creating a right-of-way conflict. Similarly, the well utilized valet parking services offered in front of the Ferry Building during the daytime can conflict

Table 4.C-3 Existing Weekday P.M. Peak Hour Counts of People Bicycling

Study Intersection	Northbound Approach	Southbound Approach	Eastbound Approach	Westbound Approach	Intersection Total
FISHERMAN'S WHARF SUBAREA					
The Embarcadero and North Point Street	195	15	47	0	257
NORTHEAST WATERFRONT SUBAREA					
The Embarcadero and Broadway	216	116	19	0	351
The Embarcadero and Mission Street	178	136	51	0	365
SOUTH BEACH SUBAREA					
The Embarcadero and Bryant Street	186	150	12	3	351
The Embarcadero and Townsend Street	99	99	45	0	243
MISSION BAY SUBAREA					
Third Street and 16th Street	11	25	11	14	61
SOUTHERN WATERFRONT SUBAREA					
Third Street and Cesar Chavez Street	0	10	2	1	13
Illinois Street and Cesar Chavez Street	16	12	2	2	32

SOURCE: LCW Consulting and Advant Consulting, 2021 (see Appendix E1 for a summary of the turning movement bicycle counts at the study intersections).

NOTES:

Bicycle counts collected in 2017 and 2019. Does not include bicycles on The Embarcadero Promenade.

with bicyclists traveling northbound on the adjacent bicycle lane. Drivers are sometimes unaware of bicyclists traveling to their right-hand side as they pull over into the passenger zone. The use of green paint to more clearly delineate the bicycle lane, and the placing of temporary orange plastic cones during the hours of attendant parking operations has helped minimize the potential conflicts. The relatively low vehicular volumes typically entering or exiting the piers, generally for Port business purposes, have not been observed to create a safety hazard for bicyclists. Locations with high vehicular activities generally coincide with actively controlled operations, such as the cruise terminal at Pier 27 (police department on cruise berthing days), the surface parking at Piers 30–32 (traffic signal), or sailing activities at Pier 40 (traffic signal), minimizing the potential for right-of-way conflicts along The Embarcadero.

No safety hazards or right-of-way conflicts between bicyclists, people walking, buses, or other vehicles on streets were observed along the Third Street bridge, Terry A. Francois Boulevard, Illinois Street and Cargo Way, due to the presence of class IV bicycle facilities.

PUBLIC TRANSIT CONDITIONS

This subsection describes the local and regional public transit service in the transportation study area, including geographic extent, scheduled frequency, and transit stops serving the waterfront.

LOCAL MUNI SERVICE

Local service in San Francisco is provided by the San Francisco Municipal Railway (Muni), the transit division of SFMTA. Muni bus routes and light-rail lines can be used for access to regional transit operators. **Figure 4.C-6 through Figure 4.C-10** present the existing transit network serving the five waterfront subareas and identifies the stops for local bus routes and light-rail lines nearest to the waterfront. As shown in the figures, the E Embarcadero, F Market & Wharves, and the KT Ingleside-Third are the primary Muni lines that serve the waterfront, with multiple bus routes and streetcar and light-rail lines within walking distance that connect the Plan area with the rest of San Francisco. As shown in **Figure 4.C-7**, p. 4.C-24, and **Figure 4.C-8**, p. 4.C-25, the greatest amount of transit service is provided in the Northeast Waterfront and South Beach subareas. Portions of the Northeast Waterfront and South Beach subareas are within walking distance of numerous Muni bus routes and light-rail service on Market and Mission streets. There are no Muni bus routes operating on the perpendicular streets that directly connect to The Embarcadero between Bay and Howard streets in the Northeast Waterfront subarea or between Folsom and Townsend streets in the South Beach subarea. No conditions that delay bus routes or light-rail service were observed along The Embarcadero, King Street or Third Street.

Table 4.C-4 presents information for each Muni route that operates within the transportation study area, including service frequencies¹³² for the p.m. peak period, general hours of operation, and the waterfront subareas and San Francisco neighborhoods served. In addition to the Muni service presented in Table 4.C-4, portions of the Northeast Waterfront and South Beach subareas are within walking distance of Muni bus routes and light-rail service on Market and Mission streets.¹³³

In addition to the Muni service, there are several water taxi landing facilities along the waterfront serving the waterfront and surrounding neighborhoods, including at the Hyde Street harbor in Fisherman's Wharf subarea, Pier 1½ in the Northeast Waterfront subarea, and Pier 40/Oracle Park in South Beach subarea. Water taxi providers operate under landing agreements with the Port Commission.

¹³² The service frequency is the number of minutes between buses or trains on a particular bus route or light-rail line.

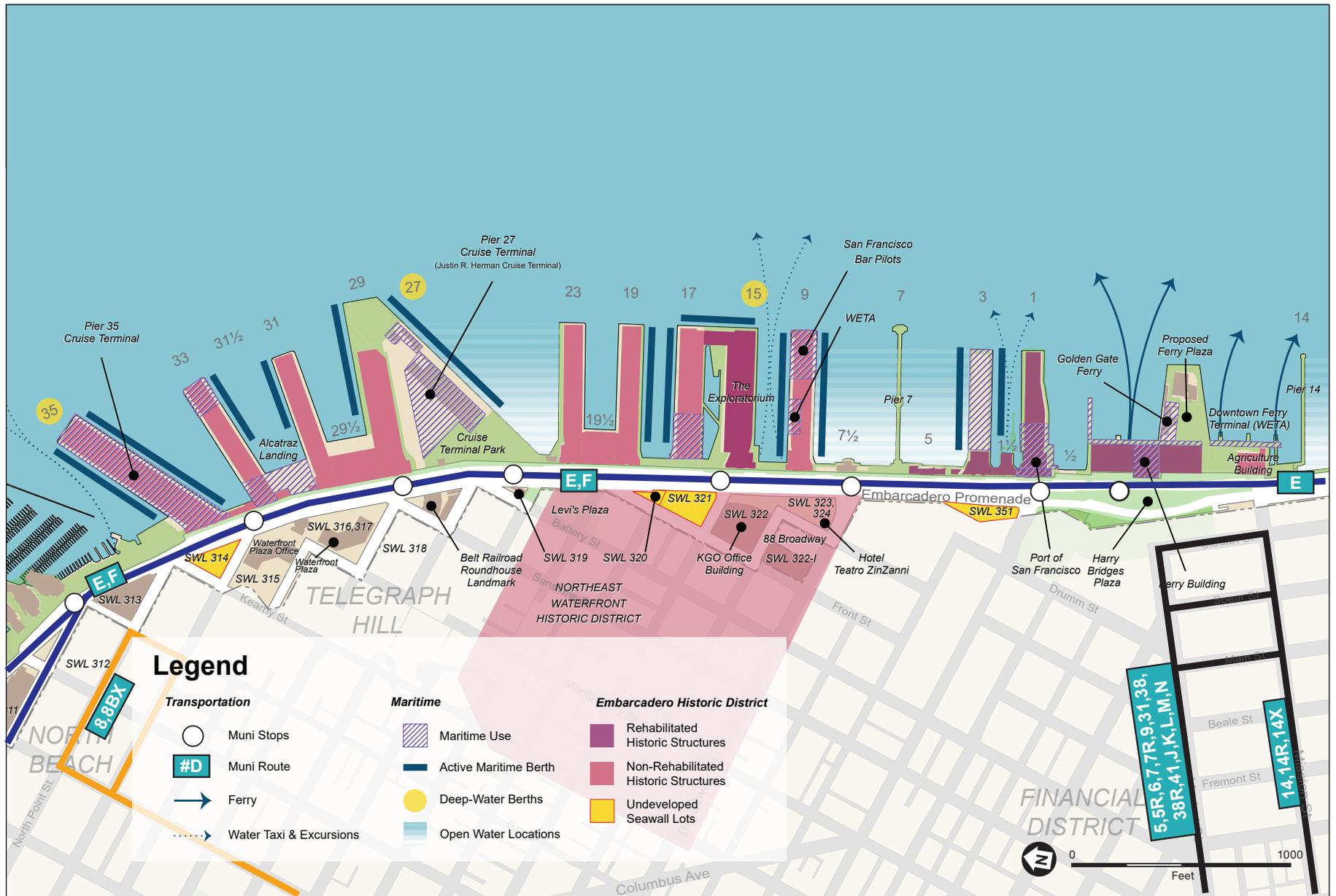
¹³³ The 5 Fulton, 5R Fulton Rapid, 6 Haight/Parnassus, 7 Haight/Noriega, 7R Haight Rapid, 9 San Bruno, 9R San Bruno Rapid, 31 Balboa, 38 Geary, 38R Geary Rapid, 41 Union bus routes and the J Church, L Taraval, K Ingleside, M Ocean Beach, N Judah light-rail lines run along Market Street. The 14 Mission, 14R Mission Rapid, and the 14X Mission Express run along Mission Street.



SOURCE: Port of San Francisco, Waterfront Plan, 2019

Waterfront Plan

FIGURE 4.C-6
EXISTING TRANSIT NETWORK
FISHERMAN'S WHARF SUBAREA



SOURCE: Port of San Francisco, Waterfront Plan, 2019

Waterfront Plan

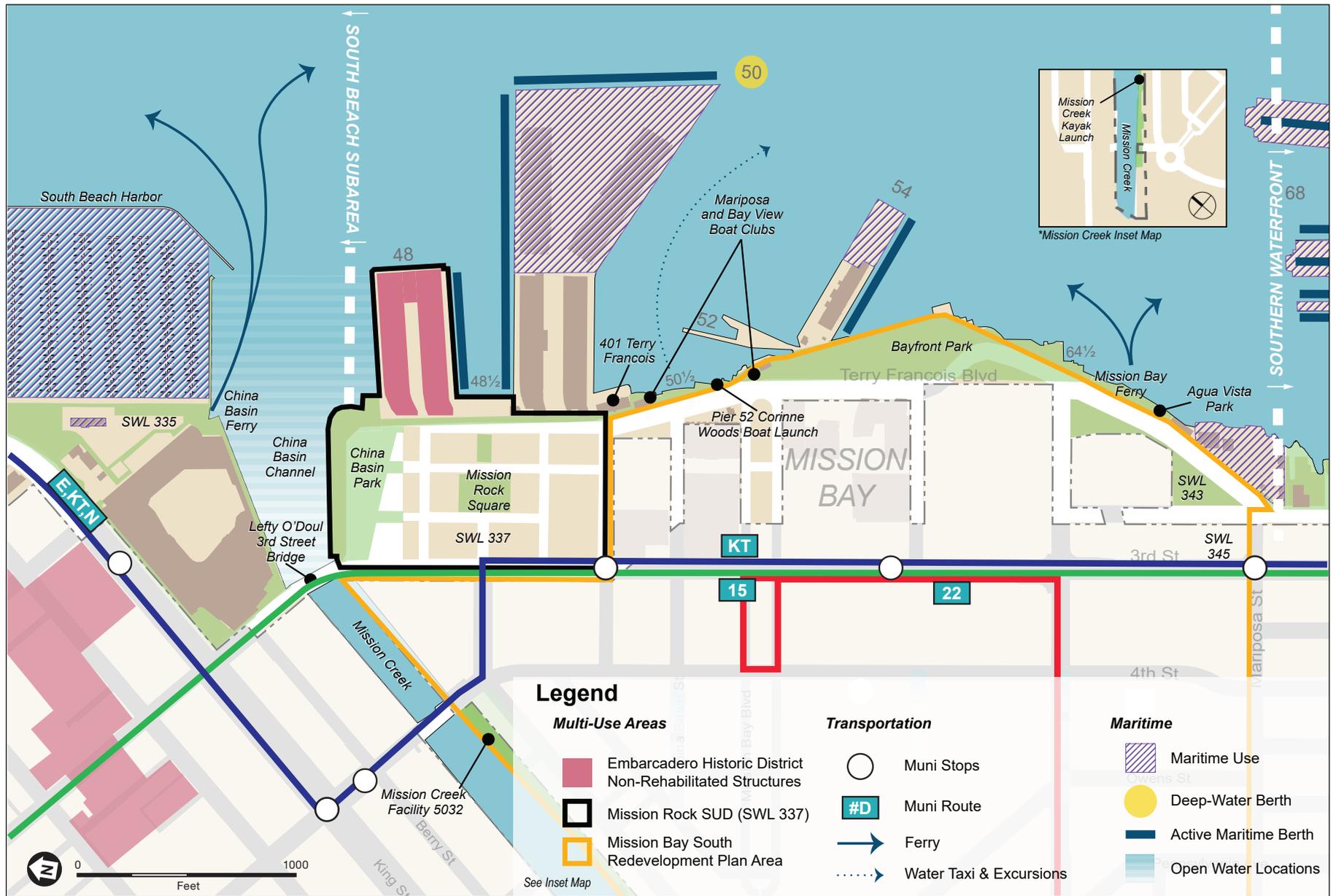
FIGURE 4.C-7
EXISTING TRANSIT NETWORK
NORTHEAST WATERFRONT SUBAREA



SOURCE: Port of San Francisco, Waterfront Plan, 2019

Waterfront Plan

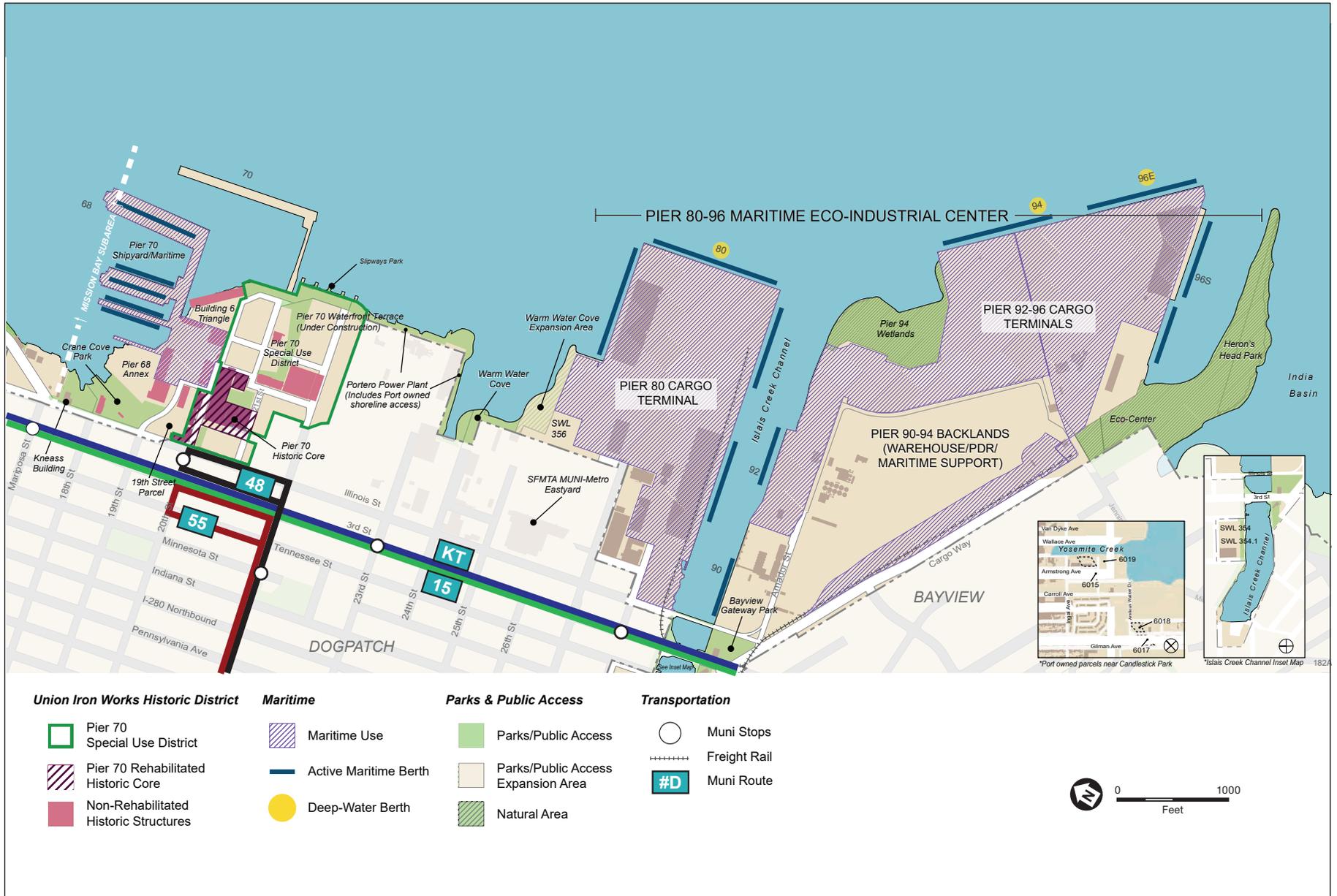
FIGURE 4.C-8
EXISTING TRANSIT NETWORK
SOUTH BEACH SUBAREA



SOURCE: Port of San Francisco, Waterfront Plan, 2019

Waterfront Plan

FIGURE 4.C-9
EXISTING TRANSIT NETWORK
MISSION BAY SUBAREA



SOURCE: Port of San Francisco, Waterfront Plan, 2019

Waterfront Plan

FIGURE 4.C-10
EXISTING TRANSIT NETWORK
SOUTHERN WATERFRONT SUBAREA

Table 4.C-4 Existing Muni Routes along the Waterfront

Bus Route/Light-Rail Line/Historic Streetcar	Frequencies ^a (in minutes) P.M. Peak Period ^b	General Hours of Weekday Operation (first and last trips)	Waterfront Subareas Served	Neighborhoods Served
E Embarcadero historic streetcar	15	11 a.m.–5 p.m.	Fisherman’s Wharf, Northeast Waterfront	Financial District, North Beach, Russian Hill, South of Market
F Market & Wharves historic streetcar	8	5 a.m.–1 a.m.	Fisherman’s Wharf, Northeast Waterfront, South Beach	Castro/Upper Market, Chinatown Downtown/Civic Center, Financial District, Mission, North Beach, Russian Hill. South of Market, Western Addition, Haight Ashbury
KT Third light rail	8	4:40 a.m.–12:20 a.m.	South Beach, Mission Bay, Southern Waterfront	Bayview, Castro/Upper Market, Chinatown Downtown/Civic Center, Financial District, Lakeshore, Mission, Noe Valley, Ocean View, Outer Mission, Parkside. Potrero Hill, South of Market, Twin Peaks, Bayview, Visitacion Valley. West of Twin Peaks, Western Addition
10 Townsend bus	15-weekday 20-weekend	6 a.m.–11 p.m.	Northeast Waterfront, South Beach	Bayview, Bernal Heights, Chinatown. Financial District, Marina, Mission, Nob Hill, North Beach, Pacific Heights, Potrero Hill. Russian Hill, South of Market
15 Bayview Hunters Point Express bus	10	5 a.m.–10:30 p.m.	Mission Bay, Southern Waterfront	Bayview, Financial District
19 Polk bus	15	5:15 a.m.–12:45 a.m.	Fisherman’s Wharf, Southern Waterfront	Bayview, Bernal Heights, Downtown/Civic Center, Marina, Mission, Nob Hill, North Beach, Pacific Heights, Potrero Hill, Russian Hill, Western Addition
22 Fillmore bus	7	24 hours	Mission Bay	Castro/Upper Market, Marina, Mission, Pacific Heights, Potrero Hill, South of Market, Western Addition
30 Stockton bus	12	5 a.m.–1 a.m.	Fisherman’s Wharf, South Beach	Chinatown. Downtown/Civic Center. Financial District, Marina, Nob Hill, North Beach. Presidio, Russian Hill, South of Market
47 Van Ness bus	11	6 a.m.–12:45 a.m.	Fisherman’s Wharf	Downtown/Civic Center, Financial District, Marina, Mission, Nob Hill, Noe Valley, North Beach, Pacific Heights, Russian Hill, South of Market, Western Addition
48 Quintara-24th Street bus	14	6:30 a.m.–11:30 p.m.	Southern Waterfront	Potrero Hill, Mission, Noe Valley, Castro/Upper Market, Twin Peaks, Diamond Heights, West of Twin Peaks, Lakeshore, Parkside, Inner Sunset Outer Sunset. Bernal Heights

Bus Route/Light-Rail Line/Historic Streetcar	Frequencies ^a (in minutes) P.M. Peak Period ^b	General Hours of Weekday Operation (first and last trips)	Waterfront Subareas Served	Neighborhoods Served
55 Dogpatch bus	15	5 a.m.–12 a.m.	Southern Waterfront	Mission, Potrero Hill, South of Market

SOURCES: SFMTA, *Muni Routes & Stops*, 2021, <https://www.sfmta.com/getting-around/muni/routes-stops>; LCW Consulting and Advant Consulting, 2021.

NOTES:

^a Frequencies represent wait times between transit vehicles.

^b The p.m. peak period is between 3 p.m. and 7 p.m.

REGIONAL TRANSIT SERVICE

EAST BAY

Transit service to and from the East Bay is provided by BART, AC Transit, and the Water Emergency Transportation Authority (WETA). BART operates a regional rail transit service between the East Bay (from Antioch, Richmond, Dublin/Pleasanton, and Warm Springs) and San Francisco. It also operates between San Mateo County (e.g., San Bruno, Millbrae) and San Francisco, with connections to San Francisco International Airport. The Embarcadero BART station located on Market Street is the closest BART station to the Fisherman’s Wharf, Northeast Waterfront, and South Beach subareas, the 16th Street BART station at Mission Street is the closest BART station to the Mission Bay subarea, while the 24th Street BART station at Mission Street is the closest station to the Southern Waterfront subarea. AC Transit is the primary bus operator within the East Bay, including Alameda County and the western portion of Contra Costa County. AC Transit operates 27 routes between the East Bay and San Francisco, all of which terminate at the Salesforce Transit Center. WETA ferries provide service between San Francisco and Alameda counties and between San Francisco and Oakland from the Ferry Building.

SOUTH BAY

Transit service to and from the South Bay is provided by BART, SamTrans, and Caltrain. SamTrans provides bus service between San Mateo County and San Francisco. Ten of its bus lines serve San Francisco; three routes serve the downtown area. In general, SamTrans service to downtown San Francisco operates along Bayshore Boulevard, Potrero Avenue, and Mission Street to the Salesforce Transit Center. SamTrans cannot pick up northbound passengers at San Francisco stops. Similarly, southbound passengers boarding in San Francisco (and destined for San Mateo) may not disembark in San Francisco. SamTrans routes serving downtown San Francisco stop at northbound and southbound bus stops on Mission Street. SamTrans Route 292 runs on northbound The Embarcadero between Mission and Washington streets and has p.m. peak period frequencies of 20 to 30 minutes between buses. SamTrans Route 292 travels eastbound on Mission Street to The Embarcadero, stops on northbound The Embarcadero south of the Ferry Building, and continues north to Washington Street, where the route loops around via Washington and Drumm streets to reconnect with Mission Street southbound. Caltrain provides heavy-rail commuter passenger service between Santa Clara County and San Francisco and currently operates 35 trains each way on weekdays and about 16 on weekends, with a combination of express and local service. The closest Caltrain stations to the waterfront subareas are the 22nd Street station at 22nd Street and Pennsylvania Avenue, and the terminus at Fourth and King streets; twenty weekday trains each way (about 60 percent of the total) stop at the 22nd Street station.

NORTH BAY

Transit service to and from the North Bay is provided by Golden Gate Transit buses and ferries as well as WETA ferries. Between the North Bay (Marin and Sonoma counties) and San Francisco, Golden Gate Transit operates 18 commuter bus routes, most of which serve the Van Ness Avenue corridor or the Financial District. Golden Gate Transit also operates ferry service between the North Bay and San Francisco. During the a.m. and p.m. peak periods, ferries operate between Larkspur and San Francisco and between Sausalito and San Francisco. WETA ferries provide service between Vallejo and San Francisco.

EMERGENCY ACCESS CONDITIONS

The existing roadway network within the transportation study area enables emergency vehicle access to all buildings within the transportation study area. Emergency vehicles typically use multi-lane arterial roadways (e.g., The Embarcadero, Third Street) when heading to and from an emergency and/or emergency facility. Arterial roadways allow emergency vehicles to travel at higher speeds and provide enough clearance space to permit other traffic to maneuver out of the path of the emergency vehicle and yield the right-of-way.¹³⁴

A number of streets along the waterfront are included in the San Francisco Public Works' (public works) Emergency Priority Route Map, which designates streets to assist public works in conducting damage assessment and maintaining critical facilities and services following a disaster, such as a major earthquake.¹³⁵ Within the waterfront area, public works identifies The Embarcadero and Third Street as north-south primary emergency priority routes, while North Point Street, Bay Street, Broadway, Market Street, Mission Street, Howard Street, Folsom Street, Harrison Street, Bryant Street, Brannan Street, King Street, 16th Street, Cesar Chavez Street, and Evans Avenue are identified as east-west Primary Emergency Priority routes. In addition, public works identifies Washington, Townsend, and 20th streets as access emergency priority routes, while Illinois Street is identified as a parallel emergency priority route. Occasionally, emergency vehicles utilizing lights and sirens have been observed traveling along the transit-only center median on The Embarcadero and Third Street, when responding to an emergency.

Several San Francisco Fire Department (fire department) stations serve the waterfront. These include Station 28 at 1814 Stockton Street, Station 13 at 530 Sansome Street at Washington Street, and Station 35 at Pier 22½ at The Embarcadero and Harrison Street nearby the Northern Waterfront, and Station 8 at 36 Bluxome Street at Fourth Street, Station 4 at Mission Rock Street at Third Street, Station 27 at 798 Wisconsin Street at 22nd Street, and Station 25 at 3305 Third Street at Cargo Way serving the Southern Waterfront. Station 35 at Pier 22½ has a new fireboat station behind the existing fireboat house and provides both landside and water side service.

The waterfront is within three San Francisco Police Department (police department) districts, including the Central District (station located at 366 Vallejo Street), the Southern District (station located at 1251 Third Street), and the Bayview District located at 201 Williams Avenue. The police department's headquarters is also located at the 1251 Third Street building. The UCSF Police Department headquarters is located at 654 Minnesota Street, nearby the Southern Waterfront subarea.

¹³⁴ Per the California Vehicle Code section 21806, all vehicles must yield the right-of-way to emergency vehicles and remain stopped until the emergency vehicle has passed.

¹³⁵ San Francisco Public Works, *Emergency Priority Routes Project*, 2019, <https://www.onesanfrancisco.org/sites/default/files/2019-06/DPW%20Priority%20Route%20Program.pdf>, accessed July 19, 2021.

During field surveys of the transportation study area in May 2021, observations did not identify any emergency vehicles or conditions that would impede emergency service providers (e.g., physical barriers that could restrict emergency vehicle access, inadequate turning radii at intersections).

VEHICLE MILES TRAVELED

VMT per person (or per capita) is a measurement of the amount and distance that a resident, employee, or visitor drives, accounting for the number of passengers within a vehicle. In general, higher VMT areas are associated with more air pollution, including greenhouse gas (GHG) emissions, and energy usage than lower VMT areas. Many interdependent factors affect the amount and distance a person might drive. In particular, the built environment affects how many places a person can reach within a given distance, time, and cost, using different ways of travel (e.g., private vehicle, public transit, bicycling, walking, etc.). Typically, low-density development located at great distances from other land uses and in areas with few options for ways of travel provides less access than a location with high density, a mix of land uses, and numerous ways of travel. Therefore, low-density development typically generates more VMT compared to a similarly sized development located in an urban area.

Given these travel behavior factors, on average, persons living or working in San Francisco result in lower amounts of VMT per person than persons living or working elsewhere in the nine-county San Francisco Bay Area region. In addition, on average, persons living or working in some areas of San Francisco result in lower amounts of VMT per person than persons living or working elsewhere in San Francisco. The city displays different amounts of VMT per capita geographically through transportation analysis zones.¹³⁶

The San Francisco County Transportation Authority's San Francisco Chained Activity Modeling Process (SF-CHAMP) travel demand model is used to estimate existing and future year average daily VMT per capita for residential, office, and retail land use types for the transportation analysis zones in the city.

The model can be used to estimate daily typical-weekday VMT for residential, office, and retail land use types. For residential and office uses, the transportation authority uses tour-based analysis, which examines the entire chain of trips over the course of a day, not just trips to and from a site. A tour-based analysis is appropriate in these cases because home and work are "anchor" locations that condition how people structure their travel, like where they might stop for coffee, or whether they choose to leave home by transit or in a car. For retail uses, the transportation authority uses trip-based analysis. A trip-based analysis counts VMT from individual trips to and from a site (as opposed to the entire chain of trips). A trip-based approach is appropriate for retail sites because retail trips are more easily substituted for another location or time within a person's schedule than home- and work-related trips. In other words, retail sites are more likely to be chosen for their proximity and convenience to work and home.^{137,138}

¹³⁶ Planners use these zones as part of transportation planning models for transportation analyses and other planning purposes. The zones vary in size from single city blocks in the downtown core and multiple blocks in outer neighborhoods to even larger zones in historically industrial areas such as the Hunters Point Shipyard area.

¹³⁷ To state another way: a tour-based assessment of VMT at a retail site would consider the VMT for all trips in the tour, for any tour with a stop at the retail site. If a single tour stops at two retail locations, for example, a coffee shop on the way to work and a restaurant on the way back home, then both retail locations would be allotted the total tour VMT. A trip-based approach allows us to apportion all retail-related VMT to retail sites without double-counting.

¹³⁸ San Francisco Planning Department, *Executive Summary: Resolution Modifying Transportation Impact Analysis, Appendix F, Attachment A*, March 3, 2016.

Table 4.C-5 provides a summary of the existing average daily VMT per capita for the five subareas in the waterfront, as estimated in the SF-CHAMP model; separate values are reported for residential, work and retail travel. In addition, Table 4.C-5 presents the Bay Area Regional average for each land use/trip purpose. Appendix E2 includes a detailed table with the existing daily VMT per capita results for each of the TAZs located within the waterfront.

Table 4.C-5 Existing Average Daily VMT per capita by Land Use/Trip Purpose by Waterfront Plan Subarea

Bay Area/Waterfront Subarea	Land Use/Trip Purpose		
	Residential	Office (work) ^a	Retail
Bay Area Region	18.6	25.7	14.9
Fisherman's Wharf	5.7	18.1	2.3
Northeast Waterfront	6.2	15.0	4.6
South Beach	7.5	13.0	2.3
Mission Bay	2.6	19.5	6.6
Southern Waterfront	8.2	22.8	8.2

SOURCE: LCW Consulting and Advant Consulting, 2021 (see Appendix E2).

NOTE:

^a Office is also used in the VMT analysis as a proxy for the Production, Distribution, and Repair (PDR) and other Port-specific and maritime uses within the Plan area.

As shown in the table, the average daily VMT per capita is generally higher in those areas where the availability public transportation is more limited, such as in the Southern Waterfront subarea. The relatively low average daily VMT per capita values shown in the table for retail trips in the Fisherman’s Wharf and South Beach subareas (2.3 miles) likely reflect that retail is not a primary purpose for travel to those locations, rather it is linked to a different principal trip purpose such as recreational or work travel.

COMMERCIAL VEHICLE AND PASSENGER LOADING CONDITIONS

Freight delivery and service vehicle demand for existing uses in the Plan area is served within off-street facilities within pier structures/buildings or adjacent to the pier buildings in areas designated for commercial loading, as well as at on-street commercial loading spaces (i.e., yellow curb). Major locations with frequent off-street commercial vehicle traffic include Pier 45 in the Fisherman’s Wharf subarea, Pier 35, Pier 33, Pier 27 (James R. Herman Cruise Terminal), Pier 9, and Pier 3 in the Northeast Waterfront subarea, the Ferry Building, Pier 40 in the South Beach subarea, Pier 50 in the Mission Bay subarea, and Piers 80, 90, 94, and 96 in the Southeast Waterfront subarea. The Port provides about 60 off-street parking stalls for its commercial tenants in the Fisherman's Wharf and Northeast Waterfront subarea, plus 230 large truck stalls in the Southern Waterfront subarea at the cargo terminals within Piers 80, 90, 94, and 96.

On-street commercial loading spaces are provided to allow commercial vehicles (typically trucks and service vehicles) to park along the curb to unload or load goods. These spaces are frequently used by building service vehicles, contractors, and delivery vehicles for buildings with no or limited supply of off-street parking. Commercial loading spaces are generally regulated by meters with 30-minute to 1-hour time limits in effect Monday through Friday (or Saturday) with various start and end times. In general, on-street commercial

loading spaces are typically well utilized throughout the day, with periods of higher usage during the early mornings (primarily deliveries to restaurants and stores) and during the midday period (primarily package and mail deliveries). There are several on-street commercial loading zones located on either side of The Embarcadero (e.g., near Pier 19, at Pier 3, at the Ferry Building, and between Mission and Howard streets). In the Mission Bay subarea an on-street commercial loading zone is located on Terry A. Francois Boulevard at the Mission Rock Resort between 16th and Mariposa streets. There are no on-street commercial loading zones on Illinois Street, on Amador Street or on Cargo Way in the Southern Waterfront subarea.

Passenger loading/unloading zones (i.e., white zones) provide a place to load and unload passengers for adjacent businesses and residences and are intended for quick passenger drop-off and pick-up. Typically, passenger loading zones require a permit to be issued by SFMTA and are renewed annually; however, on streets under Port jurisdiction, the Port and the SFMTA coordinate on existing and new zones, and all loading zones are managed via an interagency memorandum of understanding. Passenger loading/unloading is also permitted in commercial loading spaces as long as it is active loading/unloading and does not exceed two minutes. Along the water side of The Embarcadero, passenger loading/unloading zones are provided at curbside locations between Powell and Taylor streets in the Fisherman's Wharf subarea and at the curb adjacent to the northbound bicycle lane at the Exploratorium, at Pier 3, and at the Ferry Building within the Northeast Waterfront subarea. In the Northeast Waterfront subarea, passenger loading/unloading is also accommodated off-street within the ground transportation area at the James R. Herman Cruise Terminal at Pier 27. The passenger loading/unloading zone for the Rincon Park restaurants is located within the floating parking lane between the northbound travel lane and the curbside protected bicycle lane. There are limited passenger loading/unloading zones on the landside of The Embarcadero (e.g., at Delancey Street Restaurant south of Brannan Street). In the Mission Bay subarea, passenger loading/unloading zones are provided on Terry A. Francois Boulevard between Warriors Way and Mariposa Street, including adjacent to the Chase Center, and on Illinois Street south of 16th Street at UCSF's Center for Vision Neuroscience medical office building, and between 19th and 20th streets. There are no passenger loading/unloading zones on Illinois Street south of 20th Street, on Amador Street or Cargo Way in the Southern Waterfront subarea.

In addition, in the Fisherman's Wharf subarea, there is a designated tour bus-only zone located on the north side of Beach Street between Powell Street and The Embarcadero, where tour buses can drop-off, pick up or wait for passengers.

The greatest amount of commercial vehicle and passenger loading activity occurs on The Embarcadero adjacent to the Ferry Building, particularly on days when the Ferry Plaza Farmers Market is open. On occasion commercial loading activities impede on the existing bicycle lane on the east side of The Embarcadero. No other conflicts between loading conditions and people walking or transit were observed during field observations.

VEHICLE PARKING CONDITIONS

ON-STREET VEHICLE PARKING

Since 1969, under the Burton Act and the City Charter, the Port Commission has responsibility for governing on-street parking within the Port's 7.5-mile jurisdiction. As such, the Port governs the type of parking, hours of operation, pricing, and installation of temporary No Stopping signs within the Port's jurisdiction area. Streets within the Port's jurisdiction with more than two blocks of on-street parking include Jefferson Street, The Embarcadero, Terry A. Francois Boulevard, Illinois Street (between 16th and 20th streets, and between

Humboldt and 25th streets), and Cargo Way; most of the on-street parking spaces at these locations, except for Cargo Way, are metered. Overnight parking is not permitted along The Embarcadero between 12:01 a.m. and 6 a.m., as well as on Terry A. Francois Boulevard between midnight and 6 a.m.; no parking is allowed at any time on either side of Mission Rock Street east of Third Street.

There are approximately 1,110 total metered parking spaces within the Port's jurisdiction area, with approximately 80 spaces located in the Fisherman's Wharf subarea, 345 spaces in the Northeast Waterfront subarea, 110 spaces in the South Beach subarea, and 575 spaces in the Mission Bay and Southern Waterfront subareas. There is a designated tour bus-only metered parking zone located on the north side of Beach Street between Powell Street and The Embarcadero, which operates between the hours of 8 a.m. and 9 p.m., on any day, including Saturday and Sunday; tour buses are allowed to park for a maximum of two hours.

The SFMTA implements special pricing parking policies during events taking place at Oracle Park or the Chase Center where more than 10,000 attendees are expected to attend, including all Giants and Golden State Warriors home games, as well as concerts. Fare payments at parking meters located on blocks within walking distance of Oracle Park and Chase Center are extended until 10 p.m. Monday through Saturday, and implemented on Sundays from midday until 6 p.m. These policies apply to several streets under the Port jurisdiction, such as The Embarcadero between Bryant and Second streets, Terry A. Francois Boulevard between Third and Mariposa streets, and Illinois Street between 16th and 22nd streets.

OFF-STREET VEHICLE PARKING

As of 2017, there are approximately 5,540 total off-street parking spaces at 23 facilities under the Port's control.¹³⁹ These include 530 spaces at four facilities in the Fisherman's Wharf subarea, 1,010 spaces at seven facilities in the Northeast Waterfront subarea, 1,150 spaces at five facilities in the South Beach subarea, 2,575 spaces at five facilities in the Mission Bay subarea, and 275 spaces at two facilities in the Southern Waterfront subarea. The vast majority of these parking spaces are located in seawall lots or non-rehabilitated piers as a non-conforming temporary use, and would be eliminated as future development occurs on the waterfront; the Pier 39 garage in the Fisherman's Wharf area with approximately 180 spaces is the only dedicated garage structure.

Large surface parking lots include Seawall Lots 323 and 324 at The Embarcadero and Broadway (150 spaces), Piers 30–32 and Seawall Lot 330 at The Embarcadero and Bryant Street (about 1,000 total spaces), and Seawall Lot 337 at Mission Rock Street in the Mission Bay subarea (about 2,000 total spaces in 2017). Seawall Lots 323 and 324 are the site of the TZK Broadway and Teatro ZinZanni project, which has not yet been constructed. Seawall Lot 337 at Mission Rock Street currently has about 1,500 spaces due to current construction of the Mission Rock project. Future development projects will provide some off-street parking such as the Mission Rock project includes about 3,000 parking spaces within a dedicated parking structure.

In addition to the off-street parking spaces under Port's jurisdiction, several entities located near the waterfront area operate public garage structures and surface lots that partially serve shoppers and visitors coming to the waterfront; most of these facilities are in the Fisherman's Wharf subarea (1,600 spaces at seven facilities). Similarly, a small portion of the privately-operated public parking spaces located in the Northeast Waterfront subarea also serve waterfront visitors, including cruise ship passengers during their journey. A large majority of the facilities in Northeast Waterfront subarea are closed on weekends, since they mostly serve

¹³⁹ SFMTA, Transportation Demand Management Presentation to the Waterfront Plan Transportation Working Group, January 2017, pages 18-20.

commuters. Previous studies¹⁴⁰ have shown that off-street parking utilization on the waterfront is high in the Fisherman’s Wharf, Northeast Waterfront, and South Beach subareas, particularly on weekends and during the summer.

FREIGHT RAIL

An approximately 1-mile-long freight single track rail spur known as the Quint Street Lead runs at street level parallel to the Caltrain mainline alignment, on Rankin Street and then Quint Street until it crosses Third Street north of Arthur Avenue and continues onto Cargo Way on the east side of Third Street; a separate single-track line connects Cargo Way with the multi-purpose Cargo Terminal at Pier 80 via the Illinois Street Bridge.

The midblock single track at grade crossing of Third Street is controlled by standard railroad red flashing lights and bells, without gates. Then the track crosses diagonally the intersection of Illinois and Amador streets, which is controlled by standard traffic signals and no gates. The track continues on the north side of Cargo Way; there are two uncontrolled at-grade railroad crossings from Cargo Way onto Piers 92, 94, and 96. A separate single track lead connects Cargo Way with Pier 80, operating in the center of the Illinois Street Bridge, sharing the right-of-way with the adjacent traffic lanes; bicycles operate on physically separated (class IV) lanes on both sides of the bridge. At the north end of the bridge, the track turns east towards Pier 80, crossing the northbound bicycle lane at an uncontrolled at grade rail crossing.

The Quint Street Lead connects the Peninsula rail corridor with the cargo terminals and rail yards at Piers 80, 92, 94, and 96; it is the only rail line servicing the Port. The Quint Street Lead is jointly owned by Burlington Northern Santa Fe (BNSF) Railway and Union Pacific Railroad (UPRR) and is used intermittently on weekdays to transport contaminated soils and occasional general cargo.

4.C.3 Regulatory Framework

The following summarizes relevant state, regional, and local transportation regulations applicable to the project, along with relevant transportation plans and policies. There are no federal regulations that pertain to transportation impacts associated with the Waterfront Plan.

STATE REGULATIONS

CEQA SECTION 21099(B)(1) (SENATE BILL 743)

CEQA section 21099(b)(1) required that the State Office of Planning and Research develop revisions to the CEQA Guidelines establishing criteria for determining the significance of transportation impacts of projects that “promote the reduction of GHG emissions, the development of multimodal transportation networks, and a diversity of land uses.” CEQA section 21099(b)(2) states that upon certification of the revised guidelines for determining transportation impacts pursuant to section 21099(b)(1), automobile delay, as described solely by

¹⁴⁰ Previous studies that included vehicle parking supply and occupancy conditions in these areas include San Francisco Planning Department, *Fisherman’s Wharf Public Realm Plan Final Amended Mitigated Negative Declaration*, Case No. 2010.0256E, August 30, 2011; National Park Service, *Transportation and Circulation Study for the Alcatraz Ferry Embarkation EIS, Golden Gate National Recreational Area*, December 2013; San Francisco Planning Department, *The 34th America’s Cup and James R. Herman Cruise Terminal and Northeast Wharf Plaza Final Environmental Impact Report*, Case No. 2010.0493E, December 1, 2011; Advant Consulting, *Ferry Building Area Parking Evaluation Study for the Port of San Francisco*, February 1, 2008; San Francisco Planning Department, *San Francisco Cruise Terminal Mixed-Use Project & Brannan Street Wharf Project Final Supplemental Environmental Impact Report*, Case No. 2000.1229E, April 16, 2003.

level of service or similar measures of vehicular capacity or traffic congestion, shall not be considered a significant impact on the environment under CEQA.

In January 2016, the Office of Planning and Research published for public review and comment a Revised Proposal on Updates to the CEQA Guidelines on Evaluating Transportation Impacts in CEQA recommending that transportation impacts for projects be measured using a VMT metric.^{141,142} On March 3, 2016, based on compelling evidence in that document and on the department's independent review of the literature on level of service and VMT, the San Francisco Planning Commission adopted the Office of Planning and Research's recommendation to use the VMT metric instead of automobile delay to evaluate the transportation impacts of projects (resolution 19579). After a five-year public process, the California Natural Resources Agency amended the CEQA Guidelines in 2018 and added section 15064.3, "Determining the Significance of Transportation Impacts," and amended Appendix G: Environmental Checklist Form to remove automobile delay as a measure to determine a project's significance on the environment, and to instead require (in most circumstances) analysis of a project's impact on VMT.

REGIONAL REGULATIONS

WATER EMERGENCY TRANSPORTATION AUTHORITY'S WATER TRANSPORTATION SYSTEM MANAGEMENT PLAN

WETA is a regional agency authorized by the state to operate a comprehensive San Francisco Bay Area public water transit system. In 2009, the WETA adopted the Emergency Water Transportation System Management Plan, which complements and reinforces other transportation emergency plans that will enable the Bay Area to restore mobility after a regional disaster.

SAN FRANCISCO BAY TRAIL PLAN

The Association of Bay Area Governments administers the San Francisco Bay Trail Plan. The Bay Trail is a multi-purpose recreational trail that, when complete, would encircle San Francisco Bay and San Pablo Bay with a continuous 500-mile network of bicycling and hiking trails. To date, more than 350 miles of the alignment have been completed. The 2005 Gap Analysis Study, prepared by the association for the entire Bay Trail area, attempted to identify the remaining gaps in the Bay Trail system; classify the gaps by phase, county, and benefit ranking; develop cost estimates for individual gap completion; identify strategies and actions to overcome gaps; and present an overall cost and timeframe for completion of the Bay Trail system.

SAN FRANCISCO BAY PLAN

The San Francisco Bay Plan (Bay Plan) was prepared by BCDC from 1965 through 1969 and amended in 2019 in accordance with the McAteer-Petris Act. The Bay Plan guides the protection and use of the Bay and its shoreline, and includes transportation policies that specify provisions for transportation network changes along the shoreline and across the bay, encourages inclusion of facilities for people walking and bicycling in new projects, and provides direction on location of new ferry terminals.

¹⁴¹ California Office of Planning and Research, *Revised Proposal on Updates to the CEQA Guidelines on Evaluating Transportation Impacts in CEQA, Implementing Senate Bill 743* (Steinberg, 2013), January 20, 2016.

¹⁴² California Office of Planning and Research, *Technical Advisory on Evaluating Transportation Impacts in CEQA*. December 2018. Available at: https://opr.ca.gov/docs/20190122-743_Technical_Advisory.pdf.

PLAN BAY AREA

Plan Bay Area 2050 is a state-mandated, integrated long-range transportation and land use plan. As required by Senate Bill 375, all metropolitan regions in California must complete a Sustainable Communities Strategy as part of a Regional Transportation Plan. This strategy integrates transportation, land use and housing to meet GHG reduction targets set by the California Air Resources Board. The plan meets those requirements. In addition, the plan sets a roadmap for future transportation investments and identifies what it would take to accommodate expected growth. The plan neither funds specific transportation projects nor changes local land use policies.

In the Bay Area, the Metropolitan Transportation Commission and the Association of Bay Area Governments adopted the latest plan in October 2021. To meet the GHG reduction targets, the plan identifies priority development areas. The agencies estimate 72 percent of the household growth and 48 percent of the job growth in the Bay Area will occur in priority development areas between 2015 and 2050. The Plan area is located in the Port of San Francisco priority development area.

LOCAL REGULATIONS

SAN FRANCISCO REGULATIONS FOR WORKING IN SAN FRANCISCO STREETS (BLUE BOOK)

The San Francisco Regulations for Working in San Francisco Streets (also known as the “blue book”) contains regulations that are prepared and regularly updated by the SFMTA, under the authority derived from the San Francisco Transportation Code, to serve as a guide for contractors working in San Francisco streets. The manual establishes rules and guidance so that work can be done safely and with the least possible interference with people walking and bicycling, transit, and vehicular traffic. The manual also contains relevant general information, contact information, and procedures related to working in the public right-of-way when it is controlled by agencies other than the SFMTA.

In addition to the regulations presented in the manual, all traffic control, warning, and guidance devices must conform to the California Manual on Uniform Traffic Control Devices.¹⁴³ Furthermore, contractors are responsible for complying with all applicable city, state, and federal codes, rules, and regulations. The party responsible for setting up traffic controls during construction is responsible if such controls do not meet the guidance and requirements established by this manual and any applicable state requirements.

TRANSIT-FIRST POLICY

In 1973, the San Francisco Board of Supervisors declared that public transit be given priority over other vehicles on San Francisco streets. In 1998, the San Francisco voters amended the city charter (charter article 8A, section 8A.115) to include a transit-first policy. The general plan incorporates the policy and the policy requires all city boards, commissions, and departments to implement principles that, among others, encourage the use of public rights-of-way by people walking, bicycling, and riding public transit above the use of the personal automobile.

¹⁴³ Caltrans, *California Manual of Uniform Traffic Control Devices* Revision 6, 2014, <https://dot.ca.gov/programs/safety-programs/camutcd/camutcd-files>, accessed July 19, 2021.

VISION ZERO

In 2014, the San Francisco Board of Supervisors adopted a resolution to implement an action plan to reduce traffic deaths to zero by 2024 through engineering, education, and enforcement (resolution 91-14). Numerous San Francisco agencies responsible for the aforementioned aspects of the action plans adopted similar resolutions. In 2017, the board of supervisors amended the transportation and urban design elements of the general plan to implement Vision Zero (ordinance 175-17).

SAN FRANCISCO GENERAL PLAN

The transportation element of the general plan is composed of objectives and policies that relate to the eight aspects of the citywide transportation system: regional transportation, congestion management, vehicle circulation, transit, pedestrian, bicycles, parking, and goods management. The transportation element, which references the city's Transit-First Policy in its introduction, contains objectives and policies that are directly pertinent to consideration of the project, including objectives related to prioritizing sustainable modes of travel, integrating and connecting land use development and transportation investments, and designing streets for walking and bicycling.

The general plan also includes the Northeast Waterfront Area Plan and the Central Waterfront Area Plan which provide objectives and policies to guide land development, to retain and enhance maritime activities, to enhance urban space, improve public transit to serve existing and new development, encourage use of water transportation, support multimodal use of the waterfront streets, and improve the transportation network for all ways of travel.

BETTER STREETS PLAN, POLICY, AND REQUIREMENTS

In 2006, the San Francisco Board of Supervisors adopted the Better Streets Policy. Since then, the board has amended the policy several times, including in 2010 to reference the Better Streets Plan. The Better Streets Plan creates a unified set of standards, guidelines, and implementation strategies to govern how San Francisco designs, builds, and maintains its pedestrian environment. The San Francisco Planning Code (section 138.1) requires certain new development projects to make changes to the public right-of-way, such that it is consistent with the Better Streets Plan. For projects located within Port jurisdiction, the Port and the planning department coordinate on proposed project design elements that affect the public right-of-way, as needed.

TRANSPORTATION SUSTAINABILITY FEE

The planning code requires certain new development projects to pay an updated fee, based on the size of the development, to the City (section 411A). The fee offsets a portion of the development projects' impacts on the transportation system. The City may use the fee only toward specific programs consisting of transit capital maintenance, local and regional transit service expansion and reliability, complete streets, and program administration.

TRANSPORTATION DEMAND MANAGEMENT PROGRAM

The planning code requires certain new development projects to incorporate "design features, incentives, and tools" to reduce VMT (section 169). Development projects must choose measures from a menu of options to develop an overall transportation demand management (TDM) plan. Some options overlap with requirements elsewhere in the planning code (e.g., bicycle parking, car-share parking). Each development project's TDM

plan requires routine monitoring and reporting to the San Francisco Planning Department (department) to demonstrate compliance.

OFF-STREET LOADING

The planning code requires certain new development projects to include off-street freight loading spaces (section 152.1). The planning code requirements for spaces depends on the size of the development projects. The planning code requires certain dimensions of the spaces and allows for substituted service vehicle spaces (section 154(b)).

4.C.4 Impacts and Mitigation Measures

SIGNIFICANCE CRITERIA

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

- Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities;
- Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b);
- Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses; or
- Result in inadequate emergency access.

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

CONSTRUCTION

Project construction would have a significant effect on the environment if it would require a substantially extended duration or intense activity; and the effects would create potentially hazardous conditions for people walking, bicycling, or driving, or public transit operations; or interfere with accessibility for people walking or bicycling or substantially delay public transit.

OPERATION

The operational impact analysis addresses the following six significance criteria. A project would have a significant effect if it would:

- Create potentially hazardous conditions for people walking, bicycling, or driving or for public transit operations;
- Interfere with accessibility of people walking or bicycling to and from the project area and adjoining areas, or result in inadequate emergency access;
- Substantially delay public transit;

- Cause substantial additional VMT or substantially induce additional automobile travel by increasing physical roadway capacity in congested areas (i.e., by adding new mixed-traffic travel lanes) or by adding new roadways to the network;
- Result in a loading deficit and the secondary effects would create potentially hazardous conditions for people walking, bicycling, or driving or substantially delay public transit; or
- Result in a parking deficit and the secondary effects would create potentially hazardous conditions for people walking, bicycling, or driving, or interfere with accessibility for people walking or bicycling or inadequate access for emergency vehicles, or substantially delay public transit.

APPROACH TO ANALYSIS

The following summarizes the methodology and results for the project's travel demand under project and cumulative conditions. In addition, the following summarizes the methodology for analyzing, and any quantitative thresholds of significance for determining, transportation impacts under project conditions. The travel demand and impact analysis methodologies use the data and guidance within the planning department's Transportation Impact Analysis Guidelines (2019). If the methodology differs from that in the guidelines, the differences are summarized.

The Draft EIR assumes that the Waterfront Plan's updated and amended policies and land use regulations presented in Chapter 2, Project Description, would result in subsequent projects that, if implemented, could result in physical changes in the environment. Therefore, future changes in land uses would not be caused by Plan policies, but rather by subsequent projects that could occur on individual sites within the Plan area as a result of these policy updates and amendments. Thus, the transportation analysis of the Waterfront Plan is for the subsequent leasing, development, and improvement projects (subsequent projects) that could occur under the Waterfront Plan (see Table 4-2, p. 4-8, and Figure 4-1, p. 4-7, for a description and location of the subsequent project sites where new construction could occur).

The new transportation policies focus on the Port's location and relationship with the city and regional transportation network and transportation agencies, description of the land and water transportation modes and facilities supported on Port property, and support of city policies including San Francisco's Transit-First Policy. These policies involve the Port working with the SFMTA, public works, public and private transportation providers, and other City and regional agencies to upgrade and expand the transportation network, encourage travel by non-auto ways of travel. No specific transportation network changes as a result of these policies are analyzed in this Draft EIR. The new transportation policies are listed in Chapter 2, Project Description, and are referenced in the transportation impact discussion, as appropriate.¹⁴⁴

ANALYSIS PERIODS AND SCENARIOS

In San Francisco, the weekday p.m. peak period is typically the period when the most overall travel happens and is the standard period of analysis. The p.m. peak hour is defined as the 60-minute period with the highest traffic volume between 4 p.m. and 6 p.m. Because the Waterfront Plan land uses would generate a greater travel demand during the p.m. peak hour than during the a.m. peak hour, the impact analysis is based on the

¹⁴⁴ See Section 1.C of Chapter 1, Introduction, for a discussion of the environmental review process for subsequent projects within the Waterfront Plan.

p.m. peak hour.¹⁴⁵ Thus, the impact analysis of p.m. peak hour conditions represents a conservative assessment of potential project impacts on the transportation network.

The analysis of the Waterfront Plan was conducted for 2020 existing plus project and 2050 cumulative conditions. The 2020 existing-plus-project assesses the near-term impacts of implementation of the Waterfront Plan, while the 2050 cumulative conditions assess the long-term impacts of the Waterfront Plan in combination with other cumulative projects. The year 2050 was selected as the future analysis year because 2050 is the latest year for which future travel demand forecasts are available from the San Francisco County Transportation Authority's travel demand forecasting model.

PROJECT TRAVEL DEMAND METHODOLOGY AND RESULTS

Travel demand refers to new person trips¹⁴⁶ by additional residents, employees, and visitors to and from the area using the various ways of travel (e.g., by transit, walking, bicycling, automobile) that would be generated by the expected leasing and new development planned to occur under the Waterfront Plan. The memorandum containing the detailed methodology and information used to calculate the project travel demand is included in Appendix E2. This section summarizes the information and analysis contained in the travel demand memorandum and presents estimates of project-generated person trips by various ways of travel as well as the number of project-generated vehicle trips.

WATERFRONT PLAN EMPLOYMENT AND HOUSING UNIT GROWTH

Travel demand associated with the Waterfront Plan's projected growth in land uses within parcels along the waterfront under the Port's jurisdiction was estimated based on outputs from the Transportation Authority's SF-CHAMP travel demand model. The SF-CHAMP model is an activity-based type travel demand forecasting model that is updated regularly to represent existing and future trip generation and travel characteristics in San Francisco. The SF-CHAMP model divides San Francisco into 981 transportation analysis zones (TAZs), of which 28 TAZs comprise the waterfront area that includes the five Waterfront Plan subareas. For each TAZ, the SF-CHAMP model estimates the travel demand based on TAZ population (i.e., residents within the housing units) and employment assumptions. For the analysis of existing and future 2050 cumulative conditions in this study, the planning department's citywide, community equity, and environmental planning divisions in partnership with the SFMTA and the Transportation Authority developed housing and job estimates at the TAZ level for San Francisco and the other eight Bay Area counties.

Table 4.C-6 presents growth in the number of housing units and employment projected under the Waterfront Plan by the five Waterfront Plan subareas. The subsequent leasing, development, and improvement projects (subsequent projects) that could occur under the Waterfront Plan would add on those parcels under the Port's jurisdiction approximately 14,800 new jobs and 260 new housing units. Of the 14,800 new jobs, approximately 11,570 (78 percent) would be office-type uses, while 1,750 (12 percent) would be under the cultural, institutional and educational-type uses. The remaining 10 percent of the employment growth would be related to retail, Production, Distribution, and Repair (PDR) and visitor uses.

¹⁴⁵ Travel demand methodology and results for a.m. and p.m. peak hour conditions are presented in the *Waterfront Plan EIR – Estimation of Proposed Project Travel Demand, Final Technical Memorandum, January 28, 2022* (see Appendix E2).

¹⁴⁶ A person trip is a trip made by one person by any means of transportation (vehicle, transit, walking, etc.).

Table 4.C-6 Growth in Housing Units and Employment by Waterfront Plan Subarea

Waterfront Plan Subarea	Housing Units		Jobs	
Fisherman’s Wharf	0	0%	350	3%
Northeast Waterfront	0	0%	4,700	32%
South Beach	260	100%	8,700	59%
Mission Bay	0	0%	50	<1%
Southern Waterfront	0	0%	950	6%
Total Waterfront Plan Growth	260	100%	14,800	100%

SOURCE: LCW Consulting and Advant Consulting, 2021 (see Appendix E2).

NOTES:

Increases in housing units and employment within the 28 TAZs that comprise the waterfront area. For employment by TAZ and type of employment, see the memorandum containing the detailed methodology and information used to calculate the project travel demand in Appendix E2.

Column totals may not add up due to rounding.

As shown on Table 4.C-6, projected increases in employment would be distributed throughout the subareas but would primarily be in the Northeast Waterfront and South Beach subareas (about 85 percent of the total job increase). As described in Chapter 4, Environmental Setting, Impacts, and Mitigation Measures, subsequent projects in the Northeast Waterfront are anticipated to be located at Seawall Lots 314 and 321. Increases in employment within the existing Piers 29–35 are also anticipated. Within the South Beach subarea, most of the projected employment increases (about 90 percent of the 8,701 increase in jobs in this subarea) would be located within Piers 30–32. Limited employment growth is projected for the Fisherman’s Wharf and Mission Bay subareas, with 372 and 45 new jobs, respectively. Employment growth in the Southern Waterfront subarea would be located primarily within the Piers 90–94 Backlands site, with 689 of the additional 948 jobs in this subarea. Development of 255 housing units would all occur within the South Beach subarea, specifically at Seawall Lot 330 across from Piers 30–32.

Table 4.C-7 summarizes the increase in the number of person trips and vehicle trips during the p.m. peak hour generated by the Waterfront Plan for both existing and cumulative conditions. As shown on Table 4.C-7, during the weekday p.m. peak hour the Waterfront Plan would generate about 3,830 new person trips, a 37 percent increase from existing conditions. Under existing plus Waterfront Plan conditions, the greatest percentage increase in trips would be by transit, walk and bicycle ways of travel. Vehicle trips would increase by 2,430 vehicle trips during the p.m. peak hour, a 25 percent increase from existing conditions.

Table 4.C-7 Summary of Daily and P.M. Peak Hour Travel by Ways People Travel for the Plan Area

Analysis Period/Analysis Scenario	Person Trips By Way of Travel ^{a,b,c}						Vehicle Trips ^d
	Auto	Transit	Taxi/TNC	Walk	Bicycle	Total	
EXISTING WEEKDAY DAILY							
Existing	72,100	26,100	10,400	19,600	3,600	131,800	142,100
Existing plus Waterfront Plan	96,300	36,700	14,400	27,500	5,000	180,000	179,900
Change from Existing	24,200	10,600	4,000	7,900	1,400	48,100	37,800
Percent Change from Existing	34%	41%	39%	40%	39%	37%	27%
EXISTING WEEKDAY P.M. PEAK HOUR							
Existing	5,600	2,400	860	1,200	280	10,400	9,700
Existing plus Waterfront Plan	7,600	3,300	1,200	1,700	420	14,200	12,100
Change from Existing	1,900	960	340	440	140	3,800	2,400
Percent Change from Existing	34%	41%	40%	37%	53%	37%	25%
2050 CUMULATIVE CONDITIONS							
Daily	151,100	68,100	31,200	49,900	9,200	309,500	246,300
P.M. Peak Hour	11,200	5,900	2,500	3,200	760	23,600	16,300

SOURCE: LCW Consulting and Advant Consulting, 2021 (see Appendix E2).

NOTE:

- ^a Person and vehicle trips within the 28 TAZs that comprise the waterfront area (see Appendix E2, Figures 2 through 6).
- ^b Row totals may not sum due to rounding.
- ^c Water taxi services are not included in the analysis as they represent a very small component of the overall public transit ridership.
- ^d The estimation of the number of vehicle trips takes into account other ways of travel in addition to those listed under the person trips category (auto and Taxi/TNC). They also include vehicle trips made by visitors, commercial vehicles, buses, and taxis/ride hail vehicles without occupants.

Table 4.C-8 presents the increase in weekday p.m. peak hour person and vehicle trips generated by the Waterfront Plan (as presented above in Table 4.C-7 for existing plus Waterfront Plan conditions) by Waterfront Plan subarea. As shown on Table 4.C-8 the greatest increase in trips by all travel modes would be within the South Beach and the Northeast Waterfront subareas, representing 62 and 31 percent, respectively, of the total person trips. Similarly, the combined new vehicle trips generated within the South Beach and the Northeast Waterfront subareas represent 92 percent of the total new vehicle trips generated by the Waterfront Plan.

As shown on Table 4.C-8, most of the new person trips generated by the Waterfront Plan would be by driving and taxi/TNC (59 percent) and transit (25 percent). Implementation of the Waterfront Plan would result in very minimal changes in ways people travel from existing conditions. During the weekday p.m. peak hour, the proportion of trips by auto would decrease by 1 percentage point while trips by taxi/TNC would decrease by 1 percentage point, and trips by transit, walking and bicycling would remain the same as under existing conditions. The majority of new trips generated by the Waterfront Plan would occur within San Francisco. About 70 percent of the new p.m. peak hour person trips would be to and from areas within the city, with the greatest proportion occurring to and from the downtown and South of Market neighborhoods. About 18 percent of all new weekday p.m. peak hour trips would be to and from the East Bay, 9 percent to and from the South Bay, and 3 percent to and from the North Bay.

Table 4.C-8 Summary of Weekday P.M. Peak Hour Travel Demand Growth by Ways People Travel by Waterfront Plan Subarea

Waterfront Plan Subarea	Person Trips By Way of Travel ^a						Vehicle Trips ^a
	Auto	Transit	Taxi/TNC	Walk	Bicycle	Total	
Fisherman's Wharf	20	40	0	0	20	70	30
Northeast Waterfront	560	320	120	140	50	1,200	760
South Beach	1,200	580	220	280	70	2,400	1,500
Mission Bay	10	0	-10	-10	0	0	0
Southern Waterfront	80	30	10	30	20	160	160
Total Waterfront Plan Growth	1,900	1,000	340	440	140	3,800	2,400
New Person Trips by Way of Travel	50%	25%	9%	12%	4%	100%	—

SOURCE: LCW Consulting and Adavant Consulting, 2021 (see Appendix E2).

NOTES:

Row and column totals may not sum due to rounding.

^a Person and vehicle trips within the 28 TAZs that comprise the waterfront area.

CRUISE SHIP TERMINAL AT PIER 50

As part of implementation of the Waterfront Plan, the Port would allow cruise ships to dock at the existing Port facilities at Pier 50 in the Mission Bay subarea, which has shoreside power that can be upgraded to support cruise vessels, as an alternate location to Pier 35, which does not have shoreside power. Circulation for passenger drop-off, taxis, buses, and provisioning would all occur within the interior area of the pier. Based on cruise ship data available from the Port for the years 2018 and 2019, using Pier 50 as a secondary cruise terminal would relocate about 10 to 12 cruise ships per year from Pier 35 to Pier 50, of which 40 to 50 percent would occur on weekends. The average capacity of the cruise ships that would be relocated is about 1,400 passengers.

Approximately two thirds of the expected cruise ships at Pier 50 would come to San Francisco as a port of call, as opposed to the start or end of the trip, which means that cruise passengers (about 1,300 per ship on average) will be dependent on travel by motor coach (chartered passenger buses used for sightseeing, day visits, etc.), ride hailing, public transit, and walking or bicycling, as opposed to by the passengers own rented or personal private automobile. Excluding private automobile travel for a port of call ship, previous analyses conducted for the James R. Herman Cruise Terminal¹⁴⁷ have shown that approximately 40 percent of the cruise ship passengers would travel by motor coach, 18 percent would use public transit, 38 percent would travel by ride hailing (taxi or TNC) services, and 4 percent would walk, bike or use other means of travel. Cruise ship arrivals and departures would typically occur during the 7 a.m. to 9 a.m. and 4 p.m. to 6 p.m. periods, respectively. It typically takes one hour or more after the ship arrival for passengers to disembark, while embarking passengers are required to be on board about two hours prior to ship departure, highly reducing the possibility of overlap with events at Oracle Park or Chase Center.

¹⁴⁷ The 34th America's Cup and James R. Herman Cruise Terminal and Northeast Wharf Project Final EIR, Case No. 2010.0493E; Final certification December 13, 2011.

Table 4.C-9 presents the expected weekday p.m. peak hour person and vehicle trips generated by the implementation of a secondary cruise ship terminal at Pier 50. As described above, this change in activity represents a relocation of existing activities from Pier 35 to Pier 50, and therefore the expected trips presented in Table 4.C-9 are not included in Table 4.C-8. Furthermore, due to the relatively infrequent cruise calls on any given year, with most arrivals and departures not occurring during the weekday p.m. peak hour, the number of trips that would shift between the Northeast Waterfront and Mission Bay subareas, as shown in Table 4.C-9, would be relatively few and are therefore not being individually reported or evaluated in the subsequent tables or analyses.

Table 4.C-9 Secondary Cruise Ship Terminal at Pier 50 – Passenger Travel Demand by Way of Travel

Way of Travel	Percentage ^a	Daily Trips	p.m. Peak Hour Trips ^a
Motor coach (chartered passenger buses)	40%	1,100	20
Public transit	18%	500	10
Taxi/TNC	38%	1,100	20
Walking, bicycling or other	4%	120	0
Total Person Trips	100%	2,800	60
Total Vehicle Trips^b		560	10

SOURCE: Travel demand analysis conducted for the 34th America's Cup and James R. Herman Cruise Terminal and Northeast Wharf Project Final EIR, Case No. 2010.0493E; Final certification December 13, 2011.

NOTES:

Column totals may not add up due to rounding.

Based on a port-of-call visit by a typical cruise ship with 1,400 passengers, which excludes private automobile travel.

^a James R. Herman Cruise Terminal travel demand analysis.

^b Estimated average vehicle occupancy of 15 passengers per motor coach and 2.4 passengers per taxi/TNC vehicle.

WEEKDAY P.M. PEAK HOUR TRAFFIC VOLUMES

Roadway segment link volumes at the 15 study locations (three roadway segments within each subarea) were estimated for the weekday p.m. peak hour for existing plus Waterfront Plan and 2050 cumulative conditions, which are summarized in **Table 4.C-10**. With implementation of the Waterfront Plan, the total two-way increase in p.m. peak hour traffic volumes at the study locations would range between 30 and 350 vehicles per hour, representing a percentage increase between 7 percent and 54 percent. The highest two-way vehicle increase in both absolute value and percentage would occur at The Embarcadero, adjacent to the Piers 30–32 and Seawall Lot 330 subsequent project sites. The second and third largest increases in absolute value also would occur on The Embarcadero, between Broadway and Washington Street (300 total two-way new vehicles per hour, 14 percent growth) and between Harrison and Bryant streets (250 total two-way new vehicles per hour, 14 percent growth).

Table 4.C-10 Weekday P.M. Peak Hour Roadway Segment Total Two-Way Traffic Volumes – Existing, Existing plus Project, and 2050 Cumulative Conditions

Waterfront Plan Subarea/Roadway Segment	Existing Conditions	Existing plus Waterfront Plan Conditions	Waterfront Plan		2050 Cumulative Conditions			
			Volume ^a	% Change ^b	Volume	Growth ^c	% Growth ^d	% Contrib. ^e
FISHERMAN'S WHARF								
North Point Street between Powell & Stockton	540	580	40	7%	680	140	26%	6%
Bay Street between The Embarcadero & Kearny	1,300	1,500	180	14%	1,700	360	28%	11%
The Embarcadero between Beach & North Point	600	660	70	12%	640	30	6%	11%
NORTHEAST WATERFRONT								
The Embarcadero between Green & Vallejo	1,600	1,800	220	15%	1,900	280	18%	12%
The Embarcadero bet. Broadway & Washington	2,100	2,400	300	14%	2,400	320	16%	12%
Mission Street bet. The Embarcadero & Steuart	340	360	20	8%	340	20	5%	8%
SOUTH BEACH								
The Embarcadero between Harrison & Bryant	1,800	2,000	240	14%	2,300	520	29%	11%
Bryant Street between The Embarcadero & Main	640	1,000	360	54%	1,400	780	121%	25%
Townsend Street between Third & Fourth	840	1,000	160	19%	1,200	340	40%	13%
King Street between Second & Third	2,100	2,300	220	11%	2,900	860	41%	8%
MISSION BAY								
Third St. between Terry A. Francois & Channel	1,100	1,400	260	24%	2,000	940	85%	13%
Third Street between Mission Bay & Warriors	1,800	2,100	300	17%	3,000	1,200	66%	10%
Third Street between 16th & Mariposa	1,800	2,100	280	15%	2,700	840	46%	11%
SOUTHERN WATERFRONT								
Third Street between 26th & Cesar Chavez	1,700	1,900	220	16%	3,000	1,400	82%	7%
Third Street between Cargo & Burke	1,400	1,500	120	9%	1,900	540	40%	6%
Cargo Way between Illinois & Mendell	220	320	120	53%	420	220	101%	26%

SOURCE: LCW Consulting and Advant Consulting, 2021 (see Appendix E2).

NOTES:

The p.m. peak hour is the 60 minutes of the 4 p.m. to 6 p.m. peak period existing during which the highest volume of vehicles was observed.

Row totals may not add up due to rounding.

- ^a Traffic volume increase over existing conditions due to Waterfront Plan.
- ^b Percentage of Waterfront Plan traffic over existing conditions.
- ^c Traffic volume increase over existing conditions due to cumulative growth, including the Waterfront Plan.
- ^d Percentage of traffic growth from existing conditions to 2050 Cumulative conditions.
- ^e Percentage contribution of Waterfront Plan traffic to 2050 Cumulative conditions.

Under 2050 cumulative conditions, p.m. peak hour total two-way traffic volumes at study locations would generally increase between existing and 2050 cumulative conditions by between 30 and 100 percent, with growth at a few locations with relatively low existing traffic volumes in the South Beach, Mission Bay, and Southern Waterfront increasing by about 200 percent. Under 2050 cumulative conditions, the total two-way increase in p.m. peak hour traffic volumes between existing and 2050 cumulative conditions at the study locations would range between 260 and 1,900 vehicles per hour at the study locations. Similar to existing plus Waterfront Plan conditions, the greatest traffic volume increases would generally be on Third Street between Cesar Chavez and King streets and on The Embarcadero between King and Washington streets.

CONSTRUCTION IMPACT ANALYSIS METHODOLOGY

Project construction-related transportation impacts are analyzed under Impact TR-1. The construction impact analysis assesses if subsequent projects under the Waterfront Plan would require a substantially extended construction duration or intense construction activity and, if so, the analysis assesses the effects of construction activities on people walking, bicycling, or driving, and riding public transit and on emergency vehicle operators. Potential short-term construction impacts on sidewalks, in bicycle lanes, and/or in travel lanes in the Plan area were assessed qualitatively, based on general construction-related information for activities associated with other similar development projects as that may occur from subsequent projects.

OPERATIONAL IMPACT ANALYSIS METHODOLOGY

The impacts of implementation of the Waterfront Plan following completion of construction (operational impacts) are analyzed under Impacts TR-2 through TR-7. The following describes the methodology for analysis of operational impacts, by significance criterion.

POTENTIALLY HAZARDOUS CONDITIONS

As used in this section, the term hazard refers to a project-generated vehicle potentially colliding with a person walking, bicycling, or driving or with a public transit vehicle such that serious or fatal physical injury could result, accounting for the aspects described below. Human error or non-compliance with laws, weather conditions, time of day, and other factors can affect whether a collision could occur. However, for purposes of CEQA, hazards refer to engineering aspects of a project (e.g., speed, turning movements, complex designs, substantial distance between street crossings, sight lines) that may cause a greater risk of collisions that result in serious or fatal physical injury than a typical project. This analysis focuses on hazards that could reasonably stem from the project itself, beyond collisions that may result from aforementioned non-engineering aspects or the transportation system as a whole.

Therefore, the methodology qualitatively addresses the potential for subsequent projects under the Waterfront Plan to exacerbate an existing or create a new potentially hazardous condition to people walking, bicycling, or driving, or public transit operations. The methodology accounts for the number, movement type, sightlines, and speed of project vehicle trips and potential changes to the public right-of-way as part of subsequent projects in relation to the presence of people walking, bicycling, or driving.

ACCESSIBILITY

The methodology qualitatively addresses the potential for subsequent projects under the Waterfront Plan to interfere with accessibility for people walking or bicycling or to result in inadequate emergency access. The methodology accounts for the number, movement type, sightlines, and speed of project vehicle trips and

project changes to the public right-of-way as part of subsequent projects in relation to the presence of people walking and bicycling or to emergency service operator facilities.

PUBLIC TRANSIT DELAY

The planning department uses a quantitative threshold of significance and qualitative criteria to determine whether a project would substantially delay public transit. For individual Muni routes, if a project would result in transit delay greater than or equal to four minutes, then it might result in a significant impact.¹⁴⁸ For individual Muni routes with service headways¹⁴⁹ less than eight minutes, the planning department may use a threshold of significance of less than four minutes. For individual surface routes operated by regional agencies, if a project would result in transit delay greater than one-half headway, then it might result in a significant impact. The planning department considers the following qualitative criteria for determining whether that delay would result in significant impacts due to a substantial number of people riding transit who would switch to riding in private or for-hire vehicles: transit service headways and ridership, origins and destinations of trips, availability of other transit and modes, and competitiveness of transit service with private vehicles.

Increases to transit travel times are associated with the following three factors:

- Traffic congestion delay (increases in traffic slowing down transit vehicles and increases transit travel times);
- Transit reentry delay (after stopping at the curb to pick up and drop off passengers, the additional time needed for transit vehicles to find a gap in the adjacent increased vehicle traffic in order to pull out of the bus stop); and
- Passenger boarding delay (additional amount of time a transit vehicle has to wait at a stop to pick up and drop off passengers).

Muni transit service along the waterfront operates within an exclusive right-of-way in the median, such as on The Embarcadero between North Point and King streets, and on Third Street between Channel and Cesar Chavez streets, and would not be subject to increases in travel times due to additional vehicles in the adjacent mixed-traffic travel lanes (i.e., no additional traffic congestion delay or transit reentry delay). Thus, Muni historic streetcar and light-rail lines operating within The Embarcadero and Third Street median would not experience additional delay as a result of a possible increase in congestion at intersections resulting from the addition of vehicle trips generated by the Waterfront Plan. Therefore, the assessment of the streetcar and light-rail lines was based on the total number of weekday p.m. peak hour transit trips generated by the Waterfront Plan that would be added to each of the Muni streetcar and light-rail lines serving the waterfront area.

The transit delay analysis uses the weekday p.m. peak hour output from the SF-CHAMP model to quantify the number of passengers boarding (i.e., getting on) or alighting (i.e., getting off) a transit line. The growth in total ridership per line and at transit stops within the transportation study area were used to estimate increases in passenger boarding delay, and to determine if the additional passengers would substantially increase transit

¹⁴⁸ The threshold uses the adopted Transit-First Policy, City Charter section 8A.103, percent on-time performance service standard for Muni. The charter considers transit vehicles arriving more than 4 minutes beyond a published schedule time as late.

¹⁴⁹ A service headway is the number of minutes between buses or trains on a particular bus route or light-rail line.

travel times.¹⁵⁰ This analysis reflects the combined effect of all subsequent projects under the Waterfront Plan (i.e., implementation of the Waterfront Plan as a whole).

Transit delay analysis specifically addresses transit vehicle delay affecting service vehicles and increased transit ridership, rather than the effects on non-revenue operations or changes to non-revenue facilities.

VMT ANALYSIS

Area Plans. The analysis of VMT impacts for area plans compares the VMT per capita for conditions without and with implementation of the Waterfront Plan. A significant impact may occur if the VMT per capita with implementation of the Waterfront Plan are equal to or less than the following thresholds of significance:

- For residential uses, if it exceeds the regional household VMT per capita minus 15 percent.
- For office uses, if it exceeds the regional VMT per employee minus 15 percent.
- For retail uses, if it exceeds the regional VMT per employee minus 15 percent.

The department uses VMT efficiency metrics (per capita or per employee) for thresholds of significance. VMT per capita reductions mean that individuals will, on average, travel less by automobile than previously, but because the population will continue to grow, there may not be an overall reduction in the absolute number of miles driven.

The analysis of VMT impacts considers VMT per capita with and without implementation of the Waterfront Plan, based on output from the SF-CHAMP model analyses conducted for the Waterfront Plan (see above, Project Travel Demand Methodology and Results, for a description of the SF-CHAMP model analyses). Furthermore, the planning department considers consistency with the Sustainable Communities Strategy by evaluating whether the Plan is located outside of areas contemplated for development with Plan Bay Area 2050, which is the region's Sustainable Communities Strategy.¹⁵¹

Subsequent Projects. The department uses the same thresholds of significance as above for area plans to determine whether a subsequent project would generate substantial additional VMT. In addition, for mixed-use projects, each land use is evaluated independently, per the thresholds of significance described above.

As recommended by the Office of Planning and Research and included in the planning commission resolution that adopted the VMT metric and the thresholds of significance for transportation impact analysis in San Francisco,¹⁵² the department uses a map-based screening criterion to identify types and locations of land use projects that would not exceed these quantitative thresholds of significance. The San Francisco County Transportation Authority uses a model to present VMT for residential, office, and retail in San Francisco and the region, as described and shown under existing conditions. The department uses that data and associated maps to determine whether a project site's location is below the VMT quantitative threshold of significance. If a project

¹⁵⁰ Per the SF Guidelines, the amount of time that a public transit vehicle must stop to pick up and drop off passengers (i.e., the transit vehicle dwell time) is correlated to the number of passengers boarding and alighting the vehicle. As general transit ridership grows, vehicles spend more time at stops while passengers enter and exit the vehicle, which increases travel times on a line. The methodology used by the planning department to calculate passenger delay caused by a passenger boarding and alighting a transit vehicle is by multiplying the total number of project transit trips on a route by an average delay of 2.5 seconds per passenger. Light-rail vehicles which have multiple doors per transit vehicle and level boarding at the platforms (i.e., there are no steps or ramps between the platform level and the floor of the light-rail vehicle) have a lower boarding delay than the 2.5 seconds per passenger noted above (i.e., about 1.5 seconds per passenger).

¹⁵¹ Metropolitan Transportation Commission, *Final Environmental Impact Report for Plan Bay Area 2050*, SCH #2020090519, October 2021, <https://www.planbayarea.org/draftEIR>, accessed November 8, 2021.

¹⁵² San Francisco Planning Department, *Executive Summary: Resolution Modifying Transportation Impact Analysis*, Appendix F, Attachment A, March 3, 2016.

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is in an area that has a low VMT, and it incorporates similar features to other developments in that area (i.e., density, mix of uses, transit accessibility), then the project can be presumed to not have a VMT impact.

Furthermore, also as recommended by Office of Planning and Research, as part of the City methodology and approach stated in the planning commission resolution, the department presumes residential, retail, and office projects, and projects that are a mix of these uses, proposed within 0.5 miles of an existing major transit stop (as defined by CEQA section 21064.3) or an existing stop along a high-quality transit corridor (as defined by CEQA section 21155) would not exceed these quantitative thresholds of significance. However, this presumption would not apply if the project would: (1) have a floor area ratio of less than 0.75; (2) include more parking for use by residents, customers, or employees of the project than required or allowed, without a conditional use; or (3) is inconsistent with the applicable Sustainable Communities Strategy.

The planning department uses a list of transportation components of an area plan, individual development project, or infrastructure project that would not likely lead to a substantial or measurable increase in VMT and would not exceed this quantitative threshold of significance. The Waterfront Plan does not include any transportation projects; however, subsequent projects under the Waterfront Plan could include transportation features such as curb cuts, sidewalk widenings, changes to on-street curb regulations. If the transportation features of a project fit within the general types of projects (including combinations of types) identified by the planning department as projects that do not generate trips and would not increase vehicle travel, then the planning department generally presumes that VMT impacts would be less than significant. These types of projects include active transportation, rightsizing, transit projects, and other minor transportation projects identified in the SF Guidelines.¹⁵³

COMMERCIAL AND PASSENGER LOADING

The methodology assesses the potential for existing on-street commercial freight and passenger loading facilities and on-street and off-street facilities that could be proposed and included as part of subsequent projects under the Waterfront Plan to accommodate the types of commercial freight and passenger loading activities that could occur as a result of the Waterfront Plan. For the purposes of this section, “convenient” refers to facilities within 250 linear feet of the project site.

The methodology also qualitatively addresses the potential for subsequent projects under the Waterfront Plan to exacerbate an existing or create a new potentially hazardous condition for people walking, bicycling, or driving, or to substantially delay public transit because of unaccommodated loading activities from subsequent projects under the Waterfront Plan.

VEHICULAR PARKING

California Senate Bill (SB) 743 amended CEQA by adding California Public Resources Code section 21099 regarding the analysis of parking impacts for certain urban infill projects in transit priority areas.¹⁵⁴ Public Resources Code section 21099(d), effective January 1, 2014, provides that “... parking impacts of a residential,

¹⁵³ San Francisco Planning Department, Transportation Impact Analysis Guidelines, Appendix L, Vehicular Miles Traveled (VMT)/Induced Automobile Travel, October 2019. Available online at <https://sfplanning.org/news/transportation-impact-analysis-guidelines-update>.

¹⁵⁴ A “transit priority area” is defined as an area within 0.5 miles of an existing or planned major transit stop. A “major transit stop” is defined in California Public Resource Code section 21064.3 as a rail transit station, a ferry terminal served by either a bus or rail transit service, or the intersection of two or more major bus routes with a frequency of service intervals of 15 minutes or less during the morning and afternoon peak commute periods. A map of San Francisco’s Transit Priority Areas is available online at: <https://sfmea.sfplanning.org/Map%20of%20San%20Francisco%20Transit%20Priority%20Areas.pdf>, accessed March 14, 2020.

mixed-use residential, or employment center project on an infill site located within a transit priority area shall not be considered significant impacts on the environment.” Accordingly, parking is no longer to be considered in determining if a project has the potential to result in significant environmental effects for projects that meet all three criteria established in the statute.

The Plan area is predominately located on infill sites within transit priority areas. However, the Waterfront Plan itself may not be considered a “residential, mixed-use residential, or employment center project” consistent with Public Resources Code section 21099, although subsequent projects likely would be considered such projects. Thus, for conservative purposes, an analysis was conducted to determine whether the Waterfront Plan would result in a substantial parking deficit, and whether the substantial parking deficit would result in secondary effects related to potentially hazardous conditions or interfere with accessibility for people walking, bicycling, or inadequate access for emergency vehicles, or substantial delay to public transit.

The methodology assesses whether subsequent projects under the Waterfront Plan would accommodate the additional demand during the peak periods, and, if not, whether the transportation study area’s off- and on-street vehicle parking supply could accommodate the anticipated parking demand. The methodology also assesses whether a parking deficit would be considered substantial (i.e., greater than 600 spaces). If the Waterfront Plan is found to result in a substantial parking deficit, then the methodology qualitatively addresses the potential for subsequent projects under the Waterfront Plan to exacerbate an existing or create a new potentially hazardous condition to people walking, bicycling, or driving, or to substantially delay public transit.

CUMULATIVE CONDITIONS

The discussion of cumulative transportation impacts assesses whether the Waterfront Plan, in conjunction with overall citywide growth and other cumulative projects, would significantly affect the transportation network and, if so, whether the Plan’s contribution to the cumulative impact would be considerable. The assessment of cumulative transportation conditions was based on planned transportation network changes presented in the Approach to Analysis above, citywide land use changes including the cumulative transportation and infrastructure projects, and associated changes in travel demand by 2050. The estimation of travel demand used in the analysis of 2050 cumulative conditions was based on projected land use development and transportation network changes included in the San Francisco SF-CHAMP travel demand model, as described above. This represents a hybrid of the list-based and projections approach to cumulative modeling. The growth projections are based on population and employment assumptions developed by the Association of Bay Area Governments and account for the cumulative development and transportation and public infrastructure projects described in Chapter 4, Environmental Setting, Impacts, and Mitigation Measures, as well as subsequent projects under the Waterfront Plan.

Cumulative development projects located within or near the Plan area include the Seawall Lot 337 and Pier 48 Mixed-Use Project (Mission Rock project), the Pier 70 Mixed-Use District Project (Pier 70 project), the Potrero Power Station Mixed-Use Development Project (Potrero Power Station project), the TZK Broadway and Teatro ZinZanni project at Seawall Lots 323 and 324. Additional cumulative development may also include new

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residential projects near the waterfront that could result from adoption of the proposed housing element update currently undergoing environmental review.¹⁵⁵

The 2050 cumulative analysis assumes completion of certain planned and reasonably foreseeable transportation network changes, such as those listed below, that could affect circulation in the transportation study area. The projects in the vicinity of the waterfront include:

- Better Market Street Project
- The Embarcadero Enhancement Program
- Mission Bay Ferry Landing Project
- Muni Forward Transit Infrastructure Project and Service Improvements
- Central SoMa Plan Street Network Changes on Third, Fourth, Howard, Folsom, Bryant, and Brannan streets
- San Francisco Bicycle Plan (2009)
- Historic Streetcar Extension – Fort Mason to Fourth and King streets
- Central Subway Project¹⁵⁶

A complete list of the city and regional transportation network projects incorporated into the SF-CHAMP model for 2050 cumulative conditions is included in Appendix E2.

The Port's Waterfront Resilience Program, a public infrastructure project, was also considered in the cumulative analysis.

IMPACT EVALUATION

Impact TR-1: Construction under the Waterfront Plan would not require a substantially extended duration or intense activity, and the secondary effects would not create potentially hazardous conditions for people walking, bicycling, driving, or riding transit; or interfere with emergency access or accessibility for people walking or bicycling; or substantially delay public transit. (*Less than Significant*)

In general, the analysis of construction impacts is specific to individual projects. It includes a discussion of temporary roadway and sidewalk closures, relocation of bus stops, effects on roadway circulation due to construction trucks, and the increase in vehicle trips, transit trips, and vehicular parking demand associated with construction workers. The project is assessed for each component of the significance criteria, including construction duration and intensity, and then impacts related to potentially hazardous conditions, accessibility and delays to transit.

¹⁵⁵ San Francisco Planning Department, *San Francisco Housing Element 2022 Update Notice of Preparation*, June 16, 2021, <https://citypln-m-extnl.sfgov.org/SharedLinks.aspx?accesskey=a7ed4c7e2cb41e00659571fd9d246c6b45d9477ee445ae0c098712cb9a0542d7&VaultGUID=A4A7DADC-B0DC-4322-BD29-F6F07103C6E0>, accessed July 19, 2021. The housing element update will establish goals, policies and actions to address existing and projected housing needs in San Francisco and would guide development of 150,000 housing units by 2050 or approximately 5,000 new housing units per year. Because housing element updates are still being developed and analyzed, the increase in the number of housing units in San Francisco associated with the housing element update are not included in the 2050 cumulative travel demand forecasts presented in Project Travel Demand Methodology and Results.

¹⁵⁶ The Central Subway project is anticipated to initiate revenue service in the spring of 2022. This additional service is included in the analysis of cumulative conditions.

As described in Chapter 4, Environmental Setting, Impacts, and Mitigation Measures, new construction of subsequent projects under the Waterfront Plan would most likely occur at six locations: at Seawall Lots 314 and 321 in the Northeast Waterfront subarea, at Seawall Lot 330 and Piers 30–32 in the South Beach subarea, and at the Pier 70 Triangle and Piers 90–94 Backlands in the Southern Waterfront subarea. Thus, construction of new development would be spread out throughout the 7.5-mile waterfront, and construction would occur over a 15-year period as projects are proposed and approved.

SUMMARY OF TYPICAL CONSTRUCTION ACTIVITIES FOR DEVELOPMENT PROJECTS AND CITY CONSTRUCTION REQUIREMENTS CONSIDERED IN THE ANALYSIS

General construction activities result in temporary conditions, and usually do not result in permanent changes to the transportation circulation network. Construction may require temporary use of the transportation-related public right-of-way including activities such as staging of construction materials or equipment within the sidewalk or adjacent parking and/or travel lanes. Construction-related vehicles traveling to and from the construction work area would share travel lanes with other vehicles and bicyclists. In general, increased construction traffic from any project could result in potential conflicts between construction trucks (which have slower speeds and wider turning radii than automobiles) and automobiles, bicyclists, and people walking. In addition, construction activities from any project could result in physical obstructions or temporary or permanent changes to the public right-of-way that could interfere with emergency access or accessibility for people walking, bicycling, driving, or riding transit; create hazardous conditions; or result in delays to transit. Construction-related transportation impacts associated with an individual development, or transportation or infrastructure projects are temporary and generally short term (e.g., typically between two and three years) and conducted in accordance with City requirements, as described below.

In general, construction-related activities typically occur Monday through Friday between 7 a.m. and 7 p.m., with limited construction activities occurring overnight or on weekends (on an as-needed basis). Construction staging typically occurs within project sites and on the adjacent sidewalks and/or parking lanes. The sidewalks along site frontages are usually partially or fully closed for the duration of construction; in those instances, either an accessible walkway is provided on the remaining sidewalk or temporary walkways are constructed in adjacent vehicular parking lanes, as needed.

Sidewalk and travel-lane closures during construction are required to be coordinated with City agencies to minimize the impacts on vehicles, including transit vehicles and bicycles, as well as people walking. In general, temporary construction-related travel-lane and sidewalk closures are subject to review and approval by the Interdepartmental Staff Committee on Traffic and Transportation, an interdepartmental committee that includes representatives from the planning department as well as public works, SFMTA, the police department, and the fire department.

During a project's construction period, temporary and intermittent traffic and transit impacts may result from truck movements to and from subsequent project sites. Truck movements during periods of peak traffic flow would have a greater potential to create conflicts than truck movements during non-peak hours because of the greater number of vehicles on the streets that would have to maneuver around queued trucks during the peak hour. Temporary vehicular parking demand associated with construction workers' vehicles and impacts on local intersections from vehicular traffic associated with construction workers would occur in proportion to the number of construction workers who drive to their job. Vehicular parking associated with construction workers' vehicles would temporarily increase occupancy levels in off-street vehicular parking facilities, either

by those vehicles or by vehicles that currently park in on-street spaces that would be displaced by the construction workers' vehicles.

Prior to construction, as part of the building permit process, the project sponsor and its construction contractor(s) are required to meet with appropriate SFMTA Transportation Engineering personnel to develop and review truck routing plans for demolition, disposal of excavated materials, materials delivery and storage, as well as staging for construction vehicles. The construction contractor(s) would be required to carry out the construction of the project in conformance with the City's Regulations for Working in San Francisco Streets, eighth edition (also known as the SFMTA blue book). These guidelines establish regulations for working in San Francisco streets so that the activities are conducted safely and with the least possible interference with people walking and bicycling, transit, and vehicles. In addition to the regulations in the SFMTA blue book, the contractor would be responsible for complying with all City, state and federal codes, rules, and regulations.

CONSTRUCTION DURATION AND INTENSITY

Construction duration and intensity of subsequent projects under the Waterfront Plan would vary depending on the type and location of the subsequent project. Construction activities associated with improvements to existing pier structures (e.g., tenant improvements) and construction of new landside development projects such as at Seawall Lots 314, 321, and 330 in the Northeast Waterfront and South Beach subareas, and at the Pier 70 Triangle and Piers 90–94 Backlands in the Southern Waterfront subarea would generally be of limited duration (about two to three years) and would not be multi-phased (e.g., construction and operation of multiple buildings planned over a long time period). These projects would be constructed similar to other development projects in the city, and the number of construction vehicle trips would not be considered a substantial increase in daily vehicles on nearby roadways given the existing daily volume of vehicles already in the area. Construction vehicle access to existing pier structures would be via the existing driveways, many of which are aligned with signalized intersections along The Embarcadero (e.g., at Bryant Street for Piers 30–32).

Construction of new development on the piers, such as at Piers 30–32, would be of extended duration, if the work includes the rebuilding of the existing piers and improvements to the seawall. However, a portion of the onsite construction would be carried out by crews and equipment stationed on off-site barges, which would reduce the effect of construction activities on the landside transportation network. Construction truck travel to and from the site would utilize existing driveways, including those located at the signalized intersection of The Embarcadero/Bryant Street. Construction activities would likely require temporary closure of a portion of The Embarcadero Promenade adjacent to the site; however, because of the wider width of the promenade at this location, a protected pedestrian walkway would be maintained. Therefore, construction activities of subsequent projects would not be considered intense as it relates to the transportation network.

POTENTIALLY HAZARDOUS CONDITIONS AND ACCESSIBILITY DURING CONSTRUCTION

Construction truck access into and out of the subsequent project sites on the piers (i.e., the water side of The Embarcadero) would be northbound right-turn-in and right-turn-out only from existing midblock driveways, and at signalized intersections where the driveway to the pier aligns with streets to the west (e.g., at Sansome/Chestnut streets, at Bryant Street, at Townsend Street). As appropriate, flaggers would be positioned at the site driveway to facilitate truck access across the promenade and the northbound bicycle lane. If a portion of The Embarcadero Promenade is required for construction staging, a protected pedestrian walkway would be maintained consistent with the requirements of the SFMTA blue book.

Seawall lots are generally triangular and have at least two roadways (The Embarcadero and a side-street) fronting the site, and therefore construction vehicle access from/to The Embarcadero, across the southbound bicycle lane, is not anticipated. There are no existing driveways into the subsequent project sites on the landside (i.e., west side) of The Embarcadero (e.g., Seawall Lots 314, 321, and 330). Construction truck access into and out of subsequent project sites at Seawall Lots 314, 321, and 330 would be via driveways and streets to the west of The Embarcadero. For example, via Bay or Kearny streets for Seawall Lot 314, Green or Front streets for Seawall Lot 321, and via Bryant or Beale streets for Seawall Lot 330. Therefore, construction trucks would not cross the southbound bicycle lane on The Embarcadero that runs adjacent to these sites.

Construction of subsequent projects would not involve changes to the existing adjacent roadway network, and none of the subsequent project sites are in areas where full travel lane closures are anticipated. However, travel lanes may be partially closed on a temporary, as-needed basis to provide additional space for laydown and staging. In addition, at some locations sidewalks would be reconstructed or new sidewalks would be constructed where none currently exist (e.g., on Front Street adjacent to Seawall Lot 321), and may require temporary lane closure when the sidewalk is being constructed/reconstructed. When temporary travel lane and/or partial street closures are required, access for people walking, bicycling and driving would be maintained consistent with the requirements of the SFMTA blue book. Thus, construction activities would not create potentially hazardous conditions for people driving, walking, or bicycling. Construction activities at the subsequent project sites would not require removal or changes to existing on-street commercial or passenger loading spaces in the vicinity of the sites, and therefore would not interfere with existing loading operations using these facilities or create potentially hazardous conditions due to unaccommodated demand.

There are no bus routes or side-running light-rail lines operating directly adjacent to any subsequent project site, with the exception of Seawall Lot 314. On The Embarcadero, light rail and streetcars operate in an exclusive median (except at intersections). Prior to start of construction of any subsequent project at Seawall Lot 314, the bus stop for the Muni 8 Bayshore and 8BX Bayshore B Express bus routes and the terminal/layover for the 8BX Bayshore B Express route, both of which are located on Kearny Street between Bay Street and The Embarcadero, would likely need to be relocated. This would be due to the existing sidewalk adjacent to the site on Kearny Street being narrow (8 feet), and construction activities at this site would likely require closure of the sidewalk and provision of a temporary walkway within the curb lane (i.e., within the bus stop and layover). Thus, construction at this site would likely require the temporary relocation of the layover and bus stop, such as to the south side of Bay Street between Midway and Kearny streets. This relocated layover and bus stop would be configured similar to other bus stops in the area and would not create potentially hazardous conditions for people riding transit.

Thus, construction of subsequent projects would be conducted in compliance with City requirements such that construction work can be done with the least possible interference to people walking, bicycling, or driving or transit operations.

POTENTIAL TRANSIT DELAYS DURING CONSTRUCTION

With the exception of Seawall Lot 314, there are no Muni bus routes that run adjacent to the subsequent project sites that would be affected by project construction activities or substantially delayed due to increase of construction-related vehicles. The historic streetcar and light-rail lines operating within the exclusive median on The Embarcadero would not be affected by increases in construction-related vehicles within the adjacent mixed-traffic travel lanes.

As described above, it is possible that construction of subsequent projects at Seawall Lot 314 would likely require temporary relocation of the layover and bus stop of Muni's 8 and 8BX lines located adjacent to the site on Kearny Street. The bus stop and layover on Kearny Street would likely be moved to the existing bus stop on the north side of North Point Street, and the eight existing metered parking spaces on the north side of North Point Street between The Embarcadero and Grant Avenue would be temporarily be out of service. This temporary condition would not change the distance these routes would need to travel, and therefore would not result in a significant delay to operations for the 8 Bayshore and 8BX Bayshore B Express bus routes.

SUMMARY

Project construction activities would not result in significant transportation impacts. The SFMTA blue book regulations require maintaining pedestrian circulation and implementing construction safety measures for people walking, bicycling, and driving. With implementation of these regulations and standard construction measures, project construction would not result in potentially hazardous conditions for people walking, bicycling, driving, or riding public transit, or interfere with emergency access or accessibility for people walking, and bicycling during construction. Therefore, construction-related transportation impacts of subsequent projects would be ***less than significant***, and no mitigation measures are required.

Impact TR-2: The Waterfront Plan would not create potentially hazardous conditions for people walking, bicycling, or driving or for public transit operations. (*Less than Significant*)

The Waterfront Plan does not include any specific changes to the street network within or adjacent to the waterfront, however, subsequent projects under the Waterfront Plan could include changes such as new or relocated driveways, new or reconstructed sidewalks, and various color curb changes on streets adjacent to the potential development sites to accommodate on-street commercial vehicle and passenger loading activities.

Subsequent projects within the Plan area are assumed to undergo review by City agencies, such as the City's Street Design Advisory Team (SDAT). The subsequent analysis of walking, bicycling, driving, and public transit operations assumes this interagency City review based on precedent of such review and design and operational changes for past projects on Port property. The ground-floor/street-level design and operations of subsequent projects would be reviewed to determine if onsite and on-street loading operations and vehicle access to the sites are adequately accommodated without obstructing, hindering, or impairing drivers' views of other vehicles, people walking, or people bicycling on the same street and/or restricting the ability of a driver to stop a motor vehicle. As applicable, design features of subsequent projects would need to be consistent with the Port's waterfront design and access policies and with Better Streets Plan standards and Vision Zero policies, both of which focus on eliminating existing hazards and designing the transportation network to enhance safety of all ways of travel. In addition, the design of the reconfigured/relocated driveways and any adjacent street network changes may undergo review by the Port's Waterfront Design Advisory Committee, SFMTA's Transportation Advisory Staff Committee, and the fire department, along with other City agencies, if applicable. Therefore, these any changes to the network to accommodate access for people walking, bicycling and driving or freight and passenger loading activities would not include any design features that would cause potentially hazardous conditions.

The Waterfront Plan includes new policies that would support enhancing the transportation network and safety for all ways of travel within the Plan area. These policies involve the Port working with City agencies

responsible for the design, construction, operation and maintenance of the transportation network to address existing safety issues and enhance the transportation network as the subsequent project sites are developed under the Waterfront Plan. These new policies include:

- Coordinating with SFMTA on projects to make bicycling more attractive than driving. Working to increase safety and eliminate conflicts between users of all modes (Policies 2, 13–15, 18, 19);
- Coordinating with SFMTA and other stakeholders to implement the City’s Vision Zero policy and support The Embarcadero Enhancement Program along The Embarcadero (Policies 16, 17);
- Coordinating with City agencies to enhance street connections between The Embarcadero and the Blue Greenway, and between the waterfront and adjacent neighborhoods (Policies 20, 21);
- Coordinating with SFMTA to develop and enhance sustainable and reliable goods movement and industrial transportation access within the City and to Port facilities, including designation and management of curb zones for loading and access (Policies 23–30);
- Working with the City to design and upgrade substandard Port streets to City Better Streets Plan and Complete Streets standards (Policy 48); and,
- Transferring street maintenance responsibility to Public Works, where feasible, and ensure development of new streets provide adequate long-term financing for maintenance, signal and signage operations (Policies 49, 50).

Implementation of the Waterfront Plan would add trips by people walking, bicycling and driving. During the weekday p.m. peak hour, subsequent projects would generate 1,440 trips by walking (440 walk-only and 1,000 walk-to-transit) and 140 bicycling trips. In addition, during the weekday p.m. peak hour, subsequent projects would generate 2,400 new vehicle trips. These person and vehicle trips would be distributed among the five Waterfront Plan subareas, with the majority generated by subsequent projects in the South Beach subarea (about 60 percent) (see Table 4.C-8, p. 4.C-44).

WALKING AND BICYCLING

In the Fisherman’s Wharf, Northeast Waterfront and South Beach subareas, subsequent projects would add new trips by bicycling and walking to The Embarcadero’s sidewalk/promenade and to the bicycle lanes, as well as to streets connecting with The Embarcadero. Because there currently are multiple driveways to the existing piers, subsequent projects that include leasing of structures on existing piers and new construction on the piers would likely use existing driveways located at signalized intersections or midblock and existing or reconfigured/relocated off-street loading facilities, similar to existing conditions, as well as existing or new curbside commercial vehicle and passenger loading zones. Some subsequent projects may relocate or create new driveways to the existing piers. The new commercial vehicle and passenger loading facilities are assumed that they would be designed to accommodate the existing northbound bicycle lane and are assumed that they would comply with SFMTA guidelines for the accommodation of proposed upgrades to the bicycle lane adjacent to The Embarcadero Promenade.

For subsequent projects located on the landside of The Embarcadero (e.g., on Seawall Lots 314, 321, and 330), relocated driveways and color curb changes are assumed to be located on the side street frontages (e.g., Bay Street for Seawall Lot 314, Green or Front streets for Seawall Lot 321, Bryant and Main streets for Seawall Lot 330) and not on The Embarcadero frontage. Planning code section 155(r)(2)(F) does not permit new garage entries, driveways, or other vehicular access to parcels on the land side of The Embarcadero between Jefferson

and Townsend streets. There are currently no driveways to existing buildings or surface parking lots on the land side (west side) of The Embarcadero, except for Seawall Lot 351 that is located between The Embarcadero, Washington Street, and the Bay Club at the Gateway tennis courts (development of this site is not included within the Waterfront Plan). Therefore, street network changes to support vehicle access and commercial vehicle and passenger loading for subsequent projects would not create potentially hazardous conditions for bicyclists within the class II or class IV bicycle lanes on The Embarcadero.

The City may require subsequent projects on Seawall Lot 314 to widen the 8-foot-wide sidewalk on Kearny Street to meet Better Streets Plan requirements (minimum sidewalk width of 12 feet and a recommended sidewalk width of 15 feet), and development on Seawall Lot 321 may be required to provide a new sidewalk consistent with Better Streets Plan requirements on Front Street for a neighborhood commercial street (minimum sidewalk width of 12 feet and a recommended sidewalk width of 15 feet).

Within the Southern Waterfront subarea, the City may require subsequent projects at the Pier 70 Triangle and the Piers 90–94 Backlands, which are industrial areas with limited facilities for people walking, to include new sidewalks consistent with the Better Streets Plan and Complete Streets standards. For example, Amador Street runs adjacent to the Piers 90–94 Backlands site and does not currently have sidewalks as this Port roadway, serving this industrial site and Piers 92–96 to the east, was not intended for people walking. Subsequent projects at this site could include provision of new sidewalks on Amador Street to connect with the Cargo Way and Third Street sidewalks, as well as other roadway improvements to accommodate all ways of travel consistent with the new transportation policy to work with the City to design and upgrade substandard Port streets to City Better Streets Plan standards. Therefore, if new sidewalks are constructed, subsequent projects would improve safety for people walking and bicycling over existing conditions.

For new buildings with onsite commercial freight spaces and/or vehicular parking, as appropriate, it is assumed that driveways would have an audible and/or visual warning system for people walking as vehicles exit the project driveways. New curbside commercial vehicle and passenger loading activities would be similar to conditions at other nearby zones and do not represent potentially hazardous conditions for people walking and bicycling.

Therefore, for the reasons described above, the Waterfront Plan would not create potentially hazardous conditions for people walking or bicycling.

DRIVING AND PUBLIC TRANSIT OPERATIONS

In general, compared to existing conditions, the Waterfront Plan would not substantially change conditions for people driving or for public transit. The E Embarcadero and F Market & Wharves historic streetcars and the T Third and N Judah light-rail lines operate within an exclusive median right-of-way on The Embarcadero and King Street between Jefferson/Beach and Third streets. There is no transit service on streets adjacent to the waterfront to the south (i.e., on Terry A. Francois Boulevard, Illinois Street, Amador Street and Cargo Way).¹⁵⁷

Vehicular access to subsequent projects along The Embarcadero would be similar to existing conditions. In addition, subsequent projects in the Northeast Waterfront and South Beach subareas would replace existing vehicle parking facilities (e.g., 225 spaces at Seawall Lot 314, 170 spaces at Seawall Lot 321, up to 1,000 spaces at Piers 30–32, and about 250 spaces at Seawall Lot 330), and would not provide replacement public parking

¹⁵⁷ The 91 Owl bus route runs on Cargo Way between Mendell and Third streets on weekdays between 9:45 p.m. and 5:45 a.m. There is a bus stop on westbound Cargo Way at the approach to Third Street and on eastbound Cargo Way at the approach to Illinois Street.

facilities consistent with existing Port policies to provide appropriate short-term parking for Port visitors, while progressively reducing the availability of long-term parking for commuters. In addition, parking for subsequent projects within the Plan area would be restricted, consistent with planning code requirements. Therefore, the number of vehicles accessing these sites would be less than under existing conditions.

Subsequent projects would generate additional vehicles (i.e., 2,400 net-new vehicles during the p.m. peak hour); however, these vehicles would be distributed over the five subareas, and increases in vehicles using the roadway are not considered driving hazards.

Therefore, for the reasons described above, the Waterfront Plan would not create potentially hazardous conditions for people driving or transit operations.

SUMMARY

The Waterfront Plan does not include any specific street network changes and any changes to the street network proposed as part of subsequent projects are assumed to conform with City design standards and undergo review by City agencies. Thus, for the above reasons, the Waterfront Plan would not create potentially hazardous conditions for people walking, bicycling, or driving, or for public transit operations, and the Plan's impacts related to potentially hazardous conditions would be **less than significant**, and no mitigation measures are required.

Impact TR-3: The Waterfront Plan would not interfere with accessibility of people walking or bicycling to and from the project area and adjoining areas, or result in inadequate emergency access. (*Less than Significant*)

As described under Impact TR-2, the Waterfront Plan does not include any specific changes to the street network within the Plan area that would interfere with walking or bicycling to and from the waterfront and adjoining areas or result in inadequate emergency access. However, subsequent projects could include changes to driveway locations, reconstructed or new sidewalks, and various color curb changes on streets adjacent to the subsequent project sites to accommodate on-street commercial vehicle and passenger loading activities.

The Waterfront Plan includes new policies that would support enhancing accessibility of people walking and bicycling, including access to transit. These policies involve the Port working with the SFMTA, public and private water transportation providers, and other City and regional agencies to upgrade and expand the transportation network. The new policies include:

- Developing public transit and agency partnerships to ensure affordable, inclusive and equitable access to all transportation modes, and improvements to Muni transit along The Embarcadero, and between Mission Bay and India Basin (Policies 1, 3);
- Coordination with public and private water transportation providers that link Port destinations to one another and to other Bay destinations (Policies 8–10);
- Coordinating to integrate water transit into emergency response and resilience plans and strategies (Policy 11);

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- Coordinate with ABAG and other public agencies to complete the San Francisco Bay Trail by 2030, as a continuous walking and cycling path from Aquatic Park to India Basin (Policies 12a–12c);
- Coordinating with SFMTA on projects to make bicycling more attractive than driving. Working to increase safety and eliminate conflicts between users of all modes (Policies 2, 13–15, 18, 19);
- Coordinating with City agencies to enhance street connections between The Embarcadero and the Blue Greenway, and between the waterfront and adjacent neighborhoods (Policies 20, 21);
- Prioritizing parking management to serve disabled accessible parking, high parking turnover and customer access, maritime operations, Port tenants, and waterfront visitors (Policies 31–33);
- Working with the City to design and upgrade substandard Port streets to City Better Streets Plan and Complete Streets standards (Policy 48); and,
- Transferring street maintenance responsibility to Public Works, where feasible, and ensure development of new streets provide adequate long-term financing for maintenance, signal and signage operations (Policies 49, 50).

WALKING AND BICYCLING

Subsequent projects may include transportation features adjacent to the project sites that would promote accessibility for people walking and bicycling. These could include construction of new or widened sidewalks (e.g., Seawall Lot 314, Seawall Lot 321, Pier 70 Triangle, Piers 90–94 Backlands), constructing new or improved ADA ramps at crosswalks, installing new striping, and providing on-street (class 2) bicycle parking racks. The Waterfront Plan would not generate activities that would interfere with access or circulation for people walking or bicycling.

EMERGENCY ACCESS

The Waterfront Plan does not include any street network changes and transportation features of subsequent projects would not change emergency vehicle travel in the Plan area, compared to existing conditions. Features such as new or relocated driveways and on-street loading zones would not impede emergency vehicles. Any transportation features of subsequent projects that affect the public street network are assumed to undergo more detailed design and review by multiple City agencies part of the City’s Transportation Advisory Staff Committee, including the fire and police departments, if applicable. Therefore, the Waterfront Plan would not result in inadequate emergency access.

Overall, for the reasons described above, the Waterfront Plan would not interfere with accessibility of people walking or bicycling, or result in inadequate emergency access, and the Waterfront Plan’s impacts related to accessibility would be **less than significant**, and no mitigation measures are required.

Impact TR-4: The Waterfront Plan would not substantially delay public transit. (Less than Significant)

Implementation of the Waterfront Plan could increase transit travel times due to a combination of factors, including additional vehicular traffic and transit ridership generated by subsequent projects. During the weekday p.m. peak hour, the Waterfront Plan would generate 1,000 transit trips that would be distributed among the bus routes, streetcar, and light-rail lines serving the Plan area. In addition, subsequent projects under the Waterfront Plan would generate about 2,400 vehicle trips during the p.m. peak hour that would use

streets in the transportation study area. The greatest increase in p.m. peak hour traffic volumes would be in the Northeast Waterfront and South Beach subareas.

The Waterfront Plan would not change the transportation network, including public transit, within the transportation study area. However, the Waterfront Plan includes new policies that would entail developing public transit and agency partnerships to ensure affordable, inclusive and equitable access to all transportation modes, and improvements to Muni transit along The Embarcadero, and between Mission Bay and India Basin (Policies 1, 3).

MUNI TRANSIT SERVICE

As discussed in Approach to Analysis, the impact evaluation of the Waterfront Plan on Muni transit operations assesses whether implementation of the Waterfront Plan would result in a transit delay (i.e., increases to transit travel times) greater than or equal to four minutes for an individual transit line that operates with service headways of eight minutes or more. As described in Approach to Analysis, increases to transit travel times could result from traffic congestion delay, transit reentry delay, and passenger boarding delay.

Table 4.C-11 summarizes the transit travel time analysis for the streetcar and light-rail lines that run along the waterfront, including the new passenger boardings and alightings,¹⁵⁸ and the average additional delay per transit vehicle during the p.m. peak hour that would be experienced with implementation of the Waterfront Plan.

Table 4.C-11 Muni Transit Travel Time Analysis – Project Conditions – Weekday P.M. Peak Hour

Historic Streetcar or Light-Rail Line	Passenger Boardings	Passenger Alightings	Average Delay per Transit Vehicle (min:sec)
E EMBARCADERO HISTORIC STREETCAR			
Inbound	18	16	0:25
Outbound	44	25	0:51
F MARKET & WHARVES HISTORIC STREETCAR			
Inbound	55	46	0:25
Outbound	106	105	0:52
KT THIRD LIGHT RAIL			
Inbound	91	91	0:43
Outbound	76	74	0:35
N JUDAH LIGHT RAIL			
Inbound	65	44	0:19
Outbound	101	98	0:35

SOURCE: SFCTA, LCW Consulting and Advant Consulting, 2021 (see Appendix E3).

NOTE:

Average increase in transit delay per transit vehicle during the p.m. peak hour.

¹⁵⁸ Passenger boardings and alightings refer to passengers getting on and off a bus, respectively.

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As presented in Table 4.C-1, p. 4.C-9, with implementation of the Waterfront Plan, accounting for all net-new trips generated by subsequent projects, during the p.m. peak hour, the boarding delay on streetcar and light-rail lines operating along The Embarcadero and Third Street would increase by less than a minute per line per transit vehicle. These increases in transit boarding delays per line or route would not exceed the four-minute significance threshold identified, and therefore the additional ridership would not substantially delay transit.

The transit delay analysis was also supported by an assessment of the impact of the Waterfront Plan on other transit operations. For example, subsequent projects within the South Beach subarea would generate 1,400 vehicle trips during the weekday p.m. peak hour and would have the greatest potential to affect transit operations. This assessment reviewed the exclusive configuration of Muni's right-of-way within the South Beach subarea, the location and configuration of Muni stops, the expected vehicle traffic on The Embarcadero and other cross-streets, and the location of points of vehicle ingress and egress to potential subsequent project sites. The assessment determined that development within this transportation analysis zone would not create significant transit delay for the following reasons:

- Nearby the Piers 30–32 and Seawall Lot 330 subsequent project sites, the E Embarcadero historic streetcar and T Third light-rail lines operate within an exclusive median and would not be substantially affected by increases in traffic volumes within the adjacent mixed-traffic travel lanes.
- During the weekday p.m. peak hour, the increase in traffic volumes on The Embarcadero and streets nearby Piers 30–32 would increase between 50 and 200 vehicles per direction. This increase (about 14 percent over current conditions) would include all subsequent projects anticipated under the Waterfront Plan and would not be considered a substantial increase relative to existing traffic volumes that would necessitate changes in traffic signal timing that would affect the existing transit signal priority for these lines.¹⁵⁹
- There are no Muni bus routes that operate on streets nearby Piers 30–32 and Seawall Lot 330 that connect with The Embarcadero, such as Harrison, Bryant, Brannan and Townsend streets. Weekday p.m. peak hour traffic volume increases on Townsend Street between Third and Fourth streets where the 10 Townsend, 30 Stockton and 45 Union-Stockton routes run would be about 26 vehicles per hour in the peak (eastbound) direction of travel, which would not be considered a substantial increase in traffic volumes on this street.
- Within the South Beach subarea, the land use projections assumed within the Piers 30–32 and Seawall Lot 330 subsequent project sites would likely reduce the total number of vehicle parking spaces on these sites (1,000 vehicle spaces on Piers 30–32 and 290 vehicle spaces on Seawall Lot 330). For example, per planning code section 151, a residential development with 260 housing units on Seawall Lot 330 (i.e., within the South Beach-downtown residential zoning district) would be permitted to provide 65 vehicle parking spaces, up to 195 vehicle parking spaces subject to approval of a conditional use permit, and up to 260 vehicle parking spaces for dwelling units with at least two bedrooms and at least 1,000 square feet of occupied floor area subject to approval of a conditional use permit. Thus, fewer than the 290 existing parking spaces would be provided with new development on Seawall Lot 330. Similarly, the land use projections assumed new development on Piers 30–32 included reduced or no vehicle parking spaces on

¹⁵⁹ Transit signal priority provides special treatment to transit vehicles at signalized intersections to improve reliability and travel times. There are two components to the light-rail transit signal priority along The Embarcadero (southbound) and Third Street (both ways). If an approaching light-rail vehicle in the northbound or southbound direction is detected, the northbound and southbound left turn phases may be cut short (by roughly half) to bring forward the light-rail vehicle through phase. Alternately, the light-rail vehicle through phase may be extended to accommodate an approaching light-rail vehicle that would otherwise not reach the intersection in time.

Piers 30–32,¹⁶⁰ which would replace and thus substantially reduce the existing 1,000 spaces currently on the piers. Thus, development on the Piers 30–32 and Seawall Lot 330 subsequent project sites would likely reduce the number of existing vehicle parking spaces on these parcels, thereby reducing the number of people driving in private vehicles to the waterfront.

- The South Beach subarea is within walking distance of numerous local and regional transit service providers in the area, such as Muni’s Mission Street and Market Street bus routes, the BART/Muni Embarcadero station at California/Market, the Salesforce Transit Center (AC Transit, Greyhound, WestCAT, Muni, Golden Gate Transit, SamTrans) at Fremont/Mission/First streets, the Caltrain Depot at Fourth/Townsend, and the Ferry Building ferries and water taxis.
- During the weekday p.m. peak hour, subsequent projects within the South Beach subarea would generate 580 transit trips. These transit trips would be distributed between Muni and the regional transit service providers. During the weekday p.m. peak hour, the Waterfront Plan would increase the number of passengers boarding and alighting at the two Muni platforms serving the South Beach subarea (i.e., at Brannan and at Folsom streets) providing access to the E Embarcadero, N Judah and T Third light-rail lines by between two and 17 passengers per line in the northbound direction and between four and 59 passengers per line in the southbound direction. This increase in the number of passengers would not result in a substantial increase in delay due to passenger boardings and alightings at these stations that would substantially affect transit travel times for these three lines.

In the Mission Bay subarea, the proposed relocation of some cruise ships from Pier 35 in the Northeast Waterfront subarea to Pier 50 in the Mission Bay subarea was assessed. The cruise ship arrivals and departures would typically occur during the 7 a.m. to 9 a.m. and 4 p.m. to 6 p.m. periods, respectively, which coincides with the weekday a.m. and p.m. peak commute periods; however, the potential trip overlaps would be limited to the days when a cruise ship is in port at Pier 50 (approximately 10 to 12 days per year), of which 40 to 50 percent occurs on weekends. Additionally, it typically takes an hour or more after the ship arrival for passengers to disembark, while embarking passengers must be on board a couple of hours prior to ship departure, thus reducing the potential for cruise ship generated traffic to interfere with peak hour commuter traffic and transit travel. Furthermore, approximately two thirds of the expected cruise ships would come to San Francisco as a port of call, as opposed to the start or end of the trip, which means that cruise passengers (about 1,300 per ship on average) would be dependent on travel by motor coach, taxi/TNC, public transit, and walking or bicycling, as opposed to by private automobile. As such, the number of additional vehicles generated by the proposed cruise terminal relocation during the peak hours would not be substantial.

Implementation of the Waterfront Plan would have limited effect on Muni bus routes operating within the transportation study area. Where Muni bus routes operate near the waterfront in mixed-traffic travel lanes (e.g., Fisherman’s Wharf and Southern Waterfront subareas), the increases in the number of vehicles due to implementation of the Waterfront Plan would be relatively low, less than 5 percent of vehicles during the p.m. peak hour, and these vehicles would be distributed across multiple streets along the waterfront. Because the contribution of the Waterfront Plan to cumulative traffic volume increases would be low, they would not substantially affect transit operations and would not cause substantial traffic congestion related delay to transit service.

¹⁶⁰ Memorandum to Members of the San Francisco Port Commission from Elaine Forbes, Port of San Francisco Executive Director, September 4, 2020. https://sfport.com/sites/default/files/Commission/Documents/Item%207A%20Piers30-32%20SWL330_final.pdf, accessed October 28, 2021.

REGIONAL TRANSIT SERVICE

There are several regional bus routes that run along or near the waterfront, most notably Golden Gate Transit buses operating on North Point Street and The Embarcadero between North Point and Sansome (northbound)/Battery (southbound) streets as part of their route between downtown and the North Bay. These routes run in mixed-traffic travel lanes on North Point Street and The Embarcadero. In addition, the SamTrans Route 292 runs on northbound The Embarcadero between Mission and Washington streets (for about 0.25 miles). With implementation of the Waterfront Plan, p.m. peak hour traffic volumes on North Point Street would increase minimally (less than 50 vehicles per hour per direction), while increase along the 0.5-mile section of The Embarcadero between Sansome/Battery and North Point streets and between Mission and Washington streets would be higher (less than 150 vehicles per hour per direction). It is possible that these regional bus routes would experience some additional travel time delays associated with localized increases in vehicles along The Embarcadero. However, given the limited distance that these routes travel and small changes to boarding delay associated with additional passengers, the regional transit travel times would not increase as to exceed the significance threshold for regional transit (i.e., would not increase to more than half of the 20- to 30-minute headway between buses during the p.m. peak period).

Other regional transit service providers also would experience increases in ridership due to implementation of the Waterfront Plan. During the weekday p.m. peak hour BART is expected to have about 500 additional passengers and AC Transit about 150, while Caltrain would have about 175 additional passengers, and ferry service approximately 25 additional riders. These additional passengers would be spread among multiple lines, trains and ferries, representing a small percentage increase above the current ridership. Therefore, implementation of the Waterfront Plan would not substantially delay regional transit.

MUNI NON-REVENUE OPERATIONS

For informational purposes, the potential effect of the Waterfront Plan for buses traveling to the Muni's Kirkland bus facility was assessed. There are no Muni bus routes that operate along The Embarcadero, although some Muni buses use the roadway to travel to and from Muni's Kirkland's facility. Bus travel to and from the facility is considered non-revenue bus travel time. Non-revenue buses are not in service dropping off or picking up passengers; rather, they are traveling between the facility and a terminus point where revenue service begins or ends. The additional vehicles generated by subsequent projects would result in somewhat slower travel speeds along The Embarcadero for all vehicles within the mixed-traffic travel lanes, including non-revenue buses. However, vehicles generated by the subsequent projects would not substantially overlap with the non-revenue bus travel, which generally occurs between 4 a.m. and 7 a.m. and between 7 p.m. and 9 p.m. In addition, the decrease in transit travel speeds for non-revenue bus operations would be for a limited distance and duration, which could be incorporated into the scheduled time of departure from the bus yard and would not represent a substantial increase in overall transit travel times for non-revenue bus travel. Therefore, subsequent projects would not substantially affect transit vehicle travel to and from Muni's Kirkland Facility or substantially delay bus operations.

SUMMARY

The expected increases in transit boarding and alighting delays per line or route due to the additional ridership generated by the Waterfront Plan would not substantially delay Muni or regional transit service, while the number of vehicles resulting from the implementation of the Waterfront Plan would not substantially affect transit operations or cause substantial traffic congestion related delay to Muni or regional transit service. Thus,

for the reasons described above, the Waterfront Plan would not substantially delay transit, and the Waterfront Plan's transit delay impacts would be **less than significant**, and no mitigation measures are required.

Impact TR-5: The Waterfront Plan would not cause substantial additional vehicle miles traveled or substantially induce automobile travel. (*Less than Significant*)

With respect to VMT, the effects of the Waterfront Plan are analyzed in this EIR at a programmatic level; subsequent projects would each be required to go through separate environmental review, as applicable. The Waterfront Plan includes the following new policies that would support the City's efforts to expand access to public transit and improve conditions for people walking and bicycling, and thereby encourage travel by non-auto ways of travel and reduce VMT in the city:

- Developing public transit and agency partnerships to ensure affordable, inclusive and equitable access to all transportation modes, and improvements to Muni transit along The Embarcadero, and between Mission Bay and India Basin (Policies 1, 3);
- Coordination with public and private water transportation providers that link Port destinations to one another and to other Bay destinations (Policies 8–10);
- Coordinating to integrate water transit into emergency response and resilience plans and strategies (Policy 11);
- Complete the San Francisco Bay Trail by 2030, as a continuous walking and cycling path from Aquatic Park to India Basin (Policies 12a–12c); and,
- Coordinating with SFMTA on projects to make bicycling more attractive than driving. Working to increase safety and eliminate conflicts between users of all modes (Policies 2, 13–15, 18, 19).

VEHICLE MILES TRAVELED

The analysis of the effect of the Waterfront Plan on VMT was conducted by comparing the VMT per capita for the Plan area for conditions without and with implementation of the Waterfront Plan, as well as assessing consistency with the region's Sustainable Communities Strategy. As described in Approach to Analysis, specifically under VMT Analysis Methodology, the Transportation Authority's SF-CHAMP travel demand model was used to calculate VMT per capita for conditions without and with implementation of the Waterfront Plan. Appendix E2 includes more detailed summaries and calculations of the VMT per capita by TAZ, subarea¹⁶¹ and for the entire waterfront area. **Table 4.C-12** presents the daily VMT per capita for the residential, office, and retail land use types for conditions without and with implementation of the Waterfront Plan.

¹⁶¹ Within the waterfront subareas, the TAZs boundaries do not always align with the boundaries of the parcels under Port jurisdiction and therefore some of the TAZs also include non-Port jurisdiction parcels. To identify the effects of the implementation of the Waterfront Plan on changes in travel demand, the Port and Planning Department staff developed land use changes only for those parcels on any given TAZ that are within the Port jurisdiction and left unchanged the portion corresponding to parcels outside of the Port jurisdiction.

Table 4.C-12 Daily VMT Per Capita – 2020 and 2050 Conditions without and with Implementation of Waterfront Plan

Analysis Scenario/Land Use Type/Trip purpose	Bay Area Regional Average	Without Waterfront Plan	With Waterfront Plan
2020 EXISTING^a			
Residential	18.6	6.8	7.2
Office (work)	25.7	16.6	16.5
Retail	14.9	3.5	3.7
2050 CUMULATIVE^b			
Residential	17.1	6.6	6.6
Office (work)	23.8	14.6	14.6
Retail	15.7	4.6	4.8

SOURCE: LCW Consulting and Advant Consulting, 2021 (see Appendix E2).

NOTES:

The TAZs boundaries within the waterfront subareas do not always align with the boundaries of the parcels under Port jurisdiction and therefore some of the TAZs also include non-Port jurisdiction parcels (see Appendix E2).

- ^a The 2020 Existing Bay Area Regional Average VMT per capita less 15 percent is 15.8 for residential uses, 21.9 for office uses, and 12.7 for retail uses.
- ^b The 2050 Cumulative Bay Area Regional Average VMT per capita less 15 percent is 14.5 for residential uses, 20.2 for office uses, and 13.3 for retail uses.

Table 4.C-12 indicates that within the Plan area (i.e., the 28 TAZs that comprise the transportation study area) the VMT per capita values for the various land use types would be more than 15 percent below the Bay Area regional average:

- For the residential uses, the average daily VMT per capita for the waterfront area without and with implementation of the Waterfront Plan would be between 61 and 63 percent below the 2020 baseline regional average daily VMT per capita.
- For the office uses, the average daily work-related VMT per employee for the waterfront area without and with implementation of the Waterfront Plan would be between 35 and 36 percent below the 2020 baseline regional average daily VMT per employee.
- For the retail uses, the average daily work-related VMT per employee for the waterfront area without and with implementation of the Waterfront Plan would be between 75 and 77 percent below the 2020 baseline regional average daily VMT per employee.

In addition, the Waterfront Plan is consistent with the region’s Sustainable Communities Strategy as the Plan is within areas contemplated for development within Plan Bay Area 2050, the region’s Sustainable Communities Strategy. The California Air Resources Board set a target for Plan Bay Area 2050 of 19 percent reduction in GHG emissions from cars and light trucks from 2005 emission levels by 2035. The Plan Bay Area 2050 EIR identified that Plan Bay Area 2050 can achieve this target.

Subsequent projects under the Waterfront Plan would be located within an area of the city where the daily VMT per capita is more than 15 percent below the regional VMT thresholds. Moreover, subsequent projects under the Waterfront Plan would share many of the characteristics that result in low VMT per capita in the area, characteristics such as density, diversity of uses, proximity to transit, etc.

Table 4.C-13 presents the aggregated average daily VMT per capita for each of the five subareas that comprise the Plan area for 2020 conditions without and with implementation of the Waterfront Plan. In most cases, the average daily VMT per capita for the three land use types for each subarea would be more than 15 percent below the regional average. The exception would be within the Southern Waterfront subarea where the average daily VMT per capita for office type uses would be about 14 percent below the regional average (shown in shading on Table 4.C-13) and would therefore not meet the map-based screening criteria of 15 percent below the regional average.

Table 4.C-13 Daily VMT Per Capita –2020 Conditions without and with Implementation of Waterfront Plan by Subareas

Analysis Scenario/Trip Purpose	Without Waterfront Plan ^a	With Waterfront Plan ^a
FISHERMAN’S WHARF SUBAREA^b		
Residential	5.7	5.6
Office (work)	18.1	17.5
Retail	2.3	2.3
NORTHEAST WATERFRONT SUBAREA		
Residential	6.2	6.6
Office (work)	15.0	15.8
Retail	4.5	4.6
SOUTH BEACH SUBAREA		
Residential	7.5	8.2
Office (work)	13.0	14.7
Retail	2.3	3.0
MISSION BAY SUBAREA		
Residential	2.6	2.6
Office (work)	19.5	20.5
Retail	6.6	6.3
SOUTHERN WATERFRONT SUBAREA		
Residential	8.2	6.2
Office (work)	22.8	21.9
Retail	8.2	8.2

SOURCE: LCW Consulting and Advant Consulting, 2021 (see Appendix E2).

NOTES:

The 2020 Existing Bay Area Regional Average VMT per capita less 15 percent is 15.8 for residential uses, 21.9 for office uses, and 12.7 for retail uses.

The 2050 Cumulative Bay Area Regional Average VMT per capita less 15 percent is 14.5 for residential uses, 20.2 for office uses, and 13.3 for retail uses.

^a **Bold** and **shaded** indicates that the average daily VMT per capita does not meet the screening criteria of 15 percent below the Bay Area regional average VMT per capita.

^b The Fisherman’s Wharf subarea is comprised of four TAZs, the Northeast Waterfront is comprised of nine TAZs, the South Beach subarea is comprised of six TAZs, the Mission Bay subarea is comprised of three TAZs, and the Southern Waterfront subarea is comprised of six TAZs. See Figures 2 through 6 in Appendix E2. The same appendix presents the individual VMT per capita by land use type for each TAZ within the five subareas

Chapter 4. Environmental Setting, Impacts, and Mitigation Measures

4.C. Transportation and Circulation

Specifically, within the Southern Waterfront subarea, the average daily VMT per capita for office-type uses for three of the six TAZs would be below the City's map-based screening criteria of 15 percent below the regional average (see Appendix E2). Two of these TAZs solely include Port property, and one includes the Port's Pier 80 and the SFMTA Muni Metro East rail yards. The subsequent project sites within these three TAZs currently have, and would continue to have with implementation of the Waterfront Plan, a floor area ratio of less than 0.75. Therefore, these TAZs do not meet the planning department's SB 743 checklist (SF Guidelines, Appendix L, Attachment A, Table 2). Thus consistent with the SF Guidelines, an additional assessment was conducted to determine the project's impact on VMT. The results of this additional assessment are described below.

- The three TAZs within the Southern Waterfront subarea include the Port's cargo and industrial operations at the Pier 80 cargo terminal (TAZ 492), the Piers 90–94 Backlands warehouse/PDR/maritime support uses (TAZ 493), and the Piers 92–96 cargo terminals (TAZ 444). Uses on these sites involve vehicle-reliant activities such as construction equipment and materials staging, concrete manufacturing and deliveries, import and export of fill/soils and deconstruction materials, and roll-on/roll-off auto carrier services. These cargo and industrial operations have different travel characteristics, including origins/destinations and time-of-day travel, than other more-residential and commercial land uses along the waterfront and in San Francisco, and therefore have a higher existing VMT per capita. Under the Waterfront Plan, the increase in employment (jobs) in these three TAZs would be 259 jobs (84 jobs in TAZ 444, 0 jobs in TAZ 492, and 175 jobs in TAZ 493), which would be less than 2 percent of the increase in total employment under the Waterfront Plan.
- The three TAZs within the Southern Waterfront subarea are included within the Plan Bay Area 2050 Priority Production Areas¹⁶² that support key industrial clusters on industrial land. The area is roughly bounded by Cesar Chavez Street to the north, Bayshore Boulevard to the west, Industrial Street/Oakdale Avenue/Evans Avenue to the south, and the Bay to the east.¹⁶³ This is the only Priority Production Area designated in San Francisco. As stated above, the Plan Bay Area 2050 EIR finds that the Plan Bay Area 2050 can achieve the GHG reduction targets set by the California Air Resources Board. Thus, the Waterfront Plan's growth in these three TAZs would not preclude the region from meeting its GHG reduction targets. The Waterfront Plan would be consistent with the Plan Bay Area 2050 strategies to reduce VMT by implementing local land use policies to protect key industrial lands identified as Priority Production Areas, while funding key infrastructure improvements in these areas.
- Under existing conditions, the average daily VMT per capita for office (work) for TAZ 444 and TAZ 492 is 2.3 and 8.2 percent below the regional average, respectively, while the average daily VMT per capita for TAZ 493 is 4.7 percent above the regional average. With implementation of the Waterfront Plan, the average daily VMT per capita for these three TAZs would decrease compared to existing conditions, and would be between 6.2 and 13.6 percent below the regional average. This represents a decrease in the average daily VMT per capita of up to 10 percent compared to existing conditions for these three TAZs. This reduction in average daily VMT for conditions with the Waterfront Plan indicates that the new uses under the Waterfront Plan would not cause significant additional VMT, and instead would contribute to a reduction in VMT generated within the subarea.
- The Pier 80, Piers 90–94 Backlands, and Piers 92–96 sites are within a transit priority area, meaning that the sites are located within 0.5 miles of a major transit stop (i.e., the T Third light-rail line) and therefore

¹⁶² Priority Production Areas (PPAs) are locally identified places for job growth in middle wage individuals like manufacturing, logistics or other trades. An area must be zoned for industrial use or have a predominantly industrial use to be a PPA.

¹⁶³ Metropolitan Transportation Commission & Association of Bay Area Governments, *Plan Bay Area Program Draft EIR*, June 2021, Figure 2.5, Growth Geography Designation by Type, p. 2-37.

are accessible to workers traveling by public transit. In addition, subsequent projects would be required to comply with the City's TDM Program, which encourages workers to travel by means other than private automobile, including public transit, further reducing the expected VMT per capita.

- The overall daily vehicle trip generation occurring within the Southern Waterfront subarea represents a small component (less than 7 percent) of the total Waterfront Plan.

Therefore, considering the assessment for these three TAZs, implementation of the Waterfront Plan would not cause significant additional VMT within these three TAZs or within the Southern Waterfront subarea.

INDUCED AUTOMOBILE TRAVEL

The Waterfront Plan does not include any specific changes to the street network within or adjacent to the waterfront. However, as described under Impact TR-2, individual subsequent projects under the Waterfront Plan may include features that would alter the transportation network. These include features such as new and reconstructed sidewalks, sidewalk bulb-outs, bicycle facilities, removal of on-street vehicular parking, on-street commercial and passenger loading/unloading zones, bicycle lanes, raised crosswalks, and modified travel lanes adjacent to the sites. These features fit with the general types of projects identified in Approach to Analysis, under VMT Analysis Methodology, that would not substantially induce automobile travel.¹⁶⁴

SUMMARY

With implementation of the Waterfront Plan, the average daily VMT per capita for the Plan area would decrease from existing conditions and would be more than 15 percent below the regional VMT, and therefore would not result in a significant VMT impact. The additional assessment of the three individual TAZs within the Southern Waterfront subarea that would not be more than 15 percent below the regional VMT threshold demonstrates that implementation of the Waterfront Plan would not cause significant additional VMT. The transportation features of individual subsequent projects under the Waterfront Plan would be types of projects that would not substantially induce automobile travel. Therefore, for the reasons described above, impacts of the Waterfront Plan related to VMT and induced automobile travel would be **less than significant**, and no mitigation measures are required.

Impact TR-6: The Waterfront Plan could result in commercial vehicle and/or passenger loading deficit, and the secondary effects could create potentially hazardous conditions for people walking, bicycling, or driving; or substantially delay public transit. (Significant and Unavoidable with Mitigation)

The Waterfront Plan does not include any specific changes to the on-street commercial vehicle or passenger loading zones and would not immediately result in new development that would generate loading demand. However, subsequent projects under the Waterfront Plan would generate commercial and passenger loading demand that could or could not be accommodated onsite (e.g., within loading areas on pier structures or truck loading spaces per planning code requirements for new development), within nearby on-street curb loading spaces (i.e., yellow loading zones for commercial vehicles and white loading zones for passenger vehicles), or within adjacent lanes. As described under Impact TR-2, subsequent projects are assumed to undergo review by City agencies, including a review of ground-floor/street-level operations so that loading operations and

¹⁶⁴ San Francisco Planning Department, *Executive Summary: Resolution Modifying Transportation Impact Analysis*, Appendix F, Attachment A, March 3, 2016.

vehicle access are adequately accommodated without obstructing, hindering, or impairing drivers' reasonable and safe views of other vehicles, people walking, or people bicycling on the same street and/or restricting the ability of a driver to stop a motor vehicle.

The Waterfront Plan includes new policies, which require the Port to coordinate with the SFMTA to develop and enhance sustainable and reliable goods movement and industrial transportation access within the City and to Port facilities, including designation and management of curb zones for loading and access (Policies 23–30).

FISHERMAN'S WHARF, NORTHEAST WATERFRONT AND SOUTH BEACH SUBAREAS

The majority of the existing pier structures currently provide area(s) identified for freight loading that are assumed to remain or be modified as existing structures on the piers would be reused or upgraded. At locations where the number of vehicles using the existing driveways increases due to new development, dashing the northbound bicycle lane color treatment or other treatments (striping, signage, etc.) are assumed to be added to the bicycle lane, as determined by SFMTA, to highlight that vehicles are expected to cross the bicycle lane.

It is possible that some subsequent projects on the piers may not include onsite commercial loading spaces. Planning code section 161(b) states that “No off-street parking or loading shall be required when access to the lot cannot be provided other than by means of driveway across a sidewalk 25 feet or more in width from the curb to the front lot line, which would cause serious disruption to pedestrian traffic.”

Where commercial vehicle and passenger loading is to be accommodated on the street adjacent to the promenade, the new loading zones would need to consider the existing bicycle lane that is currently located either adjacent to the curb or adjacent to curbside parking. Implementation of either commercial vehicle or passenger loading zones could include:

- Provision of curbside loading where the vehicle would cross the existing bicycle lane, similar to existing conditions nearby the Ferry Building and for buses at the Exploratorium where the existing bicycle lane is not physically protected.
- Provision of a curbside loading with a lane separator curb system adjacent to the zone to demarcate the loading zone for drivers and bicyclists, and to channelize vehicles to one ingress point and one egress point to minimize the area of potential conflict between bicyclists and vehicles. Such a system is provided for the Exploratorium vehicle passenger loading zone south of Pier 17.
- Provision of a floating¹⁶⁵ loading zone located to the left of the bicycle lane, similar to that currently provided adjacent to the buffered bicycle lane at the Rincon Park restaurants in the vicinity of Pier 22½.
- An accessible loading island to the west of the bicycle lane, like that currently provided adjacent to the buffered bicycle lane on Valencia Street adjacent to the San Francisco Friends School between 13th and 14th streets.

For curbside loading zones, color, yield line, and/or “Yield to Bike” signage are assumed would be installed, as appropriate, to make it clear that the bicycle lane has priority over vehicles entering and exiting the loading areas. The curbside loading zones without and with a lane separator system requires vehicles to cross the

¹⁶⁵ A floating zone is a parking or loading zone that is moved away from the curb, further into the street, to allow for a bicycle lane against the curb. Drivers use the parking spaces or loading zone just as they would at any other curb location. Drivers may not park or drive within the bicycle lane.

bicycle lane, while the floating loading zone and accessible loading island requires people to walk across the bicycle lane while increasing the distance that a person must travel from the vehicle to the sidewalk. However, these configurations are consistent with SFMTA, public works and national standards (e.g., the National Association of City Transportation Officials [NACTO] urban street design guides) for loading facilities adjacent to bicycle lanes, and appropriately applied configurations are assumed that they would be able to accommodate loading demand.

For new development projects on the landside of The Embarcadero at Seawall Lots 314, 321, and 330, onsite or on-street commercial vehicle and on-street passenger loading would likely be provided to accommodate the demand and could use similar configurations to those described above. For example, the ground floor configuration for new development at the three seawall lots would be similar to the approved TZK Broadway and Teatro ZinZanni project at Seawall Lots 323 and 324 (between Davis Street and Broadway). This project will provide an on-street passenger loading zone on Broadway (about 80 feet) and a 42-foot-long commercial vehicle zone on Davis Street. These on-street zones would be in addition to the two onsite freight loading spaces. The actual location and configuration of on-street commercial vehicle or passenger loading zones would be reviewed by the Port, the planning department, SFMTA and other City agencies.

Except for Seawall Lot 314, there are no Muni bus routes that currently operate adjacent to the subsequent project sites frontage. As described under Impact TR-2, Seawall Lot 314 is bounded by The Embarcadero, Bay Street and Kearny Street, and a bus stop and layover for the 8 Bayshore and 8BX Bayshore B Express bus routes are located adjacent to the project site on Kearny Street. Development on this site could maintain this configuration while providing vehicular access (similar to existing conditions) to the site and/or commercial vehicle and passenger loading at the curb on Bay Street (240-foot-long frontage adjacent to Seawall Lot 314).

As described above, it is anticipated that the majority of the subsequent projects within the Fisherman's Wharf, Northeast Waterfront, and South Beach subareas would be able to be designed to accommodate commercial vehicle and passenger loading activities within the sites and/or on streets adjacent to the sites. However, given that subsequent projects have not been designed and timing of development is not known, it is possible that some development sites and surrounding roadways may restrict new curb cuts and/or on-street commercial or passenger loading spaces may not be possible to provide. As noted above, planning code section 161(b) allows for new development projects to not include required off-street freight loading spaces when access to the lot requires a driveway across a sidewalk 25 feet or more (i.e., the majority of parcels on the water side of The Embarcadero), while planning code section 155(r)(2)(F) does not permit new garage entries, driveways, or other vehicular access to parcels on the land side of The Embarcadero between Jefferson and Townsend streets. Furthermore, geometric constraints related to the triangular configuration of parcels on the land side of The Embarcadero (e.g., driveways on streets other than The Embarcadero could be too close to adjacent intersections or adequate sightlines may not be possible), existing curb regulations (e.g., bus stops, red zones), and existing and planned facilities (e.g., bicycle lanes) may further restrict provision of new curb cuts and/or on-street commercial or passenger loading spaces. In addition, existing on-street commercial vehicle and passenger loading spaces may not be located so as to accommodate the new demand.

In the event that some loading activities do not occur at the designated locations, these loading activities could cause a brief temporary blockage of traffic or bicycle lanes. Adjacent to subsequent project sites on the piers, loading activities could potentially occur within the northbound traffic lane of The Embarcadero at locations where a protected bicycle lane (class IV facility) is provided, or within the bicycle lane where the bicycle lane is not protected (class II facility). Thus, it is possible that within the Fisherman's Wharf, Northeast

Waterfront, and South Beach subareas, an inadequate supply of off-street commercial loading spaces and/or on-street commercial loading and passenger loading spaces could disrupt circulation for transit, vehicles, and people walking and bicycling, and create potentially hazardous conditions.

MISSION BAY SUBAREA

There are no potential subsequent projects that would include new construction identified within the Mission Bay subarea. However, as part of implementation of the Waterfront Plan, the Port would allow cruise ships to dock at Pier 50, which has shoreside power that can be upgraded to support cruise vessels, as an alternate location to Pier 35, which does not have shoreside power. As discussed above in Project Travel Demand Methodology and Results, allowing cruise ships to dock at Pier 50 would not induce additional maritime activity, but instead would relocate about 10 to 12 cruise ships per year from Pier 35 in the Northeast Waterfront subarea to the Mission Bay subarea. The use of Pier 50 as a cruise terminal would not involve any construction associated with docking cruise ships since there are existing pier sheds that could accommodate freight and passenger loading and passenger processing (i.e., an off-street ground transportation area). Vehicle access to Pier 50 would continue to occur via Terry A. Francois Boulevard. Therefore, within the Mission Bay subarea, the freight and passenger loading demand associated with using Pier 50 for cruise ships would be accommodated within the existing pier and would not result in a loading deficit.

SOUTHERN WATERFRONT SUBAREA

Existing uses within the Pier 70 Triangle and the Piers 90–94 Backlands, which are large multi-acre maritime and industrial sites, currently accommodate freight loading demand within their respective sites, and subsequent projects on these sites would continue to provide onsite freight loading facilities in a similar manner. Development of these sites would likely include accommodation of passenger loading either onsite or curbside adjacent to new sidewalks. Thus, within the Southern Waterfront subarea, any occasional temporary blockage of travel lanes adjacent to these sites due to loading activities would not create potentially hazardous conditions for people walking, bicycling, or driving or substantially delay transit.

SUMMARY

In summary, for the reasons described above, subsequent projects within Mission Bay and the Southern Waterfront subareas would not result in a loading deficit that would result in secondary impacts. However, subsequent projects within the Fisherman’s Wharf, Northeast Waterfront, and South Beach subareas could disrupt circulation for transit, vehicles, and people walking and bicycling, and create potentially hazardous conditions, and implementation of subsequent projects under the Waterfront Plan could result in **significant loading impacts**, and **Mitigation Measure M-TR-6, Driveway and Loading Operations Plan (DLOP)**, would apply.

Mitigation Measure M-TR-6: Driveway and Loading Operations Plan (DLOP). Sponsors of subsequent projects that provide more than 100,000 square feet¹⁶⁶ of residential or commercial uses shall prepare and implement a DLOP to reduce potential conflicts between driveway and loading operations, including passenger and freight loading activities, and people walking, bicycling, and

¹⁶⁶ The threshold of 100,000 square feet in this mitigation measure is consistent with planning code section 155(u), which requires implementation of a Driveway and Loading Operations Plan (DLOP) in the Central SoMa Special Use District and Van Ness & Market Residential Special Use District. Developments that provide more than 100,000 square feet are required to provide off-street loading spaces and have a greater loading demand than buildings that provide less than 100,000 square feet.

driving, to maximize reliance of onsite loading spaces to accommodate new loading demand, and to ensure that off-site loading activity is considered in the design of new buildings.

Applicable projects shall prepare a draft DLOP for review and approval by the planning department, in consultation with the Port and SFMTA, as part of project review and finalized prior to issuance of the first certificate of occupancy. The DLOP shall be written in accordance with any guidelines issued by the planning department.

Significance after Mitigation: Due to the uncertainty that onsite and on-street loading spaces could be provided to meet demand, a substantial loading deficit may occur even with implementation of the mitigation measure; therefore, this mitigation measure would not reduce significant impacts to less-than-significant levels. As such, even with implementation of Mitigation Measure M-TR-6, loading impacts would remain **significant and unavoidable with mitigation**.

Impact TR-7: The Waterfront Plan would not result in a substantial parking deficit. (*Less than Significant*)

The planning department's transportation impact analysis guidelines¹⁶⁷ include screening criteria for projects that would not result in a substantial parking deficit. Much of the Plan area (i.e., 25 of the 28 TAZs that comprise the waterfront area) is within the department's map-based screening area for the VMT analysis; therefore, subsequent projects under the Waterfront Plan would not result in substantial vehicular parking deficits. Thus, no secondary impact analysis is necessary for these 25 TAZs.

For the three TAZs within the Southern Waterfront subarea that are not within the map-based screening area for the VMT analysis—the TAZs that include Pier 80, Piers 90–94 Backlands, and Piers 92–96—an additional assessment was conducted to determine whether subsequent projects within these sites would create a parking deficit that could result in secondary effects such as potentially hazardous conditions for people walking, bicycling, or driving; or interfere with accessibility for people walking or bicycling or inadequate access for emergency vehicles; or substantially delay public transit.

The Pier 80, Piers 90–94 Backlands, and Piers 92–96 sites contain the majority of the Port's existing cargo and industrial operations. These sites are large (i.e., between 70 and 90 acres each) with identified areas that accommodate vehicle parking and vehicle staging and have room to expand parking supply. Subsequent projects would add about 300 total new jobs total among the three sites, and, given the continued industrial uses on the sites, the vehicle parking demand associated with these new employees and visitors would likely be accommodated on the sites without resulting in a substantial parking deficit. Therefore, no secondary impact analysis is necessary for these three TAZs in the Southern Waterfront subarea.

In summary, the subsequent projects within the Plan area would not result in a substantial vehicular parking deficit. The Waterfront Plan impacts related to vehicular parking would be **less than significant**, and no mitigation measures are required.

¹⁶⁷ San Francisco Planning Department, *Transportation Impact Analysis Guidelines*, October 2019, <https://sfplanning.org/news/transportation-impact-analysis-guidelines-update>, accessed November 9, 2020.

CUMULATIVE IMPACTS

The geographic context for the analysis of cumulative transportation impacts includes the sidewalks and roadways within the transportation study area. The discussion of cumulative transportation impacts assesses the degree to which subsequent projects under the Waterfront Plan would affect the transportation network, in conjunction with overall citywide growth and other reasonably foreseeable projects.

Impact C-TR-1: The Waterfront Plan, in combination with cumulative projects, could contribute considerably to significant cumulative construction-related transportation impacts. (*Significant and Unavoidable*)

Chapter 4, Environmental Setting, Impacts, and Mitigation Measures, describes the cumulative land development, transportation, and public infrastructure projects considered in the analysis. These projects would result in increases in construction worker vehicles and construction trucks, may use the same construction access routes to regional facilities, and may result in temporary roadway and sidewalk closures. Overall, localized cumulative construction-related transportation impacts could occur as a result of projects that either increase construction traffic at the same time and on the same roads as other land development projects or overlap public infrastructure projects that temporarily reduce the number of travel lanes on the local roadway network and increase the number of construction-related vehicle trips.

Subsequent projects under the Waterfront Plan would occur over time as individual projects are proposed and approved, and it is possible that their construction may overlap with other cumulative projects. Similar to subsequent projects under the Waterfront Plan, project sponsors and construction managers of projects considered in the cumulative analysis would be required to coordinate with various City departments, such as SFMTA and public works, comply with the SFMTA blue book regulations during construction, coordinate any temporary sidewalk and travel lane closures, and develop coordinated plans that would address construction-related vehicle routing, traffic control, and movements of people walking adjacent to the construction area for the duration of the construction overlap.

In general, subsequent projects would be distributed along the 7.5-mile-long waterfront and generally would not be near each other or other cumulative projects. For example, in the Northeast Waterfront subarea, the 16- to 22-month duration of construction on the TZK Broadway and Teatro ZinZanni project on The Embarcadero between Broadway and Davis Street (Seawall Lots 323 and 324) would likely be completed prior to the start of construction of subsequent projects at Seawall Lots 321 and 314, and Piers 27–35 to the north. Also in the Northeast Waterfront subarea, the Better Market Street project would phase construction of sidewalk, roadway, and transit infrastructure changes to the Market Street corridor between Steuart Street and Octavia Boulevard. Construction would occur over a longer duration (6 to 14 years, depending on availability of funding) and would result in substantial disruption for transit, people walking, and people bicycling localized along the Market Street corridor. However, Market Street ends at Steuart Street and does not connect with The Embarcadero and therefore these construction-related conditions would not extend onto The Embarcadero.

In the Mission Bay subarea, there are no subsequent projects in the vicinity of the Mission Rock and the Mission Bay Ferry Landing projects, given that the Mission Bay Plan is substantially built out. In the Southern Waterfront subarea, two larger cumulative development projects are currently under construction, the Pier 70 project and the Potrero Power Station project. These projects include construction management plans that will include provisions for conditions when construction overlaps with other development projects. With the

exception of the overlap of a subsequent project at the Pier 70 Triangle site adjacent to the Pier 70 project, these projects would not substantially overlap in location of subsequent projects under the Waterfront Plan. The Pier 70 project and the subsequent project at the Pier 70 Triangle would both use 20th Street for access to their respective sites, while access to the Pier 70 Triangle site also would be via 19th Street. There are no cumulative projects in the vicinity of the Piers 90–94 Backlands. In the Mission Bay and Southern Waterfront subareas, cumulative project construction activities would not substantially affect the bicycle lanes on Terry A. Francois Boulevard, Illinois Street or Cargo Way, and the presence of class II and class IV bicycle lanes on these streets would minimize potential conflicts between construction vehicles and bicyclists. The SFMTA blue book regulations require the implementation of construction safety measures for people walking. Construction activities that require use of any part of the sidewalk are required to maintain access for people walking through the area for all users. Where complete sidewalk closures are required, alternative access walkways and detours would be implemented. The detours may increase travel distance and may be an inconvenience to some people walking, but they would not result in potentially hazardous conditions for people walking.

In the instances described above, overlapping construction of cumulative projects within subareas would not result in significant impacts. However, in the Northeast Waterfront and South Beach subareas, overlap of improvements associated with the Port's Waterfront Resilience Program along the 3-mile-long Embarcadero seawall and the Embarcadero Enhancement Program could occur with subsequent projects under the Waterfront Plan. This potential overlap of construction activities along the waterfront would result in significant cumulative construction-related transportation impacts.

The Port's Waterfront Resilience Program is currently assessing existing conditions and required improvements, and therefore the location, timing and type of required seawall improvements are currently unknown. Based on preliminary information on potential configuration of the seawall improvements (e.g., location of ground improvements, different engineering and construction and flood adaptation methods and designs), seawall construction activities could be conducted via barge and/or from The Embarcadero Promenade and could require construction materials and equipment transported by truck.

The Embarcadero Enhancement Program would create a two-way bikeway along the eastern side of The Embarcadero between North Point and Townsend streets. Construction activities for the segments of the bikeway north of Broadway and south of Bryant Street could include relocating traffic signal poles, narrowing the center transit median, revising the promenade curb, utility changes (e.g., relocated sewer catchment basins), and changing signage and striping. Design and timing for implementation of The Embarcadero Enhancement Program bikeway south of Bryant Street and north of Broadway is not currently known but could overlap with construction of subsequent projects in the Northeast Waterfront and South Beach subareas.

Given the design and timing uncertainties for the Waterfront Resilience Program and The Embarcadero Enhancement Program, these cumulative projects could result in multiple travel lane closures, high volume of trucks along The Embarcadero, and closure of the promenade, which, in turn, could disrupt or delay transit, people bicycling, or people walking, or result in potentially hazardous conditions (e.g., high volume of trucks crossing The Embarcadero Promenade to access the seawall). Therefore, it is possible that simultaneous construction of cumulative projects could result in significant disruptions for vehicular traffic, transit, people walking, and people bicycling within the Northeast Waterfront and South Beach subareas, even if each individual cumulative project alone would not result in significant impacts. This would be considered a significant cumulative construction-related transportation impact, and subsequent projects could contribute

substantially to these significant cumulative impacts. However, it is also noted that substantial disruptions or delays may not occur as contractors develop more detailed construction schedules and construction plan details.

All known feasible measures to avoid or minimize effects of construction activities of development, transportation, and infrastructure projects in the public right-of-way are already incorporated in existing SFMTA and public works regulations. However, as noted above, even with compliance with City regulations, it is possible that overlapping projects could disrupt or delay transit, people bicycling, or people walking, or result in potentially hazardous conditions. Imposing sequential (i.e., non-overlapping schedules) for all projects along the waterfront would be infeasible due to potentially lengthy delays in project implementation. Because no feasible mitigation measures are available to avoid or minimize this impact, the cumulative construction-related transportation impacts could be **significant and unavoidable**.

Impact C-TR-2: The Waterfront Plan, in combination with cumulative projects, would not create potentially hazardous conditions for people walking, bicycling, or driving or for public transit operations. (Less than Significant)

Chapter 4, Environmental Setting, Impacts, and Mitigation Measures, p. 4-8, describes the cumulative projects, which include land use development, transportation network, and infrastructure projects. As with subsequent projects under the Waterfront Plan, other cumulative development projects such as the TZK Broadway and Teatro ZinZanni project in the Northeast Waterfront subarea, the Mission Rock project in the Mission Bay subarea, and the Pier 70 and Potrero Power Station projects in the Southern Waterfront subareas would conform to the requirements of the Better Streets Plan, the Transit-First Policy, and Vision Zero, as applicable. Cumulative transportation network projects include The Embarcadero Enhancement Program and the Better Market Street project that would improve safety for people bicycling and walking and would not create hazardous conditions for people driving or transit operations. Studies are currently underway for the Port's Waterfront Resilience Program; however, seawall improvements are not anticipated to permanently modify the existing transportation network along The Embarcadero and would therefore not create potentially hazardous conditions.

Under cumulative conditions, trips by people walking, bicycling, or driving along the waterfront roadways and connecting streets would increase with implementation of subsequent projects under the Waterfront Plan and other cumulative development projects identified above, and growth elsewhere in the city and region. This increase would be expected to lead to an increase in the potential for conflicts between people driving and people walking, people bicycling, and public transit operations. However, a general increase in cumulative travel by all modes, in and of itself, would not be considered a potentially hazardous condition. Cumulative projects, including subsequent projects under the Waterfront Plan, would be designed consistent with City policies and design standards, including the Better Streets Plan and Vision Zero, and therefore would not create potentially hazardous conditions. Thus, cumulative impacts related to potentially hazardous conditions would be **less than significant**.

Refer to Impact C-TR-6 for cumulative loading impacts related to potentially hazardous conditions that could result from an inadequate supply of loading spaces and potential disruptions to transit vehicles, other vehicles, and people walking and bicycling.

Impact C-TR-3: The Waterfront Plan, in combination with cumulative projects, would not interfere with accessibility of people walking or bicycling to and from the project area and adjoining areas, or result in inadequate emergency access. (*Less than Significant*)

Overall, cumulative land development and transportation projects would enhance the transportation network for all modes and would promote accessibility for people walking and bicycling within and along the waterfront by conforming to the requirements of the Better Streets Plan, Transit-First Policy, and Vision Zero, and by adhering to planning principles that emphasize providing convenient connections and safe routes for people walking and bicycling.

This would be the case especially within the Southern Waterfront where the Pier 70 and the Potrero Power Station projects include buildout of the roadway network within these larger project sites, including installation of new sidewalks and bicycle lanes. In addition, these projects will reconstruct existing sidewalks and provide new sidewalks on streets adjacent to the sites (e.g., on Illinois Street), as well as install new traffic signals, crosswalks, ADA ramps at key intersections serving the project sites, and complete the Bay Trail through the sites. In addition, the Pier 70 and the Potrero Power Station projects will provide shuttle service between the sites and key destinations (e.g., 16th Street BART station) and facilities such as bus stops and/or bus layovers to accommodate potential future extension of Muni bus service into the project sites. The Embarcadero Enhancement Program and the Mission Bay Ferry Landing Project would enhance accessibility for people walking, bicycling and taking transit. None of the cumulative projects would interfere with emergency access. In addition, for these projects and other potential projects under the proposed housing element update, prior to finalizing the design and dimensions of any proposed transportation network changes under City jurisdiction, fire department and the police department staff would review and approve streetscape modifications, as required through the City's Transportation Advisory Staff Committee review process, so that emergency vehicle access is not impeded. Under cumulative conditions, there would be a projected increase in vehicles on study area streets; however, the increase would not impede travel or access for people walking or bicycling, or for emergency vehicles. Thus, cumulative impacts related to accessibility would be ***less than significant***.

Impact C-TR-4: The Waterfront Plan, in combination with cumulative projects, could contribute considerably to significant cumulative public transit delay impacts. (*Significant and Unavoidable with Mitigation*)

Cumulative transportation network projects that would enhance transit operations in the vicinity of the Plan area include Muni Forward and the Better Market Street project. These projects would implement or enhance transit-only lanes on Market and Mission streets, thereby reducing conflicts between private vehicles and transit vehicles and improve transit vehicle travel times on those streets. The Better Market Street Project includes multiple elements to improve transit operations and reliability along the Better Market Street project corridor, including a new F Market & Wharves historic streetcar loop at Charles J. Brenham Place/Seventh Street. The Better Market Street Project EIR did not identify any significant cumulative impacts on Muni or regional routes operating along Market or Mission streets, or on streets crossing the Market Street project corridor in the vicinity of the Plan area.¹⁶⁸ In addition, service on the Central Subway will be initiated in spring 2022, and will extend the T Third

¹⁶⁸ The Better Market Street Project EIR identified a significant cumulative impact on the 27 Bryant bus route crossing Market Street, but this route does not run near the waterfront. The SFMTA has implemented a portion of the 27 Bryant Transit Reliability Project to improve operations of the 27 Bryant route.

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light-rail line to the north of King Street via Fourth Street to provide a direct transit link between the Southern Waterfront and Mission Bay subareas and SoMa, Union Square, and Chinatown.

Implementation of The Embarcadero Enhancement Program and the Waterfront Resilience Project would not change the operation of the historic streetcars and light rail within the exclusive median right-of-way along The Embarcadero and neither project is expected to change transit travel times for the historic streetcar and light-rail lines. Therefore, within the Fisherman's Wharf and the Northeast Waterfront subareas, cumulative projects would not result in significant cumulative transit delay impacts.

Within the South Beach, Mission Bay and Southern Waterfront subareas, transit travel times for bus routes and light-rail lines not operating within transit-only lanes or within exclusive medians would increase compared to existing conditions. Cumulative projects such as the Central SoMa Plan, Mission Rock, Pier 70, Potrero Power Station projects, and the proposed housing element update would generate new vehicle trips and transit riders, as described below.

- The Central SoMa Plan EIR identified significant cumulative transit delay impacts for numerous bus routes within the Central SoMa Plan area. The Central SoMa Plan area extends south to Townsend Street and east to Second Street near the South Beach subarea, and subsequent projects under the Waterfront Plan in the South Beach subarea could combine with development and transportation network changes under the Central SoMa Plan to delay transit. This would be a significant cumulative transit delay impact.

The Central SoMa Plan EIR identified significant cumulative transit delay impacts on the 10 Townsend, 30 Stockton, 45 Union-Stockton and 47 Van Ness bus routes that run east-west on Townsend Street, and/or north-south on Second, Third, Fourth and/or Fifth streets. The Waterfront Plan's contribution to the significant cumulative transit delay impacts on these routes was estimated based on the additional vehicles that the Waterfront Plan would add to streets on which the routes run, the number of travel lanes and transit-only lanes available, and the distance that the buses from each bus route travel on these streets.

Under cumulative conditions, weekday p.m. peak period traffic volume increases on Second, Third, Fourth, and Fifth streets due to the Waterfront Plan would be generally less than 5 percent, while traffic volume increases on Townsend Street due to the Waterfront Plan would be about 15 percent. Furthermore, future cumulative traffic conditions along this segment of Townsend Street would be close to its maximum capacity that with the Waterfront Plan's contribution could be exceeded. Due to the minimal additional volumes that the Waterfront Plan would add to north-south streets (many of which have multiple travel lanes each way and/or transit-only lanes), and because some bus routes would travel on Townsend Street for only a short distance (i.e., one to two blocks), the Waterfront Plan's contribution to the significant cumulative transit delay impacts on the 30 Stockton, 45 Union-Stockton, and the 47 Van Ness bus routes¹⁶⁹ would not be cumulatively considerable. However, due to the projected larger increase in vehicles generated by the Waterfront Plan traveling to and from the waterfront using Townsend Street, and because the 10 Townsend travels on Townsend Street for six blocks, the contribution to the significant cumulative transit delay impacts for this route would be considerable. Therefore, the Waterfront Plan would contribute considerably to the significant cumulative transit delay impacts.

- Within the Mission Bay subarea, the Seawall Lot 337 and Pier 48 Mixed-Use Project EIR identified a cumulative transit delay impact related to vehicle queues at the westernmost driveway to the project

¹⁶⁹ The 30 Stockton on Townsend Street for two blocks and north-south on Third, Fourth and Fifth streets (the 30 Stockton Short route runs on Fifth Street between Harrison and Townsend streets). The 45 Union-Stockton travels on Townsend Street for two blocks and north-south on Third and Fifth streets. The 47 Van Ness route travels on Townsend Street for one block and north-south on Fourth and Fifth streets.

garage on Mission Rock Street extending upstream on southbound Third Street from the intersection of Third Street/Mission Rock Street during the a.m. peak hour. As described under Impact TR-4, the cruise ship generated traffic at Pier 50 would occur about 10 days a year, half of which would be weekend days, would involve mostly non-private automobile traffic, and would not generally coincide with the weekday a.m. peak hour. The left turn from southbound Third Street onto eastbound Mission Rock Street would be used by vehicles destined to the cruise terminal traveling southbound/westbound on The Embarcadero and King Street (e.g., from North Beach, North Bay). Vehicles destined from elsewhere in San Francisco and the region would likely access Pier 50 from the north via southbound Fourth Street and then eastbound Mission Rock Street, from the west via eastbound Mission Bay Boulevard or 16th Street and then northbound on Terry A. Francois Boulevard, or from the south via northbound Terry A. Francois Boulevard or Third Street. Due to the infrequent presence of cruise ships at the Pier 50 cruise terminal and because only a small portion of the vehicle trips traveling to it would access the site via the southbound left turn from Third Street onto Mission Rock Street, the proposed cruise terminal under the Waterfront Plan would not contribute considerably to the significant cumulative impacts on the T Third light-rail operations identified by the Seawall 337 and Pier 48 Mixed-Use Project EIR.

- Within the Southern Waterfront subarea, the Pier 70 Mixed-Use District Project EIR and the Potrero Power Station Mixed-Use Development Project EIR did not identify any significant cumulative impacts on light-rail operations or regional transit. However, the Potrero Power Station project identified a significant cumulative impact on the Muni 48 Quintara/24th Street and the 55 Dogpatch bus routes as a result of new development within the Pier 70 and Potrero Power Station project sites.¹⁷⁰ Therefore, within the Southern Waterfront subarea the cumulative transit delay impact would be significant. Subsequent projects under the Waterfront Plan at the Pier 70 Triangle in the Southern Waterfront subarea would generate 160 vehicle trips and 30 transit riders during the p.m. peak hour. This is not a considerable contribution to the significant cumulative impacts on the Muni 48 Quintara/24th Street and 55 Dogpatch routes.
- The proposed housing element update would increase the number of housing units in San Francisco between existing and future year 2050 conditions by 150,000 units. While analysis of the proposed housing element update is currently underway, a housing element update concept could encourage increased land use density and intensity that could result in significant cumulative transit delay impacts in the Mission Bay and Southern Waterfront subareas. As described above, implementation of the Waterfront Plan would generate a limited number of new vehicle trips and new transit riders during the peak hour within the Mission Bay and Southern Waterfront subareas, and therefore the Waterfront Plan would not contribute considerably to any significant cumulative impacts that may result from implementation of the proposed housing element update.

Measures to avoid or minimize effects of cumulative traffic volumes on Townsend Street are constrained due to the limited existing street width and its mostly single lane configuration without affecting the existing bicycle lanes, passenger loading zones, and/or sidewalks. The recently completed Townsend Corridor Improvement Project,¹⁷¹ implemented by the SFMTA reduced curbside parking spaces (95 spaces), installed protected bicycle lanes each way, expanded the number and length of commercial and passenger loading zones, including those for tour bus (e.g., Amtrak) and taxis near the Caltrain terminus station at Fourth and Townsend streets, and installed a bus bulb. Thus, in many blocks, the potential for adding transit-only lanes

¹⁷⁰ The new Muni 55 Dogpatch bus route was initiated in January 2021. Within the Potrero Power Station EIR, this route was referred to as the 22 Fillmore/Route XX because the SFMTA Bus Fleet Management Plan 2017-2030 specified that a “new service will be introduced in Potrero Hill to replace the service currently provided by Route 22 in Potrero Hill and Dogpatch and is also being evaluated to provide a new connection to the redevelopment project at Pier 70.”

¹⁷¹ SFMTA, Townsend Corridor Improvement Project: <https://www.sfmta.com/projects/townsend-corridor-improvement-project>, accessed September 13, 2021.

as a means to reduce transit delay on Townsend Street would require eliminating bicycle lane buffers, narrowing sidewalks, and/or eliminating passenger or commercial loading zones (i.e., removing some of the changes implemented by the Townsend Corridor Improvement Project). Furthermore, the presence of the Caltrain terminus station at the corner of Fourth and Townsend streets, with more than 15,000 average weekday boardings, makes any potential reduction of sidewalk width, passenger loading zones, or designated tour bus or taxi zones infeasible.

Thus, within the South Beach subarea, travel demand associated with the Waterfront Plan would contribute considerably to significant cumulative transit delay impacts. As such, **Mitigation Measure M-C-TR-4, Implement Measures to Reduce Transit Delay**, would be required.

Mitigation Measure M-C-TR-4: Implement Measures to Reduce Transit Delay. Consistent with the Waterfront Plan's new transportation policy 46 (Developing and implementing Port-wide and subarea Transportation Demand Management plans), the Port shall be responsible for preparing a South Beach subarea Transportation Demand Management (TDM) plan to reduce vehicular travel in this subarea and support use of sustainable travel modes. Strategies to reduce vehicular travel in this subarea shall include but not limited to:

- Land use/transportation coordination, such as parking demand management, SFMTA coordination, multi-modal marketing, education, and outreach programs; and
- TDM requirements generally consistent with the Planning Commission's Standards for TDM Program (TDM Program Standards) for the project sponsors of subsequent leasing and new development (development project) in this subarea that meet the applicability criteria of planning code section 169.3, TDM Program. The Planning Department shall consider applying a 10 percent greater target points requirement than that set forth in the TDM Program Standards to a development project based on if the development project would result in cumulatively considerable delay to the 10 Townsend route, and feasibility of additional TDM measures. Such TDM measures to meet the target points could include those in the TDM Program Standards, or other TDM measures determined appropriate by the SFMTA and the Planning Department.

The Port shall prepare the subarea TDM plan in coordination with the Planning Department and the SFMTA, and the Port shall finalize the plan for implementation within two years of the final approval and certification of the Waterfront Plan EIR or prior to City approval of subsequent leasing and new development in the subarea that meet the applicability criteria of planning code section 169.3, whichever is later. A Port-wide TDM plan that includes South Beach subarea TDM details shall satisfy this requirement.

Significance after Mitigation: Mitigation Measure M-C-TR-4 aims to reduce the impact of project-generated vehicle trips on congestion and transit travel times on nearby streets by implementing additional or more intense TDM measures than those required under the department's TDM Program at the time of Plan approval. The new/expanded measures would provide onsite services to reduce the need to travel offsite, shift travel to higher occupancy vehicles and transit, move vehicle trips to non-peak traffic demand periods, and/or encourage use of other non-auto modes, including bicycling. Shifting a portion of project-generated vehicles to other modes would reduce projected increases in congestion and transit travel times at intersections through which the 10 Townsend route travels. However, it is not certain that implementation of this mitigation measure would sufficiently reduce project-generated vehicles such that the Waterfront Plan's impacts on the 10 Townsend route would not be cumulatively considerable. For these reasons, the Waterfront Plan could

contribute considerably to significant cumulative transit delay impacts that would be **significant and unavoidable with mitigation**.

Impact C-TR-5: The Waterfront Plan, in combination with cumulative projects, would not cause substantial additional vehicle miles traveled or substantially induce automobile travel. (Less than Significant)

VMT by its very nature is largely a cumulative impact. Cumulative projects might cause people to drive and contribute to the physical secondary environmental impacts associated with VMT; however, it is likely that no single project by itself would be large enough to prevent the region or state from meeting its VMT reduction goals. As stated above, the Waterfront Plan would not exceed the project-level thresholds for VMT. In addition, Plan Bay Area 2050 would meet GHG reduction targets set by the California Air Resources Board.

Furthermore, daily VMT per capita for 2050 cumulative conditions without and with implementation of the Waterfront Plan were projected using an SF-CHAMP model run developed with the same methodology outlined for existing conditions but including residential and job growth estimates from identified and anticipated development projects through 2050 and the reasonably foreseeable transportation investments that are expected to occur through 2050. As shown on Table 4.C-12, p. 4.C-66, the projected VMT per capita and per employee under 2050 cumulative conditions for the waterfront without and with implementation of the Waterfront Plan would be less than under existing conditions for residential and office land uses but slightly more for retail uses. The VMT per capita for the three land use types would be below their respective city-established thresholds of Bay Area regional average minus 15 percent.

In addition, as discussed under Impact TR-5, the Waterfront Plan would be consistent with the region's Sustainable Communities Strategy; therefore, the Waterfront Plan would not result in substantial additional VMT. Thus, cumulative VMT impacts would be **less than significant**.

Impact C-TR-6: The Waterfront Plan, in combination with cumulative projects, could contribute considerably to significant cumulative loading impacts. (Significant and Unavoidable with Mitigation)

Within and adjacent to the Plan area, cumulative development, transportation, and infrastructure projects would affect commercial and passenger loading conditions. Under cumulative conditions, commercial vehicle and passenger loading activities on streets nearby the waterfront would increase as a result of development projects; however, these activities would be in the vicinity of their respective sites and generally would not likely combine with loading impacts from subsequent projects under the Waterfront Plan.

In the Northeast Waterfront, the TZK Broadway and Teatro ZinZanni project will provide onsite and on-street loading facilities (e.g., commercial vehicle loading zone on Davis Street and a passenger loading zone on Broadway) to accommodate the projected loading demand and also would not result in a loading deficit. Similarly, in the Mission Bay and Southern Waterfront subareas, the Mission Rock, Pier 70, and Potrero Power Station projects will include onsite and on-street commercial vehicle and passenger loading facilities within the project sites and would not result in a loading deficit. The commercial vehicle and passenger loading demand associated with the relocation of some cruise ships docking at Pier 50 would be accommodated within the pier's ground transportation area and would not combine with loading demand generated by the Mission Rock project

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or other nearby project. The subsequent project within the Pier 70 Triangle would provide onsite loading facilities and would not contribute to loading impacts from the Pier 70 Mixed-Use District Project.

The Better Market Street Project will not generate new loading demand and will not substantially change the number of loading zones along Market Street. In addition, the Better Market Street Project will increase the number of commercial loading spaces on cross and side streets north and south of Market Street that could serve cumulative development adjacent to the Northeast Waterfront subarea. The Mission Bay Ferry Landing will accommodate the projected passenger loading demand at designated zones on Terry A. Francois Boulevard.

Other transportation and infrastructure projects such as The Embarcadero Enhancement Program between North Point and Townsend streets and the Waterfront Resilience Program would be implemented along the east side of The Embarcadero. While there are existing or planned improvements for this segment of The Embarcadero, The Embarcadero Enhancement Program and the Waterfront Resilience Program improvements have not yet been defined or designed, and therefore their location, configuration, and extent of changes to the curbside conditions are not currently known. The design of The Embarcadero Enhancement Program would take into consideration existing vehicle access to the piers, curbside loading zones and future loading demand.

Other cumulative development projects under the proposed housing element update located adjacent to the Plan area would be expected to meet their passenger and commercial vehicle loading demands by providing new onsite spaces or converting existing on-street general parking spaces to passenger or commercial loading zones. However, under both the Waterfront Plan, particularly within the Fisherman's Wharf, Northeast Waterfront, and South Beach subareas, and the proposed housing element update, there is uncertainty that providing adequate onsite and on-street loading would be possible due to removal of on-street curb spaces as part of other transportation and infrastructure projects and existing regulations related to curb management. Therefore, subsequent projects, in combination with other developments, transportation and infrastructure projects, may result in an inadequate supply of loading spaces, which could result in disruptions to transit vehicles, other vehicles, people walking and bicycling and create potentially hazardous conditions. This would be considered a significant cumulative commercial and passenger loading impact.

Significance after Mitigation: As described under Impact TR-6, to the extent that loading demand associated with subsequent projects under the Waterfront Plan is not accommodated onsite or within existing or planned on-street commercial and passenger loading spaces, potentially hazardous conditions for people walking, bicycling, or driving could occur. Mitigation Measure M-TR-6 would require subsequent projects with more than 100,000 square feet of uses to develop and implement a plan to address project-generated commercial and passenger loading issues and require that offsite loading activity is considered in the design of new buildings. Due to the uncertainty that onsite and on-street loading spaces could be provided to meet demand, a substantial loading deficit may occur even with implementation of the mitigation measure; therefore, this mitigation measure would not reduce significant impacts to less-than-significant levels. For these reasons, cumulative loading impacts would be ***significant and unavoidable with mitigation***.

Impact C-TR-7: The Waterfront Plan, in combination with cumulative projects, would not result in significant cumulative parking impacts. (*Less than Significant*)

Over time, because of the land use development and increased density anticipated within the city, vehicular parking demand and competition for on- and off-street vehicular parking spaces is likely to increase. Within

the Plan area, cumulative land development projects at Mission Rock, Pier 70, and Potrero Power Station project sites would increase the amount of residential and commercial land uses in the Mission Bay and Southern Waterfront subareas. Some of the new developments in these areas would include new off-street vehicular parking facilities; however, as vehicle parking requirements have been removed from the planning code, the parking ratios per residential unit or per 1,000 square feet of commercial uses for these developments will be much lower than historically provided in new developments. These projects also include Transportation Demand Management Plans which will lead to a shift from use of private passenger vehicles to other ways of travel.

In addition, through implementation of the City's Transit-First Policy, Vision Zero, and Better Streets Plan; cumulative transportation projects, such as The Embarcadero Enhancement Program and the Better Market Street project, may further remove existing on-street vehicular parking to promote non-auto dependent ways of travel and sustainable street designs. These projects would encourage transit use through a reduction in transit travel times, encourage bicycle use through the provision of physically separated bicycle facilities that would offer a higher level of safety than striped bicycle lanes, making them attractive to a wider spectrum of people, and encourage walking by enhancing the conditions of the walking realm.

The Plan area and adjoining neighborhoods are within a transit priority area. In addition, most of the Plan area is within the department's map-based screening area for VMT, with the exception of three sites in the Southern Waterfront subarea. Despite these three sites not meeting the VMT screening criteria, as discussed under Impact TR-7, subsequent projects under the Waterfront Plan would not result in substantial vehicular parking deficits.

Therefore, considering the location of the Plan area adjacent to dense urban development, multiple ways of travel, as well as planned and proposed cumulative projects that would improve the streetscape and street network for transit, people walking and bicycling, a substantial vehicular parking deficit would not occur under cumulative conditions. Thus, cumulative parking impacts would be ***less than significant***.

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4.D Noise and Vibration

4.D.1 Introduction

This section describes the existing noise and vibration environment in the Waterfront Plan area, identifies the regulatory framework, evaluates the potential construction-related and operational noise and vibration impacts associated with implementation of the Plan, and identifies mitigation measures to avoid or reduce potential adverse impacts. Noise and vibration topics consist of temporary or permanent increases in ambient noise levels, generation of excessive groundborne vibration or noise, and exposure to excessive noise levels near airports. Supporting detailed technical information is included in Appendix F, Supporting Documentation for Noise Analysis. Noise and vibration impacts that could occur due to construction activities in San Francisco Bay (the bay) that could affect biological resources are addressed in Section 4.F, Biological Resources.

4.D.2 Environmental Setting

SOUND FUNDAMENTALS

Sound is characterized by parameters that describe the rate of *oscillation* (frequency) of sound waves, the distance between successive troughs or crests in waves, the speed at which they travel, and the pressure level or energy content of a given sound. The sound pressure level has become the most common descriptor used to characterize how loud a sound is, and the decibel (dB) scale is used to quantify sound intensity. Because the human ear is not equally sensitive to all sound frequencies, human response is factored into sound descriptions in a process called *A-weighting*, expressed as *dBA*. The dBA, or A-weighted decibel, refers to a scale of noise measurement that reflects the different frequencies that humans can hear. On this scale, the normal range of human hearing extends from about 0 dBA to about 140 dBA. Except in carefully controlled laboratory experiments, a change of only 1 dBA in sound level cannot generally be perceived by the human ear. Outside of the laboratory, a 3 dBA change is considered a perceptible difference while a 5 dBA change is considered readily noticeable. A 10 dBA increase in the level of a continuous noise represents a perceived doubling of loudness.¹⁷²

NOISE DESCRIPTORS

Noise is generally defined as sound that is loud, disagreeable, unexpected or unwanted. Variations in noise exposure over time are typically expressed in terms of a steady-state energy level (called L_{eq}) that represents the acoustical energy of a given measurement, or alternatively as a statistical description of what sound level is exceeded over some fraction (10, 50, or 90 percent) of a given observation period (i.e., L10, L50, L90). L_{eq} (24) is the steady-state acoustical energy level measured over a 24-hour period. L_{max} is the maximum, instantaneous noise level registered during a measurement period. Because people in residential areas are more sensitive to unwanted noise intrusion during the evening and at night, an artificial 5 dBA increment is added to evening noise levels (7 to 10 p.m.) and an artificial 10 dBA increment is added to nighttime noise levels (10 p.m. to 7 a.m.) to form a 24-hour noise descriptor called the *Community Noise Equivalent Level* (CNEL). Another 24-hour noise descriptor, called the *day-night noise level* (L_{dn}), is similar to CNEL, but L_{dn} does not add the evening 5 dBA penalty between 7 p.m. and 10 p.m. In practice, L_{dn} and CNEL usually differ by less

¹⁷² California Department of Transportation, *Technical Noise Supplement (TeNS) to the Traffic Noise Analysis Protocol*, September 2013, pp. 2-44 to 2-45, <http://www.dot.ca.gov/env/noise/docs/tens-sep2013.pdf>, accessed April 16, 2021.

than 1 dBA at any given location from transportation noise sources.¹⁷³ **Table 4.D-1** presents representative noise sources and their corresponding noise levels in dBA at varying distances from the noise sources.

Table 4.D-1 Representative Environmental Noise Levels

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	110	Rock band
Jet fly-over at 100 feet		
	100	
Gas lawnmower at 3 feet		
	90	
Diesel truck going 50 mph at 50 feet		Food blender at 3 feet
	80	Garbage disposal at 3 feet
Noisy urban area during daytime		
Gas lawnmower at 100 feet	70	Vacuum cleaner at 10 feet
Commercial area		Normal speech at 3 feet
Heavy traffic at 300 feet	60	
		Large business office
Quiet urban area during daytime	50	Dishwasher in next room
Quiet urban area during nighttime	40	Theater, large conference room (background)
Quiet suburban area during nighttime		
	30	Library
Quiet rural area during nighttime		Bedroom at night, concert hall (background)
	20	
		Broadcast/recording studio
	10	
	0	

SOURCE: California Department of Transportation, *Technical Noise Supplement to the Traffic Noise Analysis Protocol*, September 2013, p. 2-20.

HEALTH EFFECTS OF ENVIRONMENTAL NOISE

The World Health Organization is a recognized source of knowledge regarding health impacts, including those generated by noise. According to the World Health Organization, one health effect is sleep disturbance, which

¹⁷³ Caltrans, *Technical Noise Supplement (TeNS) to the Traffic Noise Analysis Protocol*, September 2013, p. 2-48, <http://www.dot.ca.gov/env/noise/docs/tens-sep2013.pdf>, accessed April 16, 2021.

can occur when continuous indoor noise levels exceed 30 dBA (L_{eq}) or when intermittent interior noise levels reach or exceed 45 dBA (L_{max}), particularly if background noise is low. With a bedroom window slightly open (a reduction from outside to inside of 15 dB), the World Health Organization criteria suggest that acceptable nighttime ambient noise levels should be 45 dBA (L_{eq}) or below, and short-term events should not generate noise in excess of 60 dBA (L_{max}). The World Health Organization also notes that maintaining noise levels within the recommended levels during the first part of the night helps people to fall asleep.¹⁷⁴

Other potential health effects of noise identified by the World Health Organization include decreased performance on complex cognitive tasks, such as reading, attention, problem solving, and memorization; physiological effects such as hypertension and heart disease (after many years of constant exposure, often by workers, to high noise levels); and hearing impairment (again, generally after long-term occupational exposure, or shorter-term exposure to very high noise levels, for example, exposure several times a year to a concert with noise levels at 100 dBA). Noise can also disrupt speech intelligibility at relatively low levels; for example, in a classroom setting, a noise level as low as 35 dBA can disrupt clear understanding. Finally, noise can cause annoyance and can trigger emotional reactions like anger, depression, and anxiety. The World Health Organization reports that during daytime hours, few people are seriously annoyed by activities with noise levels below 55 dBA, or moderately annoyed by activities with noise levels below 50 dBA.

Vehicle traffic and continuous sources of machinery and mechanical noise contribute to unhealthy ambient noise levels. Short-term noise sources, such as large vehicle audible warnings, the crashing of material being loaded or unloaded, car doors slamming, and engines revving, contribute very little to 24-hour noise levels but are capable of causing sleep disturbance and annoyance. The effect of noise on receptors depends on both time and context. For example, long-term high noise levels from large traffic volumes can make conversation at a normal voice level difficult or impossible, while short-term peak noise levels at night can disturb sleep.

VIBRATION AND GROUNDBORNE NOISE

Groundborne noise refers to noise generated by vibrations from outside a structure but experienced inside the structure. Groundborne noise can be a problem in situations where the primary airborne noise path is blocked, such as in the case of a subway tunnel passing near homes or other noise-sensitive structures. Vibration is an oscillatory motion through a solid medium. Typically, groundborne vibrations generated by man-made activities attenuate rapidly with the distance from the source of the vibration. The effects of vibration on structures are typically measured by peak particle velocity (PPV) in inches per second (in/sec). Vibration decibels (VdB) is the unit used to assess effects of vibrations on people and to distinguish vibration decibels from sound decibels (dB). With the exception of long-term occupational exposure, vibration levels rarely affect human health. Instead, most people consider vibration to be an annoyance that can affect concentration or disturb sleep. People may tolerate infrequent, short-duration vibration levels, but human annoyance to vibration becomes more pronounced if the vibration is continuous or occurs frequently. High levels of vibration can damage fragile buildings or interfere with sensitive equipment.

Typical sources of groundborne vibration in San Francisco are large-scale construction projects that involve pile driving, vibratory construction equipment, or underground tunneling. Vibration is also caused by transit vehicles in the subway system and on the surface, including Muni light-rail vehicles, historic streetcars, and Bay Area Rapid Transit (BART) trains. In general, such vibration is only an issue when there are sensitive receptors located nearby.

¹⁷⁴ World Health Organization, *Guidelines for Community Noise*, April 1999, Chapter 3, p. 46.

Since rubber tires and suspension systems reduce vibrations, rubber tire vehicles such as Muni buses, trucks, and automobiles rarely create substantial vibration absent a bump in the road surface.¹⁷⁵

EXISTING CONDITIONS

EXISTING NOISE SOURCES

The Plan area is generally bounded to the north by Hyde Street Pier and Jefferson Street in Fisherman’s Wharf and includes piers and upland properties adjacent to The Embarcadero including Oracle Park; piers and waterfront properties adjacent to Terry A. Francois Boulevard in Mission Bay; and properties generally east of Illinois Street south of Mission Bay to Cargo Way in India Basin. The primary noise sources in and near the Plan area consist of vehicle traffic on The Embarcadero, Third Street, Illinois Street, and Cargo Way.¹⁷⁶ Noise is also generated by maritime uses such as cruise ship operations at Pier 27 and the ferry operations out of the ferry Building. Sporting and music events at Oracle Park and Chase Center can generate increased noise levels before, during and after events. The more southerly extent of the Plan area contains industrial uses that can generate relatively higher truck trips on local arterials and stationary source noise.

AMBIENT NOISE MEASUREMENTS

Two long-term sound level measurements and three-short term measurements were conducted around the Plan area to update and augment existing noise level data collected throughout the Plan area over the past several years. New and updated measurements were collected on January 12 through 15, 2021. The measured sound levels and a summary of the historical sound level monitored at these locations are shown in **Table 4.D-2**. Measurement locations are identified on **Figure 4.D-1**.¹⁷⁷

Table 4.D-2 Existing Noise Environment in the Waterfront Plan Area Vicinity

Location	Date and Time Period	Daytime ^a L _{eq} dBA	Nighttime ^b L _{eq} dBA	L90	L _{dn}	Noise Sources
LT-1 Fort Mason Laguna Street Residential ¹	2/28/08–3/05/08 24-hour measurements	62–65	50–61	42–60	65–67	Vehicle traffic on Laguna Street
ST-1 Fort Mason Laguna Street Residential ²	1/12/21 Short-term update	65	NA	54	NA	Vehicle traffic on Laguna Street
LT-2 Aquatic Park 800 block Beach Street Residential ¹	2/28/08–3/05/08 24-hour measurements	58–60	51–56	45–52	62–64	Vehicle traffic on Beach Street

¹⁷⁵ U.S. Department of Transportation, Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, September 2018, p. 116, https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf, accessed April 16, 2021.

¹⁷⁶ Because the Plan area generally comprises a relatively narrow band along the bay shoreline, streets that intersect the major Plan area streets typically extend for only a block or two into the Plan area.

¹⁷⁷ The sound level surveys were conducted using Larson Davis Model LxT2 sound level meters, which were calibrated prior to use and operated according to the manufacturer’s specifications.

Location	Date and Time Period	Daytime ^a L _{eq} dBA	Nighttime ^b L _{eq} dBA	L90	L _{dn}	Noise Sources
ST-2 Aquatic Park 800 block Beach Street Residential ²	1/12/21 Short-term update	55	NA	49	NA	Vehicle traffic on Beach Street
LT-3 500 Block of Beach Street Residential ³	2/28/08–3/05/08 24-hour measurements	60–63	48–60	41–58	66–71	Vehicle traffic on Beach Street
ST-3 500 Block of Beach Street Residential ²	1/12/21 Short-term update	62	NA	49	NA	Vehicle traffic on Beach Street
LT-4 101 Lombard Street Residential ³	4/4/11–4/6/11 24-hour measurements	59	53	44	61	Vehicle traffic on Lombard Street
LT-5 88 Broadway Residential (Davis Street frontage) ⁴	1/4/17–1/6/17 24-hour measurements	55–66 ^c	55–66 ^c	47–58	68	Vehicle traffic and F-line rail activity on The Embarcadero
LT-6 Pier 22.5 Embarcadero North of Harrison Street ⁵	9/27/17–10/3/17 24-hour measurements	69–71	64–68	58–64	NA	Vehicle traffic and Muni light-rail activity on The Embarcadero
LT-7 Watermark Condominiums 501 Beale Street Residential ⁶	7/15/13–7/17/13 24-hour measurements	73	71	66	78	Vehicle traffic and Muni light-rail activity on The Embarcadero; elevated traffic from Bay Bridge
LT-8 South Beach Park 1 King Street Recreational ⁷	7/8/13–7/10/13 24-hour measurements	64	60	54	67	Vehicle traffic and Muni light-rail activity on The Embarcadero/King Street
LT-9 Strata Apartments 1201 Fourth Street Residential ⁷	8/28/15–8/20/15 24-hour measurements	57–65	52–61	NA	64–70	Vehicle traffic and Muni light-rail activity on Third Street
LT-10 UCSF Mission Bay Housing Block 20 ⁸	10/7/14–10/9/14 24-hour measurements	71	68	61	75	Vehicle traffic and Muni light-rail activity on Third Street
LT-11 Illinois and 22nd Streets ⁹	5/12/12–5/15/12 24-hour measurements	63–66	55–66	56	67	Heavy equipment operation at PG&E Yard, substation hum, traffic on Illinois and 22nd streets
LT-12 Illinois Street between Humboldt and 23rd Streets ¹⁰	1/9/18–1/10/18 24-hour measurements	67	64	58–62	71	Vehicle traffic on Illinois and 22nd streets and PG&E Potrero Substation

Chapter 4. Environmental Setting, Impacts, and Mitigation Measures

4.D. Noise and Vibration

Location	Date and Time Period	Daytime ^a L _{eq} dBA	Nighttime ^b L _{eq} dBA	L90	L _{dn}	Noise Sources
LT-13 Cargo Way at Third Street ²	1/12/21–1/14/21 24-hour measurements	70	68	50–65	75	Vehicle traffic on Cargo Way and Third Street
LT-14 1663 Kirkwood Avenue Residential ¹¹	9/25/15–10/1/15 24-hour measurements	63	57	45	65	Vehicle traffic and Muni light-rail activity on Third Street
LT-15 Hunters Point Boulevard at Hawes Street Residential ²	1/12/21–1/14/21 24-hour measurements	67	63	41–51	70	Vehicle traffic on Hawes Street

- SOURCES: ¹ Wilson Ihrig & Associates, *Noise and Vibration Setting Report, Historic Streetcar Service to Fort Mason*, April 2009;
- ² ESA 2021 (see Appendix F);
- ³ ESA, *The 34th America's Cup and James R. Herman Cruise Terminal and Northeast Wharf Plaza EIR*, 2011;
- ⁴ CSDA Design Group, *88 Broadway/735 Davis Project-Generated Noise Study*, 2017;
- ⁵ Wilson Ihrig & Associates, *Pier 22.5 Fire Station 35 Project Noise and Vibration Technical Memo*, 2018;
- ⁶ ESA, Unpublished Technical work for Event Center and Mixed-Use Development at Piers 30–32 and Seawall Lot 330, 2013;
- ⁷ ICF, *Seawall Lot 337 and Pier 48 Mixed-Use Project Noise Survey Methods and Results Memorandum*, 2016;
- ⁸ ESA, *Event Center and Mixed-Use Development at Mission Bay Blocks 29–32 DEIR*;
- ⁹ SCWA, *Pier 70 Mixed-Use District Project DEIR*, 2016;
- ¹⁰ ESA, *Potrero Power Station Mixed-Use Development Project Draft EIR*, 2018;
- ¹¹ ESA, *Biosolids Digester Facilities Project DEIR*, 2016.

NOTES:

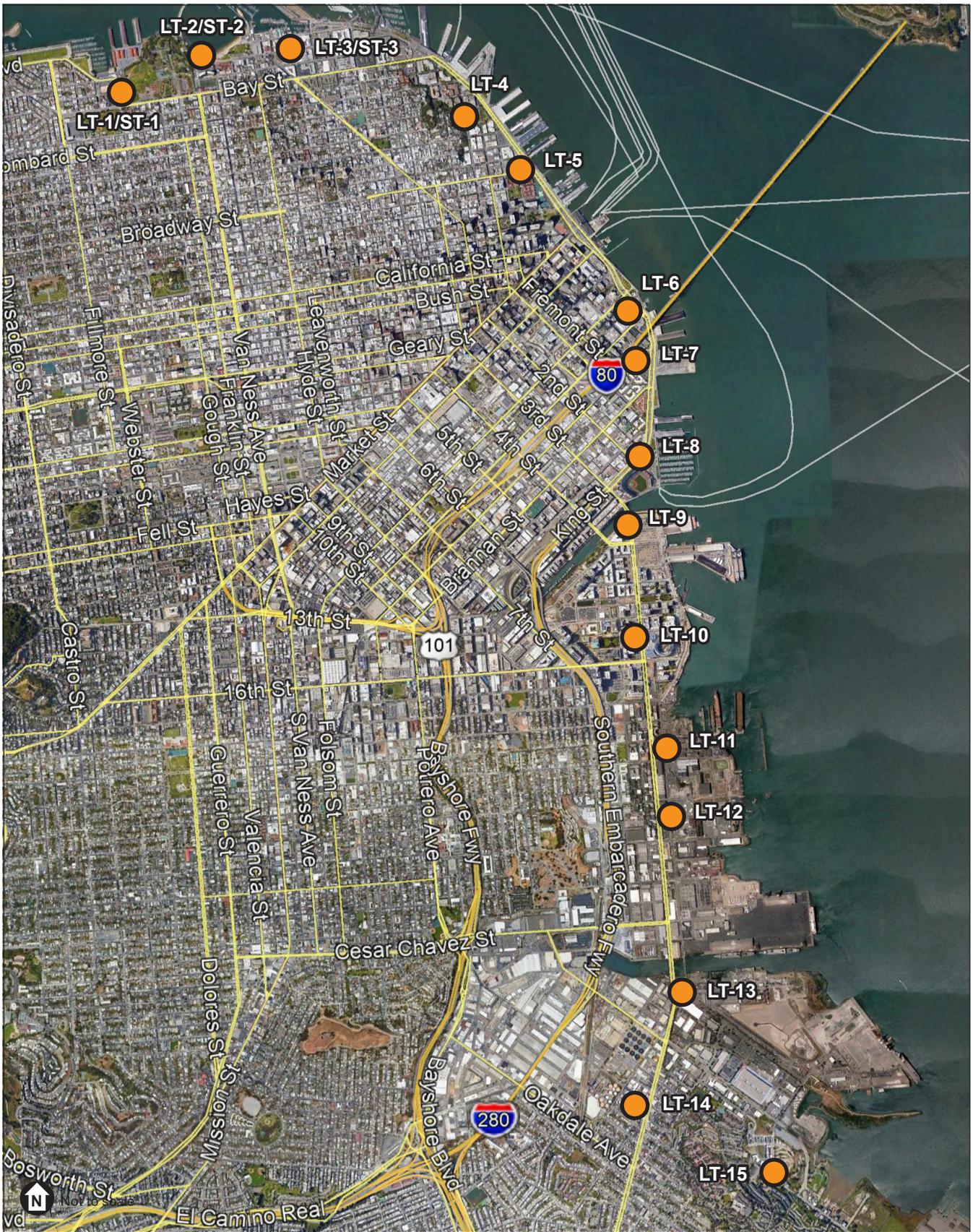
- ^a Daytime hours are 7 a.m. to 10 p.m.
- ^b Nighttime hours are 10 p.m. to 7 a.m.
- ^c Daytime and Nighttime hours not differentiated in this data source.

EXISTING GROUNDBORNE NOISE AND VIBRATION SOURCES

Sources of vibration in the northern Plan area primarily consist of Muni streetcars traveling along The Embarcadero. Historic streetcars of the Muni F-line operate along The Embarcadero and Jefferson Street from Fisherman's Wharf in the north to Market Street. A survey of groundborne vibration levels from streetcar operations along the F-line was conducted in 2006¹⁷⁸ to determine the range of vibration levels that may be expected at sensitive receptors along a proposed alignment extension. Vibration levels at monitoring locations along streets with high traffic volumes where there are no streetcar operations are typically less than 70 VdB. The maximum vibration level monitored along an F-line straightaway segment, such as along The Embarcadero, was 81 VdB at 25 feet.

The N Judah and T Third Street light rail trains operate at the surface street level on The Embarcadero south of Howard Street and generate some surface vibration along The Embarcadero and Third Street through the Mission Bay subarea, and the Southern Waterfront subarea. Additionally, the University of California, San Francisco (UCSF) Hospital adjacent to the Mission Bay subarea operates a helipad to accept transfers of critically ill persons from community hospitals to UCSF for medical care.

¹⁷⁸ Wilson Ihrig & Associates, *Noise and Vibration Setting Report, Historic Streetcar Service to Fort Mason*, April 2009.



SOURCE: Google, 2020; ESA, 2020

Waterfront Plan

FIGURE 4.D-1
NOISE MONITORING LOCATIONS

NOISE AND VIBRATION SENSITIVE RECEPTORS

Some land uses contain receptors that are more sensitive to noise impacts than others. Consistent with the Governor’s Office of Planning and Research’s General Plan Guidelines 2017, noise-sensitive receptors are defined as residential land uses, hospitals, convalescent homes, schools, churches, and sensitive wildlife habitat (e.g., habitat for nesting birds, habitat for marine mammals, as well as habitat for rare, threatened, or endangered species).¹⁷⁹ Note that noise impacts on biological resources are addressed in Section 4.F, Biological Resources, and are not further discussed in this section. In addition, this analysis considers hotels and motels to be noise-sensitive receptors during nighttime hours. As noted above, sensitivity to noise may vary with the source of noise and land use context. Human reaction to a new noise environment may be predicted by comparing it with the existing ambient noise level. In general, the more a new noise source exceeds the previously existing ambient noise level, the less acceptable the new noise will be judged by those hearing it. Existing noise-sensitive land uses in the Waterfront Plan area are shown in **Figure 4.D-2a** and **Figure 4.D-2b** and include residences (mostly multifamily units), hotels and other transient lodging, hospitals, schools, churches, and childcare facilities.

Receptors sensitive to vibration include structures (especially older masonry structures), special buildings as defined by the Federal Transit Administration (FTA) (e.g., concert halls, TV and recording studios, and theaters),¹⁸⁰ people (especially residents, the elderly, and the sick), and equipment (e.g., magnetic resonance imaging equipment, high-resolution lithographic, optical and electron microscopes). High levels of vibration can damage buildings. Depending on the age of the structure and type of vibration (transient, continuous, or frequent intermittent sources), vibration levels as low as 0.5 to 2.0 in/sec PPV can damage structures.¹⁸¹

4.D.3 Regulatory Framework

FEDERAL REGULATIONS

NOISE

In 1972, the Noise Control Act (42 United States Code section 4901 et seq.) was passed by Congress to promote limited noise environments in support of public health and welfare. It also established the United States Environmental Protection Agency (U.S. EPA) Office of Noise Abatement and Control to coordinate federal noise control activities. The U.S. EPA established guidelines for noise levels that would be considered safe for community exposure without the risk of adverse health or welfare effects, which are summarized in **Table 4.D-3**.

The U.S. EPA found that to prevent hearing loss over the lifetime of a receptor, the yearly average L_{eq} should not exceed 70 dBA, and the L_{dn} should not exceed 55 dBA in outdoor activity areas or 45 dBA indoors to prevent interference and annoyance.¹⁸² In 1982, noise control was largely passed to state and local governments.

¹⁷⁹ Governor’s Office of Planning and Research, *State of California 2017 General Plan Guidelines*, 2017, p. 136, http://www.opr.ca.gov/docs/OPR_COMPLETE_7.31.17.pdf, accessed April 16, 2021.

¹⁸⁰ United States Department of Transportation, Federal Transit Administration, Office of Planning and Environment, *Transit Noise and Vibration Impact Assessment Manual*, September 2018, p. 124.

¹⁸¹ *Ibid.*

¹⁸² U.S. Environmental Protection Agency (U.S. EPA), *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety*, March 1974.



SOURCE: San Francisco Planning Department, 2021; ESA, 2021

Waterfront Plan

FIGURE 4.D-2a
SENSITIVE RECEPTORS



SOURCE: San Francisco Planning Department, 2021; ESA, 2021

Waterfront Plan

FIGURE 4.D-2b
SENSITIVE RECEPTORS

Table 4.D-3 Summary of Noise Levels Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety

Effect	Level	Area
Hearing loss	< 70 dBA ^a (L _{eq} , 24 hour)	All areas
Outdoor activity interference and annoyance	< 55 dBA (L _{dn})	Outdoor residential areas and farms as well as other outdoor areas where people spend varying amounts of time and places where quiet is a basis for use
Outdoor activity interference and annoyance	< 55 dBA (L _{eq} , 24 hour)	Outdoor areas where people spend limited amounts of time, such as school yards, playgrounds, etc.
Indoor activity interference and annoyance	< 45 dBA (L _{dn})	Indoor residential areas
Indoor activity interference and annoyance	< 45 dBA (L _{eq} , 24 hour)	Other indoor areas with human activities, such as schools, etc.

SOURCE: U.S. EPA, *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety*, March 1974, <http://nepis.epa.gov/Exe/ZyPDF.cgi/2000L3LN.PDF?Dockey=2000L3LN.pdf>, accessed April 16, 2021.

NOTE:

^a Yearly average equivalent sound levels in decibels; the exposure period that results in hearing loss at the identified level is 40 years.

Federal regulations establish noise limits for medium and heavy trucks (more than 4.5 tons, gross vehicle weight rating, or at least the size of a small delivery truck) under the Code of Federal Regulations title 40, part 205, subpart B. The federal truck pass-by noise standard is 80 dBA at 50 feet from the vehicle pathway centerline, under specified test procedures. These requirements are implemented through regulatory controls on truck manufacturers. There are no comparable standards for vibration, which tend to be specific to the roadway surface, the vehicle load, and other factors.

While the Transit Noise and Vibration Impact Assessment of the FTA was developed for determining significant noise and vibration impacts for transit projects and is not a regulation, it is one of the few federal sources that suggest both a methodology and criteria for assessing construction noise impacts. The FTA noise criteria used to assess construction impacts are identified in **Table 4.D-4**. These criteria are absolute noise contribution values from construction activity and are independent of existing background noise levels. The planning department uses the FTA's residential daytime construction noise criteria of 90 dBA Leq when assessing daytime construction noise impacts.

Table 4.D-4 Federal Transit Administration Construction Noise Criteria

Adjacent Land Use	Maximum 1-Hour dBA L _{eq}	
	Day	Night
Residential	90	80
Commercial	100	100
Industrial	100	100

SOURCE: Federal Transit Administration 2018.

NOTES: dBA = A-weighted decibels; L_{eq} = average or constant sound level; Day = 7 a.m. to 10 p.m.; Night = 10 p.m. to 7 a.m.

VIBRATION

Groundborne vibration and noise can also disturb people who are generally more sensitive to vibration during nighttime hours when sleeping than during daytime waking hours. Numerous studies have been conducted to characterize the human response to vibration. **Table 4.D-5** provides FTA’s criteria regarding vibration annoyance potential (expressed here as VdB).

Table 4.D-5 Federal Transit Administration General Assessment Criteria for Groundborne Vibration

Land Use Category	Impact Levels (VdB; relative to 1 micro-inch/second)		
	Frequent Events ^a	Occasional Events ^b	Infrequent Events ^c
Category 1: Buildings where vibration would interfere with interior operations	65 ^d	65 ^d	65 ^d
Category 2: Residences and buildings where people normally sleep	72	75	80
Category 3: Institutional land uses with primarily daytime uses	75	78	83

SOURCE: Federal Transit Administration, Office of Planning and Environment, *Transit Noise and Vibration Impact Assessment Manual*, September 2018, https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf, accessed March 18, 2021.

NOTES:

- ^a “Frequent events” is defined as more than 70 vibration events from the same source per day.
- ^b “Occasional events” is defined as 30 to 70 vibration events from the same source per day.
- ^c “Infrequent events” is defined as fewer than 30 vibration events from the same source per day.
- ^d This criterion limit is based on levels that are acceptable for most moderately sensitive equipment, such as optical microscopes. Vibration-sensitive manufacturing or research would require detailed evaluation to define what is acceptable.

STATE REGULATIONS

NOISE

The 2019 California Building Code (California Code of Regulations title 24, part 2) requires that walls and floor/ceiling assemblies separating dwelling units from each other, or from public or service areas, have a sound transmission class of at least 50, meaning they can reduce noise by a minimum of 50 dB.¹⁸³ Building code section 1207.4, Allowable Interior Noise Levels, also specifies a maximum interior noise limit of 45 dBA (L_{dn} or CNEL) in habitable rooms, and requires that common interior walls and floor/ceiling assemblies meet a minimum sound transmission class rating of 50 for airborne noise. It also sets an interior performance standard of 45 dBA from exterior noise sources.

VIBRATION

There are no state regulations related to construction-induced vibration. However, the California Department of Transportation (Caltrans) consolidated vibration criteria from various sources for assessing the potential damage to structures from ground vibration induced by construction equipment, and they are included in the Transportation and Construction Vibration Guidance Manual¹⁸⁴ and summarized in **Table 4.D-6**. As shown in

¹⁸³ California Building Standards Code section 1206.2.

¹⁸⁴ Caltrans, *Transportation and Construction Vibration Guidance Manual*, April 2020, Table 19, p. 38, <https://dot.ca.gov/-/media/dot-media/programs/environmental-analysis/documents/env/tcvgm-apr2020-a11y.pdf>, accessed April 16, 2021.

the table, the building damage criteria for continuous vibration sources is about half of the criteria for transient sources. In general, the planning department uses the Caltrans vibration damage potential to structures for evaluating vibration impacts on structures.

Table 4.D-6 Vibration Guidelines for Potential Damage to Structures

Structure Type and Condition	Maximum PPV (in/sec)	
	Transient Sources ^a	Continuous/Frequent Intermittent Sources ^b
Extremely fragile historic buildings, ruins, ancient monuments	0.12	0.08
Fragile buildings	0.2	0.1
Historic and some old buildings	0.5	0.25
Older residential structures	0.5	0.3
New residential structures	1.0	0.5
Modern industrial/commercial buildings	2.0	0.5

SOURCE: Caltrans, *Transportation and Construction Vibration Guidance Manual*, April 2020.

NOTES:

in/sec = inches per second; PPV = peak particle velocity

^a Transient sources create a single, isolated vibration event, such as blasting or drop balls.

^b Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.

LOCAL REGULATIONS

SAN FRANCISCO GENERAL PLAN

The Environmental Protection Element of the San Francisco General Plan contains Land Use Compatibility Guidelines for Community Noise for determining the compatibility of various land uses with different noise levels (see **Table 4.D-7**). These guidelines, which are similar to the state guidelines set forth by the Governor’s Office of Planning and Research, indicate maximum acceptable noise levels for various land uses. Although this table presents a range of noise levels that are considered compatible or incompatible with various land uses, the maximum *satisfactory* noise level is 60 dBA (L_{dn}) for residential and hotel uses; 65 dBA (L_{dn}) for school classrooms, libraries, churches, and hospitals; 70 dBA (L_{dn}) for playgrounds, parks, office uses, retail commercial uses, and noise-sensitive manufacturing/communications uses; and 77 dBA (L_{dn}) for other commercial uses such as wholesale, some retail, industrial/manufacturing, transportation, communications, and utilities.

The Environmental Protection Element includes the following objectives and policies that pertain to noise: impose traffic restrictions to reduce transportation noise; discourage changes in streets which will result in greater traffic noise in noise-sensitive areas; minimize impact of noise on affected areas; promote site planning, building orientation and design, and interior layout that lessen noise intrusion; promote the incorporation of noise insulation materials in new construction; construct physical barriers to reduce noise transmission from heavy traffic carriers; and promote land uses that are compatible with various transportation noise levels.

Table 4.D-7 San Francisco Land Use Compatibility Chart for Community Noise

Land Use Category	Sound Levels and Land Use Consequences (L _{dn} Values in dBA)							
	55	60	65	70	75	80	85	
Residential – All Dwellings, Group Quarters	[Light Gray Bar from 55 to 60]							
	[Dark Gray Bar from 65 to 70]							
Transient Lodging – Motels, Hotels	[Light Gray Bar from 55 to 60]							
	[Dark Gray Bar from 65 to 75]							
School Classrooms, Libraries, Churches, Hospitals, Nursing Homes, etc.	[Light Gray Bar from 55 to 65]							
	[Black Bar from 65 to 70]							
Auditoriums, Concert Halls, Amphitheaters, Music Shells	[Dark Gray Bar from 55 to 70]							
	[Black Bar from 65 to 75]							
Sports Arenas, Outdoor Spectator Sports	[Light Gray Bar from 55 to 75]							
	[Black Bar from 70 to 75]							
Playgrounds, Parks	[Light Gray Bar from 55 to 70]							
	[Dark Gray Bar from 70 to 75]							
Golf Courses, Riding Stables, Water-Based Recreation Areas, Cemeteries	[Light Gray Bar from 55 to 75]							
	[Black Bar from 75 to 80]							
Office Buildings – Personal, Business, and Professional Services	[Light Gray Bar from 55 to 70]							
	[Dark Gray Bar from 70 to 75]							
Commercial – Wholesale and Some Retail, Industrial/Manufacturing, Transportation, Communication, and Utilities	[Light Gray Bar from 55 to 75]							
	[Dark Gray Bar from 75 to 80]							
Manufacturing – Noise-Sensitive Communications – Noise-Sensitive	[Light Gray Bar from 55 to 70]							
	[Black Bar from 70 to 75]							

SOURCE: San Francisco Planning Department, *San Francisco General Plan*, Environmental Protection Element, adopted on June 27, 1996, https://generalplan.sfplanning.org/l6_Environmental_Protection.htm#ENV_TRA_11, accessed April 16, 2021.

-  Satisfactory, with no special noise insulation requirements. Noise levels in this range are considered “Acceptable.”
-  New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Noise levels in this range are considered “Conditionally Acceptable.”
-  New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design. Noise levels in this range are considered “Conditionally Unacceptable.”
-  New construction or development should generally not be undertaken. Noise levels in this range are considered “Unacceptable.”

SAN FRANCISCO NOISE ORDINANCE

The Port of San Francisco is subject to the noise ordinance for the City of San Francisco, which is codified in the San Francisco Police Code. In San Francisco, regulation of noise is addressed in San Francisco Police Code article 29 (noise ordinance), which states the City's policy is to prohibit unnecessary, excessive, and offensive noises from all sources subject to police power. Noise ordinance section 2900 makes the following declaration with regard to community noise levels: "It shall be the policy of San Francisco to maintain noise levels in areas with existing healthful and acceptable levels of noise and to reduce noise levels, through all practicable means, in those areas of San Francisco where noise levels are above acceptable levels as defined by the World Health Organization's Guidelines on Community Noise."

Construction Noise

Noise ordinance article 29, sections 2907 and 2908, regulate construction equipment and construction work at night, while section 2909 provides for limits on any machine, or device, music or entertainment, or any combination of such sources. Sections 2907 and 2908 are enforced by San Francisco Public Works (Public Works), and section 2909 is enforced by the San Francisco Department of Public Health. Summaries of these and other relevant sections are presented below.

Noise ordinance section 2907(a) limits noise from construction equipment to 80 dBA when measured at a distance of 100 feet from such equipment, or an equivalent sound level at some other convenient distance. Exemptions to this requirement include impact tools with approved mufflers, pavement breakers, and jackhammers with approved acoustic shields, and construction equipment used in connection with emergency work. Noise ordinance section 2908 prohibits nighttime construction (between 8 p.m. and 7 a.m.) that generates noise exceeding the ambient noise level by 5 dBA at the nearest property line unless a special permit has been issued by the City.

Fixed Mechanical Noise

Noise ordinance section 2909 generally prohibits fixed mechanical equipment noise and music in excess of 5 dBA more than the ambient noise level from residential sources, 8 dBA more than the ambient noise level from commercial sources, and 10 dBA more than the ambient noise level on public property at a distance of 25 feet or more. Specifically, section 2909(c) generally prohibits noise from being produced by any machine or device, or any combination of the two, on public property, that exceeds the local ambient noise level more than 10 dBA at a distance of 25 feet or more, unless the machine or device is being operated to serve or maintain the property.

The standards in section 2909(d), 45 dBA between the hours of 10 p.m. to 7 a.m. and 55 dBA between the hours of 7 a.m. to 10 p.m., are the absolute maximum allowable level of interior noise, produced from any combination of mechanical device(s) and audio systems(s) under one ownership/use originating from outside the dwelling unit. The standards in this section may not apply to areas in which the ambient noise level exceeds the limits.

ENTERTAINMENT NOISE

San Francisco Administrative Code section 90.1 establishes the role of the San Francisco Entertainment Commission to regulate, promote, and enhance the field of entertainment in San Francisco. The seven-member commission has powers to accept, review, and gather information to conduct hearings for entertainment-related permit applications and rule upon and issue, deny, condition, suspend, revoke, or

transfer entertainment-related permits in accordance with applicable laws and regulations. Additionally, the entertainment commission plans and coordinates the provision of City services for major events for which there is no recognized organizer, promoter, or sponsor.

Pursuant to police code section 1060.1, the entertainment commission has permit authority over a variety of different permit types including Place of Entertainment permits, Outdoor Amplified Sound/Loudspeaker permits, and Limited Live Performance permits. Promoters of any proposed outdoor events that would use amplified sound or music are required to obtain a permit from the City prior to the event. Permit hearings require the applicant to provide proof of neighborhood outreach to the entertainment commission. Note that police code article 1, section 47.2, while generally focused on truck-mounted amplification equipment, regulates the use of any sound amplifying equipment, whether truck-mounted or otherwise. Hours of operation are restricted to between 9 a.m. and 10 p.m., unless otherwise permitted by the entertainment commission.

4.D.4 Impacts and Mitigation Measures

SIGNIFICANCE CRITERIA

San Francisco Administrative Code Chapter 31 directs the planning department to identify the environmental effects of a project using as its base the environmental checklist form set forth in CEQA Guidelines Appendix G, as modified by the San Francisco Planning Department. As it relates to noise and vibration, the checklist asks whether the project would result in:

- Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.
- Generation of excessive groundborne vibration or groundborne noise levels.
- For a project located within the vicinity of a private airstrip or an airport land use plan area, or, where such a plan has not been adopted, in an area within two miles of a public airport or public use airport, would the project expose people residing or working in the area to excessive noise levels.

The Plan area is not within the vicinity of a private airstrip or an airport land use plan area.¹⁸⁵ Therefore, the subsequent lease, development, and improvement projects (subsequent projects) that could occur under the Waterfront Plan would not result in the long-term exposure of people residing or working in the area to excessive airport-related noise levels and this topic is not addressed further.

APPROACH TO ANALYSIS

The Waterfront Plan is a program that would result in updated or new maritime policies that would continue to give priority to terminal, facility, berthing, and operational needs by allowing the Port to use any of its properties for maritime-related purposes, including Harbor Services and the Port's Maintenance Division.

The Waterfront Plan would not result in direct physical changes to the existing noise environment. However, effects on the existing noise environment could result as subsequent projects allowed under the Waterfront Plan replace existing land uses over time in the Plan area. See Chapter 2, Project Description, for a discussion

¹⁸⁵ San Francisco International Airport, 2019 Noise Exposure Map, August 13, 2015.

of the types of development and waterfront improvements that could occur under the Waterfront Plan. See also Chapter 4, Environmental Setting, Impacts, and Mitigation Measures, for a discussion of the land use assumptions, growth projections, and subsequent projects anticipated under the Waterfront Plan.

METHODOLOGY FOR ASSESSMENT OF CONSTRUCTION NOISE

Subsequent projects that could occur under the Waterfront Plan would result in construction noise because the Plan would establish new planning policies and controls that would promote development of sites within the Plan area. The Waterfront Plan construction noise analysis considers the noise impacts from equipment that is likely to be used for the types of projects that would be developed under the Plan. In addition, the construction of an expanded network of public access and open space along the Port's entire 7.5-mile waterfront proposed in the Plan would result in construction noise. Noise from construction activity typically varies, depending on the type of equipment in use, how many pieces of equipment are operating at any one time, the proximity of equipment to a noise sensitive receptor location, and the duration of equipment use. In addition, some equipment, such as an excavator with a hoe ram or a jackhammer, may generate "impulsive noise emissions" (i.e., impact noise).

The specific construction duration and equipment required for subsequent projects are currently unknown. Consequently, a programmatic construction noise analysis was conducted for subsequent projects that could occur under the Waterfront Plan.

The analysis of the potential for subsequent projects to result in a substantial temporary increase in noise levels during construction is conducted at the programmatic level. Construction activities associated with implementation of subsequent projects that could occur under the Waterfront Plan include but are not limited to site preparation (clearing, grubbing, excavation, grading), demolition, in-bay water work (with the exception of new dredging), new construction, interior construction and renovation of existing piers, and laydown area management work.

A table presenting noise levels from the two noisiest pieces of equipment associated with standard construction phases and common duration of activities, such as demolition, grading, and vertical construction for various distances from such activities is used in the impact analysis to identify whether subsequent projects would result in a significant impact, and if so, to identify appropriate mitigation measures. It is possible that noise impacts could occur from operation of multiple pieces of construction equipment on the same site. As such, this analysis identifies mitigation measures to reduce construction noise to the maximum extent feasible. Noise and vibration impacts that could occur due to construction activities in the bay that affect biological resources are addressed in Section 4.F, Biological Resources.

The daytime construction noise analysis uses quantitative metrics in addition to other construction characteristics to determine whether a significant construction noise impact would occur as a result of implementation of the Plan. Specifically, the analysis compares the noise level resulting from simultaneous operation of the two loudest pieces of equipment (including impact equipment) with FTA's general construction assessment criterion of 90 dBA 1-hour Leq at the nearest noise sensitive receptor and whether the noise level would be equal to or greater than 10 dBA above the ambient noise level at sensitive receptor locations. If any of these quantitative standards are met or exceeded, the impact analysis evaluates the temporal frequency, duration, and intensity of that noise above the quantitative standards to determine whether a significant noise impact would occur.

Construction of subsequent projects that could occur under the Waterfront Plan may occur during nighttime hours. Specifically, certain activities, such as continuous concrete pours or crane erection, may be easier to conduct during nighttime hours when traffic on surrounding roads is reduced compared with daytime hours. Noise ordinance section 2908 prohibits nighttime construction (i.e., between 8 p.m. and 7 a.m.) that generates noise exceeding the ambient noise level by 5 dBA at the nearest property plane, unless a special permit has been granted by the Director of Public Works, the Director of Building Inspection, or the Port Chief Harbor Engineer. The evaluation of nighttime construction noise impacts consists of a quantitative analysis of the potential for construction noise to result in interior noise levels of 45 dBA or more at sensitive receptor locations. As discussed above, interior noise levels of 45 dBA or lower are generally necessary to prevent sleep disturbance. If interior noise levels meet or exceeded 45 dBA, the impact analysis evaluates the temporal frequency, duration, and intensity of that noise above the quantitative standard to determine whether a significant nighttime construction noise impact would occur.

METHODOLOGY FOR ASSESSMENT OF OPERATIONAL NOISE

Implementation of the Waterfront Plan would result in operational noise because the Plan would establish new planning policies and controls that would encourage development of subsequent project sites within the Plan area. The development of these subsequent project sites would generate additional vehicular traffic, which is the primary source of noise throughout the city. The subsequent projects also would likely require stationary equipment, such as heating, ventilation, and air conditioning systems or backup generators, and would introduce new uses and activities in the Plan area, including sensitive uses such as residences. The Waterfront Plan operational noise analysis considers the noise impact from these noise sources. Each of these sources, as well as the methodology for how they are analyzed, is described below.

TRAFFIC NOISE

To determine whether the Waterfront Plan would result in a substantial permanent increase in ambient noise levels, noise from the increased vehicle traffic that could be generated under the Plan was calculated based on traffic data.¹⁸⁶ Vehicular traffic noise in the Plan area and vicinity was modeled using peak-hour traffic volumes along street segments. Heavy vehicle percentages along The Embarcadero vary from 3 to 4 percent. For the Southern Waterfront, a heavy vehicle percentage of 8 percent was used, which reflects the existing industrial uses along the Waterfront and the likelihood of truck trips generated by production, distribution, and repair (PDR) uses that could occur with implementation of the Plan. For vehicular traffic noise impacts, the following thresholds were applied to determine whether subsequent projects that could occur under the Plan would result in significant vehicle-generated noise impacts. An increase of more than 5 dBA is considered a significant vehicular traffic noise increase because, as discussed above, a 5 dBA increase in noise levels is readily noticeable; and in places where the existing or resulting noise environment is “conditionally acceptable,” “conditionally unacceptable,” or “unacceptable,” based on the land use compatibility chart (Table 4.D-7, p. 4.D-14), a noise increase greater than 3 dBA is considered a significant vehicular traffic noise increase because such areas are already exposed to higher-than-desired noise levels.

Traffic noise modeling for 2020 existing conditions without implementation of the Waterfront Plan and existing conditions with implementation of the Waterfront Plan was conducted based on the Federal Highway Administration (FHWA) Traffic Noise Model, version 2.5. This spreadsheet calculates the vehicular traffic noise level at a fixed distance of 50 feet, which is the typical distance between a street centerline and adjacent

¹⁸⁶ LCW Consulting and Advant Consulting, Waterfront Plan EIR – Estimation of Proposed Project Travel Demand (see Appendix E), January 28, 2022.

buildings, and considers the vehicular traffic volume, traffic speed, and vehicle mix that is predicted to occur under each condition. For the assessment of traffic noise impacts, peak hour traffic volumes shown in Appendix F were used to determine the vehicular traffic noise levels with and without implementation of the Waterfront Plan along analyzed street segments in the Waterfront Plan area included in the transportation analysis.

STATIONARY SOURCES

With regard to stationary sources of operational noise, this assessment considers the potential for noise from stationary equipment (e.g., heating, ventilation, and air-conditioning [HVAC] equipment) to exceed the allowed operational noise limit of noise ordinance section 2909(a) (i.e., 5 dBA above ambient at a residential property plane), section 2909(b) (i.e., 8 dBA above ambient at a commercial property plane), section 2909(c) (i.e., 10 dBA above ambient at a public property plane), and section 2909(d) (i.e., interior noise limits of 45 dBA between the hours of 10 p.m. and 7 a.m. or 55 dBA between the hours of 7 a.m. and 10 p.m.). Noise that would be very limited and periodic, such as noise produced by the occasional testing of emergency generators, is evaluated qualitatively; the generators would not be operated with sufficient frequency so as to substantially alter ambient noise levels.

The assessment of operational noise impacts from new commercial and PDR uses, which tend to generate higher levels of operational noise, focuses on whether or not such uses would result in a significant noise impact, and if so, identifies mitigation measures to reduce operational noise impacts.

METHODOLOGY FOR ASSESSMENT OF VIBRATION IMPACTS

Construction vibration impacts are addressed on a semi-quantitative basis using a table presenting vibration levels from the equipment associated with standard construction phases, such as demolition, grading, and vertical construction, for various distances from such activities. Caltrans continuous/frequent intermittent source criteria, which are designed to prevent structural damage shown in Table 4.D-6, p. 4.D-13, are used to assess impacts from vibration.

The planning department relies on the FTA guidelines for evaluating vibration effects on people using the category 2 criteria presented in Table 4.D-5, p. 4.D-12. A significant vibration impact related to sleep disturbance could occur when nighttime construction activities generate vibration levels that meet or exceed the category 2 VdB impact levels. Should vibration levels meet or exceed the category 2 VdB impact levels during nighttime construction, the analysis is then required to evaluate the duration, frequency, and intensity of those exceedances to determine whether the nighttime construction vibration impact is significant.

Additionally, the planning department relies on the FTA guidelines for assessing potential vibration impacts on equipment (e.g., magnetic resonance imaging equipment, high-resolution lithographic, optical and electron microscopes) and identifies buildings with equipment that could encounter interference with operations due to construction-related vibration as category 1. A significant vibration impact related to interference with equipment could occur when construction activities generate vibration levels that exceed the VdB impact levels identified in Table 4.D-5, p. 4.D-12.

Note that vibration impacts generated from pile driving for in-bay water work are addressed in Section 4.F, Biological Resources. Vibration impacts generated from construction activity on historic resources are addressed in Section 4.B, Historic Resources.

METHODOLOGY FOR ASSESSMENT OF CUMULATIVE IMPACTS

The programmatic-level quantitative cumulative analysis from mobile sources considers other cumulative projects along the waterfront that are included in the transportation analysis. Cumulative stationary source impacts are addressed qualitatively since specific sources and locations of stationary sources for subsequent projects are not known at this time.

The significance of cumulative impacts related to traffic noise levels is determined using a two-step process. First, the increase in noise levels between 2020 existing conditions and 2050 cumulative conditions is compared to an incremental 3 dBA or 5 dBA threshold, as applicable, based on whether or not the existing noise level is “satisfactory.” If the roadside noise levels would exceed this incremental threshold, a significant cumulative noise impact would result. Average daily traffic volumes shown in Appendix F were used to determine potential cumulative traffic noise impacts. The second step (if a significant cumulative noise impact is identified) is to evaluate whether the contribution of the Waterfront Plan to roadside noise levels would be cumulatively considerable.

IMPACT EVALUATION

CONSTRUCTION NOISE

Impact NO-1. Construction under the Waterfront Plan could generate a substantial temporary increase in ambient noise levels in the Plan area in excess of standards. (*Less than Significant with Mitigation*)

The Waterfront Plan would not immediately result in new development or construction noise. However, subsequent projects that could occur with implementation of the Plan, such as development of the subsequent project sites, open space improvements, or the upgrade of Pier 50 to support cruise vessels, would involve the use of construction equipment and would therefore generate construction noise in the Plan area.

Construction noise levels at or near construction sites in the Plan area would fluctuate, depending on the particular type of construction equipment, the number of pieces, and duration of use. In addition, certain types of impact equipment, such as pile driving, generate percussive noises that can reach particularly high noise levels. This analysis conservatively assumes that at least some subsequent projects in the Plan area may require the use of pile driving, for instance if the site is located on fill and requires a deeper foundation. **Table 4.D-8** shows typical noise levels generated by construction equipment.

As described above, police code section 2907(a) limits noise from construction equipment to 80 dBA when measured at a distance of 100 feet from such equipment or an equivalent sound level at some other convenient distance (with exceptions, including impact equipment, as previously discussed).

As shown in Table 4.D-8, the only piece of non-impact equipment that would generate noise levels greater than 80 dBA at a distance of 100 feet is the concrete saw, which would generate a noise level of 84 dBA L_{max} at a distance of 100 feet. Although this is greater than the criteria specified in the noise ordinance, this type of equipment is typically used only for a limited time during construction projects. Specifically, concrete saws are used for relatively detailed demolition work, such as opening up a specific area of street or sidewalk. As such, the duration and frequency of their use are typically not extensive. Given that all equipment, except the concrete saw, would comply with applicable noise limits, and given the generally limited duration of concrete saw use, individual pieces of equipment would generally be expected to comply with noise ordinance limits.

Table 4.D-8 Maximum Noise Levels from Construction Equipment

Construction Equipment	Noise Level at 50 Feet (dBA, L _{max})	Noise Level at 100 Feet (dBA, L _{max})
Air Compressors	78	72
Backhoes	78	72
Bore/Drill Rigs	84	78
Cement and Mortar Mixers	79	73
Concrete/ Industrial Saws	90	83 ^a
Cranes	85	79
Concrete Pump	81	75
Crawler Tractor	84	78
Excavator	81	75
Forklifts	83	78
Generator Sets	81	75
Hoe Ram ^b	90	84
Impact Pile Driver ^b	101	95
Grader	85	79
Loader	79	73
Paving Equipment	77	71
Vibratory Compactor	83	77
Roller	80	74
Pumps	81	75
Signal Boards	73	67
Water Trucks	79	73

SOURCE: Federal Highway Administration, *Roadway Construction Noise Model User's Guide*, 2006.

NOTES:

- ^a Concrete saws are generally used for relatively detailed demolition work, such as opening up a specific area of street or sidewalk. As such, the duration and frequency of their use is usually not extensive.
- ^b Impact equipment, such as pile drivers and hoe rams are exempt from the restrictions of police code section 2907 (80 dBA at 100 feet from the noise source) provided they are equipped with approved mufflers or acoustic shields. At a distance of 600 feet, the noise level from a pile driver is about 79 dBA L_{max}, which would not exceed the police code section 2907 requirements of 80 dBA.

With regard to nighttime construction noise, section 2908 of the noise ordinance prohibits nighttime construction (i.e., between 8 p.m. and 7 a.m.) that would exceed the ambient noise level by 5 dB at the nearest property plane, unless a special permit has been granted by the Director of Public Works, the Director of Building Inspection, or the Port Chief Harbor Engineer. If granted, the nighttime construction permit would include stipulations and restrictions, and contractors of subsequent projects would be required to comply with these stipulations and restrictions. Such conditions would tend to minimize adverse noise impacts of nighttime construction to the extent feasible.

SUBSTANTIAL TEMPORARY INCREASE IN AMBIENT NOISE LEVELS

DAYTIME CONSTRUCTION NOISE

Construction of subsequent projects under the Waterfront Plan could result in substantial temporary or periodic increases in ambient noise levels. For example, at 50 feet, noise from simultaneous operation of a crane and pneumatic tools could be 83 dBA L_{eq} , as shown in **Table 4.D-9**.

Table 4.D-9 Noise Levels from Project-Related Construction Activities

Construction Phase, Equipment Used in Estimate	Noise Level (L_{eq}) at 50 Feet	Noise Level (L_{eq}) at 100 Feet
SURFACE PREPARATION AND DEMOLITION		
Concrete Crusher	90	84
Rock Drill	78	72
Combined L_{eq}	90^a	84
Impact Pile Driving	94	88
Rock Drill	78	72
Combined L_{eq}	94	88
SURFACE PREPARATION AND FOUNDATION WORK		
Excavator	77	71
Concrete Mixer Truck	75	69
Combined L_{eq}	79	73
BUILDING CONSTRUCTION		
Tower Crane	73	67
Pneumatic Tools	82	76
Combined L_{eq}	83	77
UTILITIES/INFRASTRUCTURE DEVELOPMENT		
Backhoe	74	68
Concrete Mixer Truck	75	69
Combined L_{eq}	77	71

SOURCE: ESA 2021.

NOTES:

Noise levels in bold are the combined noise level from simultaneous operation of both pieces of equipment in proximity to each other.

^a Rock drills generate 85 dBA (L_{max}) or 78 dBA (L_{eq}) with a 20 percent usage factor at 50 feet. Noise measurements from various rock and concrete recycling crusher plants indicate that a crusher and conveyor facility can generate noise levels ranging between 81 and 90 dBA (L_{eq}) at 50 feet. This evaluation conservatively applies the higher reference noise level and does not apply a usage factor since they tend to operate continuously when in use. The combined noise level from simultaneous operation of a rock drill and concrete crusher would be 90 dBA (L_{eq}) at 50 feet.

In most instances, residential uses and other noise-sensitive land uses would be located more than 100 feet from subsequent project sites and, therefore, would be exposed to noise levels well under 80 dBA. For example, as shown in Table 4.D-9, at 100 feet from operation of a crane and pneumatic tools, the noise level

would decrease to approximately 77 dBA L_{eq} , while more uncommon, exempt activities involving impact equipment such as concrete crushing or pile driving could generate noise levels that would decrease at 100 feet to approximately 88 dBA L_{eq} . However, for subsequent projects that require very loud construction equipment and that occur close to existing noise-sensitive land uses (at or less than 50 feet), the potential exists for construction noise from subsequent projects under the Plan to exceed the FTA criterion of 90 dBA at sensitive receptors. For example, as shown in Table 4.D-9, in the event a subsequent project requires impact pile driving and drilling to occur at the same time, noise levels could reach approximately 94 dBA L_{eq} at 50 feet from the equipment.

In addition to comparing the construction noise levels to the 90 dBA L_{eq} criterion, as discussed above, the increase from construction noise can be compared to the ambient noise level in the vicinity of construction. As indicated by the 24-hour measurements conducted in the Waterfront Plan area (see Table 4.D-1, p. 4.D-4), measured daytime average L_{eq} noise levels for the normal (i.e., not specially permitted) 7 a.m. to 8 p.m. construction hours are in the range of 55 to 73 dBA L_{eq} . Construction equipment noise associated with subsequent projects could be in the range of 77 to 94 dBA L_{eq} based on the examples shown in Table 4.D-9. For instances when ambient noise levels are 67 dBA L_{eq} or quieter, construction activity within 50 feet of a sensitive receptor could result in a 10 dBA or greater increase compared to ambient noise levels. Depending on the intensity of construction noise levels, the temporal frequency for which construction noise exceeds 90 dBA or 10 dBA above ambient noise levels, and the duration, noise from temporary or periodic construction activities associated with subsequent projects could be significant.

In general, projects that consist of the below characteristics (screening criteria) generally do not require a quantitative evaluation of construction noise and construction noise impacts are not considered significant:

- Projects involving standard construction equipment subject to section 2907 of the noise ordinance (San Francisco Police Code article 29); and
- Projects that do not include the use of impact equipment; and
- Construction of new structures not exceeding 85 feet in height;¹⁸⁷ and
- Construction activities requiring demolition, site preparation, excavation, and foundation and shoring work (noisiest construction phases) that do not exceed a period of 12 months; or
- Linear construction projects

Projects that consist of the above characteristics do not typically result in a significant construction noise impact individually or in combination with other construction noise because construction activities are temporary and intermittent. Construction of such structures or facilities is a common occurrence in San Francisco's dense urban environment, and police code section 2907(a) limits noise from individual pieces of non-impact equipment to 80 dBA at 100 feet. Additionally, construction of linear projects, such as the creation of bicycle lanes, typically do not result in a significant construction noise impact individually or in combination with other construction noise because the same sensitive receptors are not being affected for substantial periods of time as the construction activity progresses linearly. Similarly, construction activities that are not

¹⁸⁷ Projects involving new construction above 85 feet in height are required to meet more extensive life safety requirements and therefore necessitate stronger building foundations that require more substantial construction activity.

located within the noise influence area of noise sensitive receptors (generally defined as a distance of 900 feet from the construction site¹⁸⁸) would not result in a significant construction noise impact.

Projects that do not meet the above screening criteria typically require a quantitative analysis that evaluates the project's absolute construction noise level in addition to a comparison of construction noise levels above ambient noise levels at noise sensitive receptors. If the quantitative criteria discussed above are exceeded, the determination of whether a project's construction noise impact is significant would be based on the intensity of construction noise levels, the temporal frequency for which construction noise exceeds 90 dBA or 10 dBA above ambient noise levels, and the duration of construction activity. These projects also have the potential to contribute to combined construction noise impacts as a result of the construction of multiple subsequent projects either simultaneously or consecutively within the Waterfront Plan area and affecting the same sensitive receptors. Subsequent project sites considered in this Draft EIR where new construction could occur are identified in Table 4-2, p. 4-8, and Figure 4-1, p. 4-7, in Chapter 4. Each of these sites is sufficiently distant to avoid combined construction noise impacts to any given sensitive receptor. In addition, it is not anticipated that development of the subsequent project sites would result in simultaneous construction of multiple projects on a given site.

NIGHTTIME CONSTRUCTION NOISE

With regard to nighttime construction noise, a substantial temporary increase in noise that results in sleep disturbance for a substantial period of time (i.e., generally more than three consecutive nights) would be significant. Typically, if construction noise would result in interior noise levels of less than 45 dBA at noise-sensitive receptors (with windows closed) or a specific activity would occur for only a short period of time or only a few days over the entire construction period, sleep disturbance would not be significant. Construction activities associated with subsequent projects under the Waterfront Plan that could occur during nighttime hours include continuous concrete pours, tower crane erection, site maintenance and material delivery/handling, and street utility work. Equipment used for continuous concrete pours would typically include concrete mixer trucks, concrete pumps, and water trucks. Such activity typically only occurs for one or two nights. Equipment used for tower crane erection would typically include a tractor, a crane, and a forklift, and typically would be concentrated in a single nighttime event. Equipment used for site maintenance and material delivery and handling would typically include trucks, forklifts, and loaders. Equipment used for the street utility work sub-phase of construction would typically include concrete saws, excavators, and forklifts.

Continuous concrete pours, which could occur relatively infrequently during nighttime hours over the duration of a project construction window, could generate combined noise levels of 79 dBA L_{eq} at a distance of 50 feet. **Table 4.D-10** identifies noise levels for a concrete mixer truck and a concrete pump truck. Noise from other construction activities that could occur during nighttime hours would often be similar, but could be somewhat louder or quieter, depending on the exact equipment being used. For example, combined noise levels from the use of a crane during tower crane erection and a tractor would be approximately 81 dBA L_{eq} at 50 feet.

¹⁸⁸ This distance was selected because typical construction noise levels can affect a sensitive receptor at a distance of 900 feet if there is a direct line-of-sight between a noise source and a noise receptor (i.e., a piece of equipment generating 85 dBA would attenuate to 60 dBA over a distance of 900 feet). An exterior noise level of 60 dBA will typically attenuate to an interior noise level of 35 dBA with the windows closed and 45 dBA with the windows open.

Table 4.D-10 Noise Levels from Subsequent Project-Related Construction Activities

Construction Phase, Equipment Used in Estimate	Exterior Noise Level (L _{eq}) at 50 Feet	Interior Noise Level (L _{eq}) at 50 feet	Interior Noise Level (L _{eq}) at 200 feet
NIGHT WORK			
Concrete Mixer Truck	75	50	38
Excavator	77	52	40
Combined L_{eq} Concrete Pour	79	54	42
Tower Crane	73	48	36
Tractor	80	55	43
Combined L_{eq} Nighttime Crane Erection	81	56	44

SOURCE: ESA 2021.

Based on the typical residential buildings that exist within the city, an assumption of a 25 dB noise reduction with windows closed is reasonable.¹⁸⁹ Therefore, a nighttime noise level of 79 dBA at 50 feet would be reduced to approximately 54 dBA with windows closed, in the infrequent instances where a sensitive receptor would be adjacent to a subsequent project site that requires nighttime construction. If nighttime construction activities have the potential to result in sleep disturbance for a prolonged duration, this could be considered a significant impact. As shown in Table 4.D-10, when sensitive receptors are located 200 feet or further from nighttime construction activity, construction noise impacts are not likely to exceed 45 dBA at residential interiors and would not be expected to result in a significant impact due to sleep disturbance. While the resulting interior noise level from subsequent project-related activities could be in excess of 45 dBA, such an occurrence as a result of implementation of the Waterfront Plan would be rare and unlikely. Nevertheless, because the specific construction activity required for subsequent projects under the Waterfront Plan are unknown, it is possible that subsequent projects could require nighttime construction activity that results in sleep disturbance. Projects that require nighttime construction work that could result in sleep disturbance for three or more nights would require additional quantitative evaluation to determine whether nighttime construction noise impacts would be significant.

In summary, as described above construction of subsequent projects under the Plan could result in a substantial temporary or periodic increase in ambient noise levels. Therefore, this impact would be significant for subsequent projects under the Waterfront Plan, while acknowledging that not all subsequent projects would necessarily result in a significant construction noise impact. As such, subsequent projects would be evaluated to determine whether a significant construction noise impact would occur as a result of the project individually or in combination with other subsequent projects. The evaluation would consist of a comparison of the subsequent project characteristics with the screening criteria above, in addition to an evaluation of any nighttime construction activity, or a quantitative, project-specific construction noise analysis. Upon evaluation of each subsequent project, if it is determined that the project could result in a significant construction noise impact, the following mitigation measure would apply, **Mitigation Measure M-NO-1, Construction Noise Control**.

¹⁸⁹ U.S. EPA, *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety*, March 1974.

Mitigation Measure M-NO-1: Construction Noise Control. Prior to issuance of any demolition or building permit, the project sponsor shall submit a project-specific construction noise control plan to the ERO or the ERO's designee for approval. The construction noise control plan shall be prepared by a qualified acoustical engineer, with input from the construction contractor, and include all feasible measures to reduce construction noise. The construction noise control plan shall identify noise control measures to meet a performance target of construction activities not resulting in a noise level greater than 90 dBA at noise sensitive receptors and 10 dBA above the ambient noise level at noise sensitive receptors (residences, hospitals, convalescent homes, schools, churches, hotels and motels, and sensitive wildlife habitat). The project sponsor shall ensure that requirements of the construction noise control plan are included in contract specifications. If nighttime construction is required, the plan shall include specific measures to reduce nighttime construction noise. The plan shall also include measures for notifying the public of construction activities, complaint procedures, and a plan for monitoring construction noise levels in the event complaints are received. The construction noise control plan shall include the following measures to the degree feasible, or other effective measures, to reduce construction noise levels:

- Use construction equipment that is in good working order, and inspect mufflers for proper functionality;
- Select "quiet" construction methods and equipment (e.g., improved mufflers, use of intake silencers, engine enclosures);
- Use construction equipment with lower noise emission ratings whenever possible, particularly for air compressors;
- Prohibit the idling of inactive construction equipment for more than 5 minutes;
- Locate stationary noise sources (such as compressors) as far from nearby noise sensitive receptors as possible, muffle such noise sources, and construct barriers around such sources and/or the construction site;
- Avoid placing stationary noise-generating equipment (e.g., generators, compressors) within noise-sensitive buffer areas (as determined by the acoustical engineer) immediately adjacent to neighbors;
- Enclose or shield stationary noise sources from neighboring noise-sensitive properties with noise barriers to the extent feasible. To further reduce noise, locate stationary equipment in pit areas or excavated areas, if feasible; and
- Install temporary barriers, barrier-backed sound curtains, and/or acoustical panels around working powered impact equipment and, if necessary, around the project site perimeter. When temporary barrier units are joined together, the mating surfaces shall be flush with each other. Gaps between barrier units, and between the bottom edge of the barrier panels and the ground, shall be closed with material that completely closes the gaps, and dense enough to attenuate noise.

The construction noise control plan shall include the following measures for notifying the public of construction activities, complaint procedures and monitoring of construction noise levels:

- Designation of an on-site construction noise manager for the project;
- Notification of neighboring noise sensitive receptors within 300 feet of the project construction area at least 30 days in advance of high-intensity noise-generating activities (e.g., pier drilling, pile

driving, and other activities that may generate noise levels greater than 90 dBA at noise sensitive receptors) about the estimated duration of the activity;

- A sign posted on-site describing noise complaint procedures and a complaint hotline number that shall always be answered during construction;
- A procedure for notifying the planning department of any noise complaints within one week of receiving a complaint;
- A list of measures for responding to and tracking complaints pertaining to construction noise. Such measures may include the evaluation and implementation of additional noise controls at sensitive receptors; and
- Conduct noise monitoring (measurements) at the beginning of major construction phases (e.g., demolition, grading, excavation) and during high-intensity construction activities to determine the effectiveness of noise attenuation measures and, if necessary, implement additional noise control measures.

The construction noise control plan shall include the following additional measures during pile-driving activities:

- When pile driving is to occur within 600 feet of a noise-sensitive receptor, implement “quiet” pile-driving technology (such as pre-drilling of piles, sonic pile drivers, auger cast-in-place, or drilled-displacement, or the use of more than one pile driver to shorten the total pile-driving duration [only if such measure is preferable to reduce impacts to sensitive receptors]) where feasible, in consideration of geotechnical and structural requirements and conditions;
- Where the use of driven impact piles cannot be avoided, properly fit impact pile driving equipment with an intake and exhaust muffler and a sound-attenuating shroud, as specified by the manufacturer; and
- Conduct noise monitoring (measurements) before, during, and after the pile driving activity.

Significance after Mitigation: Mitigation Measure M-NO-1 would reduce the construction noise levels at nearby noise sensitive receptors. A reduction in construction noise levels would be achieved by locating stationary noise-producing equipment as far away from the noise-sensitive receptors as possible. In addition, Mitigation Measure M-NO-1 would require the project sponsor and their construction contractors to use noise attenuation barriers and/or blankets and utilize blockades from construction activities, and all equipment would be attenuated with mufflers to the greatest extent possible. Although construction noise from subsequent projects under the Waterfront Plan may at times exceed 10 dBA above the ambient noise level or 90 dBA at sensitive receptor locations even with mitigation, this mitigation measure would substantially reduce the intensity of construction noise and the duration of construction noise that exceed 10 dBA above the ambient noise level or 90 dBA at noise sensitive receptors. Furthermore, construction noise levels would be temporary and would not persist upon completion of construction activities. Individual pieces of construction equipment (apart from impact equipment) also would be required to comply with the noise limits in article 29 of the police code. Thus, with implementation of Mitigation Measure M-NO-1, construction noise impacts resulting from subsequent projects under the Waterfront Plan would be less than significant. Therefore, this impact is ***less than significant with mitigation*** for subsequent projects, individually and in combination with other subsequent projects, under the Waterfront Plan.

Impact NO-2: Construction under the Waterfront Plan could generate excessive groundborne vibration or groundborne noise levels (*Less than Significant with Mitigation*)

The potential for construction-related vibration impacts depends on the proximity of construction activities to vibration sensitive receptors (people, buildings, vibration-sensitive equipment, etc.), the number and types of construction equipment, and duration of construction equipment use. Some subsequent projects under the Waterfront Plan could use pile drivers, and most subsequent projects would at least be expected to use heavy-duty equipment, such as a large bulldozer, a hoe ram, or vibratory compactor. Typical vibration levels associated with heavy-duty construction equipment are shown in **Table 4.D-11**, at a reference distance of 25 feet and other distances, based on attenuation.

Table 4.D-11 Vibration Source Levels for Construction Equipment

Equipment	Approximate PPV (in/sec)		
	25 Feet (reference)	60 Feet	900 Feet
Impact Pile Driver	0.65	0.25	0.013
Vibratory Compactor	0.21	0.056	0.001
Caisson Drill, Bulldozer, Hoe Ram	0.089	0.024	0.0004
Loaded Trucks	0.076	0.020	0.0004

SOURCE: FTA 2018.

BUILDING DAMAGE

It is unknown at this time how close construction activities associated with subsequent projects under the Waterfront Plan would occur to historic or older and potentially fragile buildings. The location and detailed construction information for infill development of existing piers or infrastructure improvements that could occur with implementation of the Waterfront Plan are not known at this time. However, some subsequent project sites where new construction is anticipated to occur with implementation of the Waterfront Plan (see Figure 4-1, p. 4-7, in Chapter 4, Environmental Setting, Impacts, and Mitigation Measures) are located adjacent to either older buildings or historic resources.¹⁹⁰

A number of older residential structures, newer residential structures, and modern industrial/commercial buildings may also be located in proximity to subsequent project construction activities. Because of the lack of detailed construction information for each subsequent project, it is not possible to ensure that all construction activity from subsequent projects would occur far enough away from nearby buildings to avoid vibration-related damage from construction in the Waterfront Plan area. In fact, it is likely that some construction activities would occur adjacent to buildings that could be susceptible to potential damage in the event vibration-generating equipment is required.

In the Waterfront Plan area, the majority of the buildings that are most sensitive to vibration would be classified under the Caltrans vibration guidelines (Table 4.D-6, p. 4.D-13) as “historic and some old buildings.” Buildings classified as older residential buildings, newer residential structures and modern industrial/commercial structures may also occur in the Plan area but are considered less sensitive to vibration

¹⁹⁰ architecture + history llc, *Port of San Francisco Historic Resources Summary Report*, prepared for the Port of San Francisco, February 2022.

than “historic and some old buildings,” per the Caltrans vibration guidelines for potential damage to structures classification.

It is possible that non-pile driving equipment (such as vibratory compactors or bulldozers) would be required and used at distances closer than 25 feet from adjacent buildings. At a distance of 25 feet, a vibratory compactor would generate groundborne vibration levels of approximately 0.21 PPV in/sec and a large bulldozer would generate groundborne vibration levels of approximately 0.089 PPV in/sec. Therefore, at 25 feet, neither a vibratory roller or a large bulldozer would exceed the damage criterion for historic and some old buildings of 0.25 PPV. However, equipment may be required to operate closer than 25 feet from adjacent structures.

Vibration from a large bulldozer at a distance of 8 feet could result in vibration of 0.312 PPV in/sec, and vibration from a vibratory roller at a distance of 18 feet could result in a vibration level of 0.301 PPV in/sec (see **Table 4.D-12**). These levels are both in excess of the recommended 0.25 PPV in/sec level for historic and some old buildings and in excess of the 0.3 PPV in/sec criterion for older residential structures. The 0.25 PPV in/sec criterion for historic and some old buildings could be exceeded by non-piling driving equipment at distances of up to 21 feet for a vibratory roller and just under 10 feet for a large bulldozer or a hoe ram, and it is possible that construction would occur within these distances of adjacent structures. Construction activities using equipment besides pile drivers could therefore potentially result in damage-related vibration effects to adjacent susceptible structures, should those structures be located close enough to the construction activity. Table 4.D-12 shows the vibration levels of a bulldozer and vibratory roller at these distances.

Table 4.D-12 Vibration Levels of Typical Vibratory Roller and Bulldozer Activities

Distance (feet)	Vibration Level (PPV in/sec)	Thresholds by Building Type (Continuous/Frequent Intermittent Sources)		
		Historic and Some Old Buildings	Older Residential Structures	New Residential Structures/Modern Industrial Commercial Buildings
VIBRATORY ROLLER				
20	0.301	0.25	0.3	0.5
22	0.254	0.25	0.3	0.5
LARGE BULLDOZER/HOE RAM				
11	0.305	0.25	0.3	0.5
13	0.237	0.25	0.3	0.5

SOURCE: FTA 2018.

NOTE: **Bolded** thresholds are expected to be exceeded at the applicable distances. Vibration levels estimated using equation published by FTA: $PPV_{equip} = PPV_{ref} \times (25/D)^{1.5}$; where D is distance.

With regard to impact equipment, as shown in Table 4.D-11, p. 4.D-28, a pile driver typically generates a vibration level of 0.65 PPV in/sec at 25 feet. This vibration level is in excess of the Caltrans continuous/frequent intermittent source criteria, which are designed to prevent structural damage for the building types shown in Table 4.D-6, p. 4.D-13, including modern industrial/commercial buildings (the building type shown in Table 4.D-6 that is the least susceptible to damage from vibration). Pile driving could result in vibration levels in excess of the damage criteria for historic and some old buildings (0.25 PPV in/sec) at distances of up to 60 feet. At a distance of 50 feet, vibration levels from pile driving could be in excess of the criteria for older

residential structures. At a distance of 32 feet, vibration levels from pile driving activity could be in excess of the damage criteria for both new residential structures and modern industrial/commercial structures (as well as all other categories of buildings shown in Table 4.D-6).

Because vibration levels from both pile drivers and other equipment that could be used by subsequent projects and, if used in proximity to adjacent structures, could exceed the damage criteria for buildings present within the Waterfront Plan area (historic and some old buildings as well as less fragile buildings types), it is possible that building damage could occur as a result of vibration-generating activities associated with construction of subsequent projects implemented under the Waterfront Plan. A subsequent project using heavy-duty construction equipment, including overhead cranes, could also result in additional damage to onsite or directly adjacent historic resources beyond construction-related vibration activities. Therefore, potential vibration impacts related to damage to structures would be significant.

As such, subsequent projects would be evaluated to determine whether the project could result in building damage from the use of vibration-generating equipment. The initial evaluation would consist of a review of the construction equipment required for the project and the distance between construction activities and adjacent buildings or structures. Should vibration generating construction equipment be required, a screening-level analysis that compares vibration levels for various pieces of equipment with the distance to adjacent buildings or structures may be required to determine if construction activities could result in building damage. If the screening-level analysis reveals the potential for building damage to occur, the project sponsor may either conduct a detailed vibration study, or alternatively, implement **Mitigation Measure M-NO-2a, Protection of Adjacent Buildings/Structures and Vibration Monitoring during Construction**. Implementation of Mitigation Measure M-NO-2a also would be required should a detailed vibration study indicate the potential for construction activities to result in building damage.

Mitigation Measure M-NO-2a: Protection of Adjacent Buildings/Structures and Vibration Monitoring during Construction. Prior to issuance of any demolition or building permit, the project sponsor shall submit a project-specific Pre-construction Survey and Vibration Management and Monitoring Plan for approval to the Environmental Review Officer (ERO). The plan shall identify all feasible means to avoid damage to potentially affected buildings. The project sponsor shall ensure that the following requirements of the Pre-construction Survey and Vibration Management and Monitoring Plan are included in contract specifications, as necessary.

Pre-construction Survey. Prior to the start of any ground-disturbing activity, the project sponsor shall engage a consultant to undertake a pre-construction survey of potentially affected buildings. If potentially affected buildings and/or structures are not potentially historic, a structural engineer or other professional with similar qualifications shall document and photograph the existing conditions of the potentially affected buildings and/or structures. The project sponsor shall submit the survey for review and approval prior to the start of vibration-generating construction activity.

If nearby affected buildings are known historic resources or potential historic resources, unless there is evidence in the record the building is not a historic resource or would not be particularly sensitive to construction vibration, the project sponsor shall engage a qualified historic preservation professional and a structural engineer or other professional with similar qualifications to undertake a pre-construction survey of potentially affected historic buildings. The pre-construction survey shall include descriptions and photographs of all identified historic buildings including all facades, roofs, and details of the character-defining features that could be damaged during construction, and shall

document existing damage, such as cracks and loose or damaged features (as allowed by property owners). The report shall also include pre-construction drawings that record the pre-construction condition of the buildings and identify cracks and other features to be monitored during construction. The qualified historic preservation professional shall be the lead author of the pre-construction survey if historic buildings and/or structures could be affected by the project. The pre-construction survey shall be submitted to the ERO for review and approval prior to the start of vibration-generating construction activity.

Vibration Management and Monitoring Plan. The project sponsor shall undertake a monitoring plan to avoid or reduce project-related construction vibration damage to adjacent buildings and/or structures and to ensure that any such damage is documented and repaired. Prior to issuance of any demolition or building permit, the project sponsor shall submit the plan for review and approval.

The Vibration Management and Monitoring Plan shall include, at a minimum, the following components, as applicable:

- *Maximum Vibration Level.* Based on the anticipated construction and condition of the affected buildings and/or structures on adjacent properties, a qualified acoustical/vibration consultant in coordination with a structural engineer (or professional with similar qualifications) and, in the case of potentially affected historic buildings/structures, a qualified historic preservation professional, shall establish a maximum vibration level that shall not be exceeded at each building/structure on adjacent properties, based on existing conditions, character-defining features, soil conditions, and anticipated construction practices (common standards are a peak particle velocity [PPV] of 0.25 inch per second for historic and some old buildings, a PPV of 0.3 inch per second for older residential structures, and a PPV of 0.5 inch per second for new residential structures and modern industrial/commercial buildings).
- *Vibration-Generating Equipment.* The plan shall identify all vibration-generating equipment to be used during construction (including, but not limited to: site preparation, clearing, demolition, excavation, shoring, foundation installation, and building construction).
- *Alternative Construction Equipment and Techniques.* The plan shall identify potential alternative equipment and techniques that could be implemented if construction vibration levels are observed in excess of the established standard (e.g., drilled shafts [caissons] could be substituted for driven piles, if feasible, based on soil conditions, or smaller, lighter equipment could be used in some cases).
- *Pile-Driving Requirements.* For projects that would require pile driving, the project sponsor shall incorporate into construction specifications for the project a requirement that the construction contractor(s) use all feasible means to avoid or reduce damage to potentially affected buildings. Such methods may include one or more of the following:
 - Incorporate “quiet” pile-driving technologies into project construction (such as drilled shafts, using sonic pile drivers, auger cast-in-place, or drilled-displacement), as feasible; and/or
 - Ensure appropriate excavation shoring methods to prevent the movement of adjacent structures.

- *Buffer Distances.* The plan shall identify buffer distances to be maintained based on vibration levels and site constraints between the operation of vibration-generating construction equipment and the potentially affected building and/or structure to avoid damage to the extent possible.
- *Vibration Monitoring.* The plan shall identify the method and equipment for vibration monitoring to ensure that construction vibration levels do not exceed the established standards identified in the plan.
 - Should construction vibration levels be observed in excess of the standards established in the plan, the contractor(s) shall halt construction and put alternative construction techniques identified in the plan into practice, to the extent feasible.
 - The qualified historic preservation professional (for effects on historic buildings and/or structures) and/or structural engineer (for effects on historic and non-historic buildings and/or structures) shall inspect each affected building and/or structure (as allowed by property owners) in the event the construction activities exceed the vibration levels identified in the plan.
 - The structural engineer and/or historic preservation professional shall submit monthly reports to the ERO during vibration-inducing activity periods that identify and summarize any vibration level exceedances and describe the actions taken to reduce vibration.
 - If vibration has damaged nearby buildings and/or structures that are not historic, the structural engineer shall immediately notify the ERO and prepare a damage report documenting the features of the building and/or structure that has been damaged.
 - If vibration has damaged nearby buildings and/or structures that are historic, the historic preservation consultant shall immediately notify the ERO and prepare a damage report documenting the features of the building and/or structure that has been damaged.
 - Following incorporation of the alternative construction techniques and/or planning department review of the damage report, vibration monitoring shall recommence to ensure that vibration levels at each affected building and/or structure on adjacent properties are not exceeded.
- *Periodic Inspections.* The plan shall identify the intervals and parties responsible for periodic inspections. The qualified historic preservation professional (for effects on historic buildings and/or structures) and/or structural engineer (for effects on historic and non-historic buildings and/or structures) shall conduct regular periodic inspections of each affected building and/or structure on adjacent properties (as allowed by property owners) during vibration-generating construction activity on the project site. The plan will specify how often inspections shall occur.
- *Repair Damage.* The plan shall also identify provisions to be followed should damage to any building and/or structure occur due to construction-related vibration. The building(s) and/or structure(s) shall be remediated to their pre-construction condition (as allowed by property owners) at the conclusion of vibration-generating activity on the site. For historic resources, should damage occur to any building and/or structure, the building and/or structure shall be restored to its pre-construction condition in consultation with the qualified historic preservation professional and planning department preservation staff.
- *Vibration Monitoring Results Report.* After construction is complete the project sponsor shall submit a final report from the qualified historic preservation professional (for effects on historic

buildings and/or structures) and/or structural engineer (for effects on historic and non-historic buildings and/or structures). The report shall include, at a minimum, collected monitoring records, building and/or structure condition summaries, descriptions of all instances of vibration level exceedance, identification of damage incurred due to vibration, and corrective actions taken to restore damaged buildings and structures. The ERO shall review and approve the Vibration Monitoring Results Report.

Significance after Mitigation: Mitigation Measure M-NO-2a would be required should analysis of a subsequent project under the Waterfront Plan determine that construction activities would result in vibration at levels that would damage buildings and/or structures. Mitigation Measure M-NO-2a would require the project sponsor to conduct a pre-construction assessment of potentially affected buildings and/or structures, establish vibration limits not to be exceeded based on the condition of the building(s) and/or structure(s), monitor vibration levels during construction, and repair any vibration-related damage to its pre-construction condition. Therefore, with implementation of Mitigation Measure M-NO-2a, the impact of subsequent projects under the Waterfront Plan to result in structural damage from construction vibration would be reduced to ***less than significant with mitigation***.

SLEEP DISTURBANCE

Groundborne vibration and noise can disturb people. People are generally more sensitive to vibration during nighttime hours when sleeping than during daytime waking hours. Studies have been conducted to characterize the human response to vibration. As discussed above, the planning department relies on the FTA guidelines for evaluating vibration effects on people, using category 2 criteria presented in Table 4.D-5, p. 4.D-12. A significant vibration impact related to sleep disturbance could occur when nighttime construction activities generate vibration levels that meet or exceed the category 2 VdB impact levels. Should vibration levels meet or exceed the category 2 VdB impact levels during nighttime construction, the analysis is then required to evaluate the duration, frequency, and intensity of those exceedances to determine whether the nighttime construction vibration impact is significant.

Although vibration levels could exceed the category 2 VdB impact levels during daytime hours, construction of subsequent projects under the Waterfront Plan would most often occur during daytime hours, as defined in the noise ordinance (which prohibits nighttime construction between 8 p.m. and 7 a.m. without a special permit). However, some relatively short-term construction activities for subsequent projects may need to occur at night. For example, typical construction activities that often occur during nighttime hours include continuous concrete pours, tower crane erection, and street utility work. Pile driving is not a likely method of nighttime construction, nor is it likely that nighttime construction activities would require the use of equipment such as a large bulldozer that would generate vibration levels that exceed the category 2 VdB impact levels. Nighttime construction may at times require the use of ground-disturbing equipment (such as a small bulldozer or excavator); however, it is more common for equipment such as concrete mixers, concrete saws, and cranes (which do not generate much vibration beyond the immediate work area) to be used during nighttime hours. At a distance of 10 feet, vibration levels from a small bulldozer or excavator would be below the category 2 VdB impact levels of 72 to 80 VdB. Nighttime construction would commonly occur at greater distances from nearby residential land uses.

Although subsequent projects may require the use of pile-driving or other more ground-disturbing and vibration-generating equipment, it is highly unlikely that these types of equipment would be used during nighttime hours when people normally sleep. Furthermore, even if some vibration-generating equipment

were to be necessary during nighttime hours, the duration of use for that equipment would be minimal. Therefore, sensitive receptors in and near the Waterfront Plan area would not be exposed to vibration in excess of category 2 VdB impact levels during nighttime hours for a prolonged period of time, and this impact would be **less than significant** for subsequent projects under the Waterfront Plan, and no mitigation is required.

VIBRATION-SENSITIVE EQUIPMENT

Construction-related vibration also can result in interference with vibration-sensitive instruments or machinery, such as that used in research laboratories or hospitals. The FTA has developed guidelines for evaluating potential construction-generated vibration impacts related to interference with building operations. Table 4.D-5, p. 4.D-12, presents criteria related to interference with interior operations (such as concert halls, TV and recording studios, auditoriums, and theaters), sleep, and institutional daytime uses as a function of the frequency of the vibration event according to three land use categories. Vibration impacts from interference with equipment are measured in VdB. The planning department relies on the FTA guidelines for assessing potential vibration impacts on equipment (e.g., magnetic resonance imaging equipment, high-resolution lithographic, optical and electron microscopes) and identifies buildings with equipment that could encounter interference with operations due to construction-related vibration as category 1, shown in Table 4.D-5. A significant vibration impact related to interference with equipment could occur when construction activities generate vibration levels that exceed the VdB impact levels identified in Table 4.D-5. In general, typical construction activities that don't involve impact or vibratory pile driving located beyond 225 feet would not result in an exceedance of the 65 VdB threshold for category 1 buildings. As shown in **Table 4.D-13**, construction activities that involve impact or vibratory pile driving need to be at least 500 feet from vibration-sensitive equipment to avoid an exceedance of the 65 VdB threshold for category 1 buildings.

Table 4.D-13 Vibration Levels Generated by Pile-Driving and Non-Pile-Driving Construction Sources

Construction Equipment	Reference Vibration Level (VdB at 25 feet)	Vibration Level (VdB at 75 feet)	Vibration Level (VdB at 225 feet)	Vibration Level (VdB at 500 feet)	FTA Criterion for Vibration-Sensitive Land Uses
Pile driving	104 (typical)	90	76	65	65
Vibratory roller	94	80	65	55	65
Large bulldozer	87	73	58	48	65
Caisson drilling	87	73	58	48	65
Jackhammer	79	65	50	40	65

SOURCE: ESA, based on FTA 2018.

NOTE: Vibration levels estimated using equation published by FTA: $L_v(D) = L_v(25\text{ ft}) - 30\log(D/25)$; where L_v is the vibration level at a given distance and D is distance.

There are no hospitals, concert halls, auditoriums, or theaters located within 225 feet of any of the subsequent project sites where new development could occur with implementation of the Waterfront Plan (see Table 4-2, p. 4-8, and Figure 4-1, p. 4-7, for a description and location of the subsequent project sites). However, Seawall Lot 321 is located across the street (approximately 75 feet south) from recording studios located at 1 Union Street and 69 Green Street, as well as the KGO-TV studios located at 900 Front Street. These studios are located within the 500-foot buffer for pile driving activities as well as within the 225-foot buffer for non-pile driving construction activities.

Impact pile driving is unlikely to occur on Seawall Lot 321 given that the height of a subsequent project would not exceed 40 feet. However, because Seawall Lot 321 is located 75 feet south of the recording studios and vibration levels from hoe rams, vibratory compactors, or bulldozers could be used during construction of a subsequent project on Seawall Lot 321, vibration levels could exceed the criteria for vibration-sensitive equipment (65 VdB for category 1 buildings). Therefore, it is possible that vibration-generating activities could interfere with vibration-sensitive equipment during construction of subsequent projects constructed under the Plan, which could be a significant impact.

As such, at such time a subsequent project is proposed on Seawall Lot 321, the project would be evaluated to determine whether it could result in interference with vibration-sensitive equipment from the use of vibration-generating equipment during construction. The initial evaluation would consist of a review of the construction equipment required for the project and the distance between construction activities and land uses with vibration-sensitive equipment. Should vibration generating construction equipment be required, a screening-level analysis that compares vibration levels with the distance to land uses with vibration-sensitive equipment may be required to determine if construction activities could result in interference with such equipment. If the screening-level analysis reveals the potential for interference to occur, the project sponsor may either conduct a detailed vibration study, or alternatively, implement **Mitigation Measure M-NO-2b, Protection of Vibration-Sensitive Equipment during Construction**. Implementation of Mitigation Measure M-NO-2b also would be required should a detailed vibration study indicate the potential for construction activities to result in a significant impact related to interference with vibration-sensitive equipment.

Mitigation Measure M-NO-2b: Protection of Vibration-Sensitive Equipment during Construction.

Prior to construction, the project sponsor shall designate and make available a community liaison to respond to vibration complaints from building occupants of adjacent recording and TV studios within a minimum of 225 feet of the project site.

Contact information for the community liaison shall be posted in a conspicuous location so that it is clearly visible to building occupants most likely to be disturbed. Through the community liaison, the project sponsor team shall provide notification to property owners and occupants of recording and TV studios at least 10 days prior to construction activities involving equipment that can generate vibration capable of interfering with vibration-sensitive equipment, informing them of the estimated start date and duration of vibration-generating construction activities. Equipment types capable of generating such vibration include a vibratory roller, large bulldozer, or similar equipment, operating within 225 feet of the building. If feasible, the project sponsor team shall identify potential alternative equipment and techniques that could reduce construction vibration levels. For example, alternative equipment and techniques may include use of static rollers instead of vibratory rollers.

If concerns prior to construction or complaints during construction related to equipment interference are identified, the community liaison shall work with the project sponsor team and the affected building occupants to resolve the concerns such that the vibration control measures would meet a performance target of the 65 VdB vibration level for vibration-sensitive equipment, as set forth by Federal Transit Administration. To resolve concerns raised by building occupants, the community liaison shall convey the details of the complaint(s) to the project sponsor team, such as who shall implement specific measures to ensure that the project construction meets the performance target of 65 VdB vibration level for vibration-sensitive equipment. The community liaison would then notify building occupants of the measures to be implemented. These measures may include evaluation by a qualified noise and vibration consultant, scheduling certain construction activities outside the hours

of operation or recording periods of specific vibration-sensitive equipment if feasible, and/or conducting groundborne vibration monitoring to document that the project can meet the performance target of 65 VdB at specific distances and/or locations. Groundborne vibration monitoring, if appropriate to resolve concerns, shall be conducted by a qualified noise and vibration consultant.

Significance after Mitigation: Mitigation Measure M-NO-2b would be required to ensure that the potential for interference with nearby vibration-sensitive equipment as a result of construction activity from a subsequent project on Seawall Lot 321 would be properly identified, avoided, or monitored. Operational changes for such uses would ensure that interference with vibration-sensitive equipment would not occur or would be reduced to an acceptable level. Therefore, with implementation of Mitigation Measure M-NO-2b, the impact of subsequent projects under the Waterfront Plan to result in interference with vibration sensitive equipment/operational damage from construction vibration would be reduced to ***less than significant with mitigation***.

OPERATIONAL IMPACTS

Impact NO-3: Operation of the Waterfront Plan could result in the generation of a substantial temporary or permanent increase in ambient noise levels in the Plan area in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. (*Less than Significant with Mitigation*)

TRAFFIC NOISE

Implementation of the Waterfront Plan would have the potential to lead to an increase in vehicular traffic in the vicinity of the Plan area, as detailed in Section 4.C, Transportation and Circulation. Potential vehicular traffic noise increases from existing (2020) conditions without Waterfront Plan implementation to existing (2020) with Waterfront Plan implementation were evaluated.

Noise levels along the 15 street segments analyzed in the transportation analysis were quantitatively modeled and the modeling results are presented in **Table 4.D-14**. As discussed in the transportation analysis (see Appendix E), roadway segment link volumes at 15 study locations (three locations within each subarea) were developed for the weekday p.m. peak hour for existing plus Waterfront Plan and 2050 cumulative conditions. The roadway segments were selected as they represent roadways expected to be most affected by vehicle traffic changes due to subsequent projects that could occur under the Waterfront Plan.

As shown in Table 4.D-14, project-generated vehicular traffic would increase traffic noise along the 15 modeled segments between 0.3 dBA and 1.9 dBA. As described in the methodology section, this analysis considers any increase in traffic noise of greater than 3 dBA or 5 dBA, depending on the existing noise level, to result in a significant noise impact. As shown in Table 4.D-14, all traffic-noise increases resulting from implementation of the Waterfront Plan would be below 3 dBA, which is also the level considered barely perceptible in laboratory environments. Therefore, traffic noise generated by subsequent projects under the Waterfront Plan would not result in a substantial permanent increase in ambient noise levels. Operational traffic noise impacts resulting from the Waterfront Plan would be ***less than significant***, and no mitigation is required.

Table 4.D-14 Peak Hour Traffic Noise Levels in the Vicinity of the Plan Area

Street Segment ^{a,b}	Receptor Land Use Type	Land Use Compatibility Standard	Existing Modeled Traffic Noise Level (dBA, L _{eq})	Applicable Significance Threshold (dBA)	Existing Plus Plan Modeled Traffic Noise Level (dBA, L _{eq})	Difference between Existing and Existing Plus Project (dBA) ^c
FISHERMAN'S WHARF WATERFRONT SUBAREA						
North Point Street between Powell & Stockton streets	Multifamily residential	60	63.3	3	63.6	0.3
Bay Street between The Embarcadero & Kearny Street	Office	65	67.0	3	67.6	0.6
The Embarcadero between Beach & North Point streets	Office	65	65.6	3	66.1	0.5
NORTHEAST WATERFRONT/FERRY BUILDING SUBAREA						
The Embarcadero between Green & Vallejo streets	Office	65	69.1	3	69.7	0.6
The Embarcadero between Broadway & Washington Street	Office	65	70.3	3	70.9	0.6
Mission Street between The Embarcadero & Steuart Street	Hotel	60	61.1	3	61.5	0.4
SOUTH BEACH/CHINA BAIN WATERFRONT SUBAREA						
The Embarcadero between Harrison & Bryant streets	Multifamily residential	60	70.3	3	70.9	0.6
Bryant Street between The Embarcadero & Main Street	Multifamily residential	60	64.8	3	66.7	1.9
King Street between Second & Third streets	Multifamily residential	60	70.3	3	70.7	0.4
MISSION BAY WATERFRONT SUBAREA						
Third Street between Terry A. Francois Boulevard & Channel Street	Multifamily residential	60	67.5	3	68.4	0.9
Third Street between Mission Bay Boulevard & South Street	Multifamily residential (UCSF residence hall)	60	68.6	3	69.4	0.8

Chapter 4. Environmental Setting, Impacts, and Mitigation Measures

4.D. Noise and Vibration

Street Segment ^{a,b}	Receptor Land Use Type	Land Use Compatibility Standard	Existing Modeled Traffic Noise Level (dBA, L _{eq})	Applicable Significance Threshold (dBA)	Existing Plus Plan Modeled Traffic Noise Level (dBA, L _{eq})	Difference between Existing and Existing Plus Project (dBA) ^c
Third Street between 16th & Mariposa streets	Hospital	63	69.4	3	70.1	0.7
SOUTHERN WATERFRONT SUBAREA						
Third Street between 26th & Cesar Chavez	Retail	75	71.7	5	72.3	0.6
Cargo Way between Illinois & Mendell streets	Industrial	75	64.2	5	66.1	1.9
Evans Avenue between Third & Newhall streets	Office	65	70.9	3	71.4	0.5

SOURCE: ESA 2021.

NOTES:

^a Road center to receptor distance is approximately 50 feet for all street segments. Noise levels were determined using the algorithms of the Federal Highway Administration Traffic Noise Prediction Model.

^b The analysis considered the vehicle mix based on heavy vehicle percentage estimates for multiple locations along The Embarcadero provided in Appendix E, Waterfront Plan EIR – Estimation of Proposed Travel Demand. Heavy vehicle percentages along The Embarcadero vary from 3 to 4 percent. For the Southern Waterfront, a heavy vehicle percentage of 8 percent was used, based on the Air Quality Technical Memorandum (see Appendix G). Traffic speeds for all vehicle classes were set at 25 to 35 miles per hour, as indicated by DATASF:

<https://data.sfgov.org/Transportation/Speed-Limits-per-Street-Segment/3t7b-gebn/data>, accessed March 25, 2021.

SITING OF NOISE GENERATING USES

Subsequent development under the Waterfront Plan could result in the siting of noise sources, such as emergency generators, loading areas, HVAC and mechanical equipment, and places of entertainment, among other noise-generating uses.

With regard to emergency generators, a 1,500-kilowatt (kW) generator could generate a noise level of 74 dBA at a distance of 23 feet.¹⁹¹ However, generator testing would occur very infrequently, most likely on the order of approximately one hour per month, and no more than 50 hours per year, in accordance with air district permits (see Section 3.D, Air Quality). Therefore, noise from testing individual backup emergency generators would not result in a substantial temporary increase in ambient noise levels. For these reasons, noise impacts from emergency generator testing would be **less than significant**, and no mitigation is required.

Development of commercial uses, such as PDR uses, in proximity to existing residential uses could increase the potential for noise disturbance or conflicts. Sources of noise typically associated with such non-residential uses include mechanical equipment, delivery trucks and associated loading areas, use of pneumatic tools, and use of refuse bins.

With respect to delivery trucks, if deliveries and associated unloading/loading activities occur in proximity to residential buildings and during the nighttime hours, residents could be subject to sleep disturbance by noise

¹⁹¹ Cummins Power Generation Specification Sheet, Mobile Power, 1,500 kW, 2013.

from these activities. Noise typically associated with delivery trucks includes trucks maneuvering in and out of designated loading areas, audible warnings when trucks reverse into loading areas, idling during deliveries, opening and closing of truck doors and rollup doors, use of rolling hand carts and dollies, and engines starting. In most cases, noise from delivery trucks would be a noise source found throughout San Francisco. If a given PDR use were to generate a large concentration of nighttime deliveries, there could be a potential for sleep disturbance from these types of noise if the PDR use were located adjacent to one or more residential buildings. However, existing residential uses or residential uses that are under construction are either not located near or do not have direct line-of-sight with the subsequent project sites where potential PDR use could be located under the Plan. For example, the Pier 70 Triangle site is located approximately 350 feet from residential uses that will be developed as part of the Pier 70 Mixed-Use District Project (Pier 70 project) and would be separated by intervening commercial structures. Therefore, potential impacts related to noise from delivery trucks associated with PDR uses would be **less than significant**.

HVAC equipment can produce sound levels in the range of 70 to 75 dBA at 50 feet, depending on the size of the equipment.¹⁹² Subsequent projects under the Waterfront Plan could require HVAC systems and could be located at least 50 feet from existing noise-sensitive receptors. Ambient noise levels in the Waterfront Plan area vary greatly, with long-term measurements recording average daytime L_{eq} noise levels in the range of 55 to 73 dBA. Therefore, depending on the ambient noise level in the vicinity of a subsequent project, noise from HVAC equipment at subsequent projects developed under the Waterfront Plan could result in noise levels in excess of section 2909(a) and (b) of the noise ordinance (i.e., 5 dBA above ambient noise levels at residential property planes, 8 dBA above ambient at commercial/industrial property planes). In addition, depending on the proximity of HVAC equipment to nearby receptors, it is possible that HVAC equipment could be installed close enough to residential receptors that resultant interior noise levels could exceed the 55 dBA daytime (7 a.m. to 10 p.m.) and 45 dBA nighttime (10 p.m. to 7 a.m.) section 2909(d) noise ordinance limits. For example, a noise level of 75 dBA L_{eq} , the upper range of noise from HVAC equipment at 50 feet, is 30 dBA above the 45 dBA L_{eq} nighttime noise criterion for fixed equipment. Based on typical residential buildings within the city, a 15 dB noise reduction with windows open can be assumed. Subtracting 15 dB from the 75 dBA L_{eq} would yield a noise level of 60 dBA L_{eq} at a distance of 50 feet from equipment. This noise level is in excess of the interior noise standard described above for both daytime and nighttime hours. Although equipment would often be located farther than this distance from sensitive receptors, it is possible that stationary noise sources could be close enough to result in noise that would exceed the daytime or nighttime interior noise limit of section 2909(d). HVAC equipment installed during subsequent projects under the Waterfront Plan could therefore result in noise levels that would be in excess of noise ordinance standards.

Although fixed stationary sources are subject to the noise limits in article 29, there is no permit approval process to ensure that HVAC equipment would meet the standards in article 29 prior to installation of such equipment. Instead, enforcement of article 29 would occur in response to complaints received by the City. That is, if a complaint is received, either the public health department or police department, depending on the noise source, would be dispatched to determine whether a violation of the noise ordinance exists and coordinate with the property owner(s) on the appropriate abatement methods. Therefore, the potential exists for these noise sources to generate a temporary or permanent increase in noise levels in excess of the noise ordinance standards, which would be a significant impact. As such, upon evaluation of each subsequent project, if it is determined that the project could result in a significant impact related to the siting of HVAC equipment, the following mitigation measure would apply, **Mitigation Measure M-NO-3, Noise Analysis and**

¹⁹² Hoover and Keith, *Noise Control for Buildings, Manufacturing Plants, Equipment, and Products*, 2000, Houston, TX.

Attenuation. With implementation of Mitigation Measure M-NO-3, impacts related to the siting of HVAC equipment would be *less than significant with mitigation*.

Mitigation Measure M-NO-3: Noise Analysis and Attenuation. A noise analysis shall be required for new development that includes noise-generating activities or equipment (e.g., heating, ventilation, and air-conditioning equipment; outdoor gathering areas; places of entertainment) when proposed within 900 feet and with direct line-of-sight to noise sensitive receptors. This analysis shall be conducted prior to the first project approval action.

This analysis shall include, a site survey to identify potential noise-sensitive uses and include at least one 24-hour noise measurement to determine ambient noise levels throughout the day and nighttime hours.

The analysis shall be prepared by persons qualified in acoustical analysis and/or engineering and shall demonstrate with reasonable certainty that the proposed use would not adversely affect nearby noise-sensitive uses, would not substantially increase ambient noise levels, and would not result in a noise level in excess of any applicable standards, such as those in section 2909 of the noise ordinance. All recommendations from the acoustical analysis necessary to ensure that noise sources would meet applicable requirements of the noise ordinance and/or not result in substantial increases in ambient noise levels shall be incorporated into the building design and operations. Should concerns remain regarding potential excessive noise, completion of a detailed noise control analysis (by a person qualified in acoustical analysis and/or engineering), and incorporation of noise reduction measures (including quieter equipment, construction of barriers or enclosures, etc.) into the building design and operations prior to the first project approval action may be required.

Development under the Waterfront Plan could result in nighttime entertainment uses within a mixed-use development (e.g., nightclubs, restaurants, arts spaces). Because entertainment uses typically generate nighttime noise and residential uses require quieter nighttime noise levels, noise conflicts could result where these land uses are located in proximity to one another. However, upon evaluation of each subsequent project, if it is determined that the project could result in a significant impact related to the siting of a place of entertainment, Mitigation Measure M-NO-3 would be required. With implementation of Mitigation Measure M-NO-3, impacts related to the siting of places of entertainment would be *less than significant with mitigation*.

Significance after Mitigation: Implementation of Mitigation Measure M-NO-3 would ensure that the building design, enclosure design, and/or changes in operations resulting from implementation of subsequent projects that could occur under the Waterfront Plan would comply with the applicable criteria in the municipal code and would not substantially increase ambient noise levels. This impact would be *less than significant with mitigation* for subsequent projects under the Waterfront Plan.

CUMULATIVE IMPACT EVALUATION

The cumulative context for noise and vibration impacts is the Waterfront Plan area and its nearby surroundings. Specifically, the geographic scope of analysis for cumulative noise and vibration construction impacts, as well as stationary noise sources, encompasses cumulative projects within approximately 900 feet of the Waterfront Plan area. Beyond 900 feet, the contributions of noise from other projects would be greatly attenuated through both distance and intervening structures, and their contributions would be minimal. The analysis considers vehicular

traffic noise from cumulative growth as well as cumulative construction noise and vibration from other potential projects in and adjacent to the Waterfront Plan area. The cumulative projects identified and described in Chapter 4, Environmental Setting, Impacts, and Mitigation Measures, p. 4-8, could contribute to cumulative impacts related to noise and vibration.

Impact C-NO-1: Construction under the Waterfront Plan, in combination with cumulative projects, could result in the generation of a substantial temporary or permanent increase in ambient noise levels in excess of standards. (*Less than Significant with Mitigation*)

Construction noise is a localized impact that reduces as distance from the noise source increases. In addition, intervening features (e.g., existing buildings) between construction areas and nearby noise-sensitive land uses result in additional noise attenuation by providing barriers that break the line of sight between noise-generating equipment and sensitive receptors. These barriers can block sound wave propagation and somewhat reduce noise at a given receiver.

Construction activities from subsequent projects under the Waterfront Plan could coincide with other construction activity in or near the Plan area. The earliest anticipated date for construction of a subsequent project under the Plan would be approximately 2024 or 2025. Other subsequent projects would be constructed thereafter and would likely continue beyond 2030. Nearby projects that may be under construction during construction of subsequent projects under the Waterfront Plan include the Seawall Lot 337 and Pier 48 Mixed-Use Project (Mission Rock project) and Pier 70 project, both of which have completed the first phase of their construction activities to date, but will likely continue through 2030 based on construction schedules in their environmental review documents. Construction under the updated San Francisco Housing Element may also occur during construction of subsequent projects under the Waterfront Plan. Better Market Street and specific projects such as the TZK Broadway and Teatro ZinZanni project will likely be complete by the start of any construction that could occur under the Plan.

Construction activity is a common occurrence in the urban environment. Although construction noise may be disruptive to persons located nearby, it would be temporary and intermittent and would vary, depending on the phases of construction. In addition, construction activities in the city would be required to comply with the San Francisco Noise Ordinance, which prohibits construction activities between 8 p.m. and 7 a.m. without a special nighttime noise permit and limits noise from any individual piece of construction equipment to 80 dBA at 100 feet, except for impact tools approved by the Department of Building Inspection or public works (limited to 80 dBA at 100 feet).

Although construction schedules for the cumulative projects and subsequent projects under the Waterfront Plan could change, it is possible that at least some subsequent projects under the Waterfront Plan could overlap with these cumulative projects. As discussed under Impact NO-1, subsequent projects under the Waterfront Plan that meet the construction noise screening criteria are not likely to result in a considerable contribution to cumulative construction noise impacts because such construction activities are temporary, intermittent, and more limited in duration than projects that do not meet the screening criteria. Construction of such structures or facilities is a common occurrence in San Francisco's dense urban environment, and police code section 2907(a) limits noise from individual pieces of non-impact equipment to 80 dBA at 100 feet. Additionally, construction of linear projects typically does not result in a significant construction noise impact individually or cumulatively because the same sensitive receptors are not being affected for substantial periods of time as the construction activity progresses linearly.

However, subsequent projects that do not meet the construction screening criteria are likely to result in higher noise levels or a longer duration of noisier construction activities. Because construction of these types of subsequent projects under the Waterfront Plan could combine with that of nearby projects (either by occurring concurrently and increasing noise levels or consecutively and increasing the duration of noise exposure), cumulative construction noise impacts could be significant.

With regard to the potential for subsequent projects under the Waterfront Plan to have a considerable contribution to this cumulative construction noise impact, it is possible that without mitigation, individual construction projects could result in a significant construction noise impact. Thus, should such a project be located near other cumulative projects and occur concurrently to increase noise levels or consecutively increase the duration of noise exposure, without mitigation, construction of subsequent projects under the Waterfront Plan would result in a considerable contribution to this cumulative impact.

Implementation of Mitigation Measure M-NO-1 would be required for subsequent projects under the Waterfront Plan that are determined to result in a considerable contribution to cumulative construction noise impacts. Mitigation Measure M-NO-1 would result in a reduction in construction noise levels by locating stationary noise-producing equipment as far away from the noise-sensitive receptors as possible. In addition, Mitigation Measure M-NO-1 would require the project sponsor and their construction contractors to use noise attenuation barriers and/or blankets and utilize blockades from construction activities, and all equipment would be attenuated with mufflers as much as possible. Although construction noise from subsequent projects under the Waterfront Plan may at times exceed 10 dBA above the ambient noise level or 90 dBA at sensitive receptor locations even with mitigation, this mitigation measure would substantially reduce the intensity of construction noise and the duration of construction noise that exceed 10 dBA above the ambient noise level or 90 dBA at noise sensitive receptors. Furthermore, construction noise levels would be temporary and would not persist upon completion of construction activities. Individual pieces of construction equipment (apart from impact equipment) also would be required to comply with the noise limits in article 29 of the police code. Thus, with implementation of Mitigation Measure M-NO-1, subsequent projects under the Waterfront Plan would not result in a considerable contribution to cumulative construction noise impacts. As such, the Waterfront Plan's cumulative construction noise impact is ***less than significant with mitigation***.

Impact C-NO-2: Construction under the Waterfront Plan, in combination with cumulative projects, would not result in the generation of excessive groundborne vibration or groundborne noise levels during construction. (*Less than Significant*)

With regard to the potential for a cumulative vibration-related damage impact to occur, because vibration impacts are based on instantaneous PPV levels, worst-case groundborne vibration levels from construction are generally determined by whichever individual piece of equipment generates the highest vibration levels. Unlike the analysis for average noise levels, in which noise levels of multiple pieces of equipment can be combined to generate a maximum combined noise level, instantaneous peak vibration levels do not combine in this way. Vibration from multiple construction sites, even if they are located close to one another, would not combine to raise the maximum PPV. For this reason, the cumulative impact of construction vibration from multiple construction projects located near one another would generally not combine to further increase vibration levels. In essence, vibration effects are highly localized.

Vibration impacts resulting from construction of subsequent projects under the Waterfront Plan would not combine with vibration effects from cumulative projects in the Waterfront Plan vicinity. Therefore, cumulative groundborne vibration impacts related to potential damage effects, sleep disturbance, and interference with vibration-sensitive equipment would be **less than significant** for the Waterfront Plan.

Impact C-NO-3: Operation of the Waterfront Plan, in combination with cumulative projects, could result in the generation of a substantial temporary or permanent increase in ambient noise levels in excess of standards. (Less than Significant with Mitigation)

TRAFFIC NOISE

To determine the potential cumulative noise impacts in the Waterfront Plan area, vehicular traffic volumes from the 2020 existing condition were compared to the 2050 cumulative condition, which includes the Waterfront Plan and cumulative projects.¹⁹³ A cumulative traffic noise impact would occur if noise levels increase by more than 3 dBA or 5 dBA, depending on whether the existing noise levels exceed the normally acceptable land use compatibility standard for the land uses along a given segment. If a cumulative vehicular traffic noise impact is anticipated along a given street segment, then the Plan’s contribution to that impact must be assessed.

Noise levels along the 15 street segments analyzed in the transportation analysis were quantitatively modeled for the 2020 existing condition and 2050 cumulative condition. The modeling results are presented in **Table 4.D-15**.

Table 4.D-15 Cumulative Peak Hour Traffic Noise Levels in the Vicinity of the Plan Area

Street Segment ^{a,b}	Receptor Land Use Type	Land Use Compatibility Standard	Existing Modeled Traffic Noise Level (2020) (dBA, L _{eq})	Applicable Significance Threshold (dBA)	Cumulative Modeled Traffic Noise Level (2050) (dBA, L _{eq})	Difference between Existing Conditions and Cumulative Condition (dBA) ^c
FISHERMAN’S WHARF WATERFRONT SUBAREA						
North Point Street between Powell & Stockton streets	Multifamily residential	60	63.3	3	65.0	1.7
Bay Street between The Embarcadero & Kearny Street	Office	65	67.0	3	68.4	1.4
The Embarcadero between Beach & North Point streets	Office	65	65.6	3	67.6	2.0

¹⁹³ The 2050 cumulative condition accounts for expected citywide growth by 2050 based on growth projections developed by the planning department.

Chapter 4. Environmental Setting, Impacts, and Mitigation Measures

4.D. Noise and Vibration

Street Segment ^{a,b}	Receptor Land Use Type	Land Use Compatibility Standard	Existing Modeled Traffic Noise Level (2020) (dBA, L _{eq})	Applicable Significance Threshold (dBA)	Cumulative Modeled Traffic Noise Level (2050) (dBA, L _{eq})	Difference between Existing Conditions and Cumulative Condition (dBA) ^c
NORTHEAST WATERFRONT/FERRY BUILDING SUBAREA						
The Embarcadero between Green & Vallejo streets	Office	65	69.1	3	71.5	2.4
The Embarcadero between Broadway & Washington Street	Office	65	70.3	3	72.3	2.0
Mission Street between The Embarcadero & Steuart Street	Hotel	60	61.1	3	63.0	1.9
SOUTH BEACH/CHINA BAIN WATERFRONT SUBAREA						
The Embarcadero between Harrison & Bryant streets	Multifamily residential	60	70.3	3	72.9	2.5
Bryant Street between The Embarcadero & Main Street	Multifamily residential	60	64.8	3	69.5	4.7
King Street between Second & Third streets	Multifamily residential	60	70.3	3	73.1	2.8
MISSION BAY WATERFRONT SUBAREA						
Third Street between Terry A. Francois Boulevard & Channel Street	Multifamily residential	60	67.5	3	71.3	3.8
Third Street between Mission Bay Boulevard & South Street	Multifamily residential (UCSF residence hall)	60	68.6	3	71.8	3.2
Third Street between 16th & Mariposa streets	Hospital	63	69.4	3	71.5	2.1

Street Segment ^{a,b}	Receptor Land Use Type	Land Use Compatibility Standard	Existing Modeled Traffic Noise Level (2020) (dBA, L _{eq})	Applicable Significance Threshold (dBA)	Cumulative Modeled Traffic Noise Level (2050) (dBA, L _{eq})	Difference between Existing Conditions and Cumulative Condition (dBA) ^c
SOUTHERN WATERFRONT SUBAREA						
Third Street between 26th & Cesar Chavez	Retail	75	71.7	5	75.3	3.6
Cargo Way between Illinois & Mendell streets	Industrial	75	64.2	5	69.3	5.1
Evans Ave between Third & Newhall streets	Office	65	70.9	3	73.9	3.0

SOURCE: ESA 2021.

NOTES:

- ^a Road center to receptor distance is approximately 50 feet for all street segments. Noise levels were determined using the algorithms of the Federal Highway Administration Traffic Noise Prediction Model.
- ^b The analysis considered the vehicle mix based on heavy vehicle percentage estimates for multiple locations along The Embarcadero provided in Appendix E, Waterfront Plan EIR – Estimation of Proposed Travel Demand. Heavy vehicle percentages along The Embarcadero vary from 3 to 4 percent. For the Southern Waterfront, a heavy vehicle percentage of 8 percent was used, based on the Air Quality Technical Memorandum (see Appendix G). Traffic speeds for all vehicle classes were set at 25, 30, and 35 miles per hour (mph), as indicated by DATASF: <https://data.sfgov.org/Transportation/Speed-Limits-per-Street-Segment/3t7b-gebn/data>, accessed March 25, 2021.
- ^c **Bolded** values indicate an exceedance of the applicable significance threshold.

As shown in Table 4.D-15, a significant cumulative impact would occur along five of the 15 modeled street segments. To determine if the Waterfront Plan would result in a cumulatively considerable contribution to any of these cumulative traffic noise impacts, quantitative results for the 2050 future condition, which does not include the Waterfront Plan, were compared to the 2050 cumulative condition that does include the Waterfront Plan. The incremental effect of the Waterfront Plan on cumulative traffic noise levels is shown in **Table 4.D-16**.

As shown in Table 4.D-16, the Waterfront Plan would result in a 0.2 to 0.8 dBA increase in traffic noise along the segments determined to have a potential cumulative traffic noise impact. Therefore, although cumulative vehicular traffic noise impacts in the Waterfront Plan area would occur, the contribution of the Waterfront Plan would be minimal (less than 1 dBA increase) and, except in carefully controlled laboratory experiments, a change of 1 dBA cannot generally be perceived.¹⁹⁴ Traffic increases resulting from the Waterfront Plan would not result in a cumulatively considerable contribution to any cumulative vehicular traffic noise impacts. Therefore, cumulative traffic noise impacts are **less than significant**.

¹⁹⁴ California Department of Transportation, *Technical Noise Supplement (TeNS) to the Traffic Noise Analysis Protocol*, September 2013, pp. 2-44 to 2-45, <http://www.dot.ca.gov/env/noise/docs/tens-sep2013.pdf>, accessed April 16, 2021.

Table 4.D-16 Cumulative Peak Hour Traffic Noise Level Increases Attributable to the Waterfront Plan in the Vicinity of the Plan Area

Street Segment ^{a,b}	Receptor Land Use Type	Future Modeled Traffic Noise Level (dBA) Without the Waterfront Plan (2050)	Cumulative (2050) Modeled Traffic Noise Level (dBA) with the Waterfront Plan	Plan Contribution to Cumulative Traffic Noise (dBA)
SOUTH BEACH/CHINA BAIN WATERFRONT SUBAREA				
Bryant Street between The Embarcadero & Main Street	Multifamily residential	68.7	69.5	0.8
MISSION BAY WATERFRONT SUBAREA				
Third Street between Terry A. Francois Boulevard & Channel Street	Multifamily residential	70.8	71.3	0.5
Third Street between Mission Bay Blvd & South Street	Multifamily residential (UCSF residence hall)	71.3	71.8	0.5
SOUTHERN WATERFRONT SUBAREA				
Cargo Way between Illinois & Mendell streets	Industrial	68.6	69.3	0.7
Evans Ave between Third & Newhall streets	Office	73.7	73.9	0.2

SOURCE: ESA 2021.

NOTES:

- ^a Road center to receptor distance is approximately 50 feet for all street segments. Noise levels were determined using the algorithms of the Federal Highway Administration Traffic Noise Prediction Model.
- ^b The analysis considered the vehicle mix based on heavy vehicle percentage estimates for multiple locations along The Embarcadero provided in Appendix E, Waterfront Plan EIR – Estimation of Proposed Travel Demand. Heavy vehicle percentages along The Embarcadero vary from 3 to 4 percent. For the Southern Waterfront, a heavy vehicle percentage of 8 percent was used, based on the Air Quality Technical Memorandum (see Appendix G). Traffic speeds for all vehicle classes were set at 25, 30, and 35 miles per hour, as indicated by DATASF: <https://data.sfgov.org/Transportation/Speed-Limits-per-Street-Segment/3t7b-gebn/data>, accessed March 25, 2021.

SITING OF NOISE-GENERATING USES

In general, most operational sources of noise are fairly localized. As discussed under Impact NO-3, the potential exists for noise generating uses to result a substantial temporary or permanent increase in noise levels in excess of the noise ordinance standards, which would be a significant impact. Mitigation Measure M-NO-3 is identified to reduce the potential for noise generating uses to result in a substantial permanent noise increase to a less-than-significant level. In general, the subsequent projects sites are sufficiently distant from the cumulative projects to ensure that these projects would not combine to result in a cumulative noise impact. It is possible that operational sources of noise from the Pier 70 Triangle site could combine with those of the Pier 70 project to result in a significant cumulative impact given their proximity. Therefore, the Waterfront Plan’s contribution to this impact could be cumulatively considerable.

Implementation of Mitigation Measure M-NO-3 would reduce noise from new noise-generating uses developed under the Waterfront Plan (e.g., noise associated with subsequent projects) and would ensure that noise from the noise-generating land uses under the Waterfront Plan would comply with applicable City standards. Therefore, with implementation of Mitigation Measure M-NO-3, the contribution of the Waterfront Plan to a potential cumulative impact would not be considerable, and the impact would be ***less than significant with mitigation.***

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4.E Air Quality

4.E.1 Introduction

This section describes the existing air quality conditions in the Waterfront Plan area and vicinity, identifies the regulatory framework for air quality management, and analyzes the potential for implementation of the proposed Plan to affect air quality conditions, both regionally and locally, due to activities that emit criteria and non-criteria air pollutants. It also analyzes the types and quantities of emissions that would be generated on a temporary basis due to construction activities as well as those generated over the long term due to development that could occur under the Waterfront Plan. The analysis determines whether those emissions are significant in relation to applicable air quality standards and identifies feasible mitigation measures for significant adverse impacts.

The study area for regional air quality impacts is the San Francisco Bay Area air basin (air basin). The study area for localized air quality impacts is generally within the Port's 7.5-mile jurisdiction, a continuous shoreline from the curved, northeast shore adjacent to Aquatic Park in Fisherman's Wharf to Heron's Head Park near India Basin in the southeast. The specific area evaluated for impacts is discussed below in Section 4.E.4's Analysis Assumptions, p. 4.E-25.

The analysis in this section is based on a review of existing air quality conditions in the region and air quality regulations administered by the United States Environmental Protection Agency (U.S. EPA), the California Air Resources Board (CARB), and the Bay Area Air Quality Management District (air district). This analysis includes methodologies identified in the air district's 2017 *California Environmental Quality Act Air Quality Guidelines* (CEQA Air Quality Guidelines) and the health risk assessment methodology published by the Office of Environmental Health Hazard Assessment (OEHHA) in 2015.^{195,196}

4.E.2 Environmental Setting

The Plan area is within the air basin, which includes all of San Francisco, Alameda, Contra Costa, Marin, San Mateo, Santa Clara, and Napa counties, and the southern and southwestern portions, respectively, of Sonoma and Solano counties. The air district is the regional agency responsible for air quality planning in the air basin.

CLIMATE AND METEOROLOGY

The air basin's moderate climate steers storm tracks away from the region for much of the year, although storms generally affect the region from November through April. San Francisco's proximity to the onshore breezes stimulated by the Pacific Ocean provides for generally good air quality in the Plan area and the city as a whole.

Temperatures in the Plan area vicinity average in the mid-50s annually, generally ranging from the low 40s on winter mornings to mid-70s during summer afternoons. Daily and seasonal oscillations of temperature are small because of the moderating effects of San Francisco Bay. In contrast to the steady temperature regime, rainfall is highly variable and confined almost exclusively to the "rainy" period from November through April.

¹⁹⁵ Bay Area Air Quality Management District, *California Environmental Quality Act Air Quality Guidelines*, May 2017,

https://www.baaqmd.gov/~media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en, accessed July 15, 2021.

¹⁹⁶ California Environmental Protection Agency, *The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessment*, February 2015, <http://oehha.ca.gov/media/downloads/cmr/2015guidancemanual.pdf>, accessed July 15, 2021.

Precipitation may vary widely from year to year as a shift in the annual storm track of a few hundred miles can mean the difference between a wet year and drought conditions.

Atmospheric conditions—such as wind speed, wind direction, and air temperature gradients—interact with the physical features of the landscape to determine the movement and dispersal of air pollutants regionally. The Plan area lies within the Peninsula climatological subregion. Marine air traveling through the Golden Gate is a dominant weather factor affecting dispersal of air pollutants within the region. Wind measurements collected on the San Francisco mainland indicate a prevailing wind direction from the west and an average annual wind speed of 10.6 miles per hour.¹⁹⁷ Increased temperatures create the conditions in which ozone formation can increase.

AMBIENT AIR QUALITY – CRITERIA AIR POLLUTANTS

As required by the federal Clean Air Act of 1970, the U.S. EPA initially identified six criteria air pollutants that are pervasive in urban environments and for which state and federal health-based ambient air quality standards have been established. The U.S. EPA calls these pollutants “criteria air pollutants” because the agency has regulated them by developing specific public-health-based and welfare-based criteria as the basis for setting permissible levels. Ozone, carbon monoxide (CO), particulate matter (PM), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), and lead are the six criteria air pollutants originally identified by U.S. EPA. Since that time, subsets of particulate matter have been identified for which permissible levels have been established. These include particulate matter of 10 microns in diameter or less (PM₁₀) and particulate matter of 2.5 microns in diameter or less (PM_{2.5}). See Section 4.E.3, Regulatory Framework, for further discussion of specific pollutants and their attainment status within the air basin with respect to state and federal air quality standards.

The region’s air quality monitoring network provides information on ambient concentrations of criteria air pollutants at various locations in the San Francisco Bay Area. **Table 4.E-1** presents a 5-year summary for the period 2016 to 2020 of the highest annual criteria air pollutant concentrations collected at the air quality monitoring station operated and maintained by the air district at 16th and Arkansas streets in San Francisco’s Potrero Hill neighborhood. Table 4.E-1 also compares measured pollutant concentrations with the National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) for each of the criteria air pollutants. Concentrations shown in bold indicate an exceedance of the standard for the air basin (see **Table 4.E-2** for the air basin’s attainment status for each criteria air pollutant). Table 4.E-1 does not include SO₂ because monitors are not required for the bay area as the air basin has never been designated as non-attainment for SO₂.

It should be noted that the ambient air quality standards—both federal and state—are expressed as airborne concentrations of various pollutants. Compliance with the standards is on a regional basis. In the bay area, compliance is demonstrated by ongoing measurements of pollutant concentrations at more than 30 air quality monitoring stations operated by the air district in all nine bay area counties. An exceedance of an ambient air quality standard at any one of the stations counts as a regional exceedance.

¹⁹⁷ Western Regional Climate Center, https://wrcc.dri.edu/Climate/comp_table_show.php?stype=wind_speed_avg, accessed July 15, 2021.

Table 4.E-1 Summary of San Francisco Air Quality Monitoring Data (2016–2020)

Pollutant	Most-Stringent Applicable Standard	Number of Days Standards Were Exceeded and Maximum Concentrations Measured ^a				
		2016	2017	2018	2019	2020
OZONE						
Days 1-Hour Standard Exceeded		0	0	0	1	0
Maximum 1-Hour Concentration (ppm)	>0.090 ppm ^b	0.070	0.087	0.065	0.091	0.065
Days 8-Hour Standard Exceeded		0	0	0	1	0
Maximum 8-Hour Concentration (ppm)	>0.070 ppm ^c	0.057	0.054	0.049	0.073	0.056
CARBON MONOXIDE (CO)						
Days 1-Hour Standard Exceeded		0	0	0	0	0
Maximum 1-Hour Concentration (ppm)	>20 ppm ^b	1.7	2.5	1.9	1.2	1.8
Days 8-Hour Standard Exceeded		0	0	0	0	0
Maximum 8-Hour Concentration (ppm)	>9 ppm ^b	1.1	1.4	1.6	1.0	1.6
SUSPENDED PARTICULATES (PM₁₀)						
Days 24-Hour Standard Exceeded		0	2	0	0	2
Maximum 24-Hour Concentration (µg/m ³)	>50 µg/m ^{3b}	29	77	43	42	105
SUSPENDED PARTICULATES (PM_{2.5})						
Days 24-Hour Standard Exceeded		0	7	14	0	8
Maximum 24-Hour Concentration (µg/m ³)	>35 µg/m ^{3c}	19.6	49.9	177.4	25.4	147.3
Annual Average (µg/m ³)	>12 µg/m ^{3b,c}	7.5	9.7	11.7	7.7	10.5
NITROGEN DIOXIDE (NO₂)						
Days 1-Hour Standard Exceeded		0	0	0	0	0
Maximum 1-Hour Concentration (ppm)	>0.100 ppm ^c	0.058	0.073	0.069	0.061	0.063

SOURCE: California Air Resource Board Top 4 Summary for the San Francisco Arkansas Street monitoring site, 2016–2020, <https://www.arb.ca.gov/adam/topfour/topfour1.php>.
United States Environmental Protection Agency AirData Air Quality Monitors for Arkansas Street monitoring site, 2020, <https://epa.maps.arcgis.com/apps/webappviewer/index.html?id=5f239fd3e72f424f98ef3d5def547eb5>

NOTES:

Bold values are in excess of applicable standard.

N/A = data not available.

ppm = parts per million; µg/m³ = micrograms per cubic meter

^a Number of days exceeded is for all days in a given year, except for particulate matter. PM₁₀ is monitored every 6 days. Therefore, the number of days exceeded is out of approximately 60 annual samples.

^b State standard, not to be exceeded.

^c Federal standard, not to be exceeded.

Table 4.E-2 State and Federal Ambient Air Quality Standards and Attainment Status

Pollutant	Averaging Time	State (CAAQS ^a)		Federal (NAAQS ^b)	
		Standard	Attainment Status	Standard	Attainment Status
Ozone	1 hour	0.09 ppm	N	NA	— ^c
	8 hours	0.07 ppm	N^d	0.070 ppm	N
Carbon monoxide (CO)	1 hour	20 ppm	A	35 ppm	A
	8 hours	9 ppm	A	9 ppm	A
Nitrogen dioxide (NO ₂)	1 hour	0.18 ppm	A	0.100 ppm	U
	Annual	0.030 ppm	NA	0.053 ppm	A
Sulfur dioxide (SO ₂)	1 hour	0.25 ppm	A	0.075	A
	24 hours	0.04 ppm	A	0.14	A
	Annual	NA	NA	0.03 ppm	A
Particulate matter (PM ₁₀)	24 hours	50 µg/m ³	N	150 µg/m ³	U
	Annual ^e	20 µg/m ³	N	NA	NA
Fine particulate matter (PM _{2.5})	24 hours	NA	NA	35 µg/m ³	N
	Annual	12 µg/m ³	N	12 µg/m ³	U/A ^f
Sulfates	24 hours	25 µg/m ³	A	NA	NA
Lead	30 days	1.5 µg/m ³	A	NA	NA
	Cal. quarter	NA	NA	1.5 µg/m ³	A
Hydrogen sulfide	1 hour	0.03 ppm	U	NA	NA
Visibility-reducing particles	8 hours	— ^g	A	NA	NA

SOURCE: Bay Area Air Quality Management District, *Standards and Attainment Status*, 2021, <https://www.baaqmd.gov/about-air-quality/research-and-data/air-quality-standards-and-attainment-status>, accessed July 15, 2021.

NOTES:

A = Attainment; **N** = Nonattainment; U = Unclassified; NA = Not Applicable, no applicable standard; ppm = parts per million; µg/m³ = micrograms per cubic meter.

- ^a SAAQS = State ambient air quality standards (California). SAAQS for ozone, CO (except Lake Tahoe), SO₂ (one-hour and 24-hour), NO₂, particulate matter, and visibility-reducing particles are values that are not to be exceeded. All other State standards shown are values not to be equaled or exceeded.
- ^b NAAQS = national ambient air quality standards. NAAQS, other than ozone and particulates, and those based on annual averages or annual arithmetic means, are not to be exceeded more than once a year. The eight-hour ozone standard is attained when the three-year average of the fourth highest daily concentration is 0.08 ppm or less. The 24-hour PM₁₀ standard is attained when the three-year average of the 99th percentile of monitored concentrations is less than the standard. The 24-hour PM_{2.5} standard is attained when the three-year average of the 98th percentile is less than the standard.
- ^c The U.S. EPA revoked the national one-hour ozone standard on June 15, 2005.
- ^d This state eight-hour ozone standard was approved in April 2005 and became effective in May 2006.
- ^e State standard = annual geometric mean; national standard = annual arithmetic mean.
- ^f In December 2012, the U.S. EPA strengthened the annual PM_{2.5} NAAQS from 15 to 12 µg/m³. In December 2014, the U.S. EPA issued final area designations for the 2012 primary annual PM_{2.5} NAAQS. Areas designated “unclassifiable/attainment” must continue to take steps to prevent their air quality from deteriorating to unhealthy levels. The effective date of this standard is April 15, 2015.
- ^g Statewide visibility-reducing particle standard (except Lake Tahoe Air Basin): Particles in sufficient amount to produce an extinction coefficient of 0.23 per kilometer when the relative humidity is less than 70 percent. This standard is intended to limit the frequency and severity of visibility impairment due to regional haze and is equivalent to a 10-mile nominal visual range.

NAAQS and CAAQS have been set at levels considered safe to protect public health, including the health of sensitive populations such as asthmatics, children, and the elderly with a margin of safety; and to protect public welfare, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings. As explained by CARB, “An air quality standard defines the maximum amount of a pollutant averaged over a specified period of time that can be present in outdoor air without any harmful effects on people or the environment.”¹⁹⁸ That is, if a region is in compliance with the ambient air quality standards, its regional air quality can be considered protective of public health. The NAAQS are statutorily required to be set by the U.S. EPA at levels that are “requisite to protect the public health.”¹⁹⁹ Therefore, the closer a region is to attaining a particular NAAQS, the lower the human health impact is from that pollutant.

A brief description of the health effects of exposure to criteria air pollutants is provided below.

OZONE

Ozone is a secondary air pollutant produced in the atmosphere through a complex series of photochemical reactions involving reactive organic gases (ROG, also sometimes referred to as volatile organic compounds [VOCs] by some regulating agencies) and nitrogen oxides (NOx). The main sources of ROG and NOx, often referred to as ozone precursors, are combustion processes (including motor vehicle engines) and the evaporation of solvents, paints, and fuels. In the bay area, automobiles are the single largest source of ozone precursors. Ozone is referred to as a regional criteria air pollutant because its precursors are transported and diffused by wind concurrently with ozone production through the photochemical reaction process. Ozone causes eye irritation, airway constriction, and shortness of breath and can aggravate existing respiratory diseases, such as asthma, bronchitis, and emphysema.

Table 4.E-1, p. 4.E-3, shows that, according to published data, the most stringent applicable standards (state one-hour standard of 9 parts per hundred million [pphm] was exceeded in 2019, and the federal eight-hour standard of 7 pphm) also was exceeded in San Francisco in 2019.

CARBON MONOXIDE

CO is an odorless, colorless gas usually formed as a result of the incomplete combustion of fuels. The single largest source of CO is motor vehicles; the highest emissions occur during low travel speeds, stop-and-go driving, cold starts, and hard acceleration. Exposure to high concentrations of CO reduces the oxygen-carrying capacity of the blood and can cause headaches, nausea, dizziness, and fatigue; impair central nervous system function; and induce angina (chest pain) in persons with serious heart disease. Very high levels of CO can be fatal. As shown in Table 4.E-1, p. 4.E-3, the more stringent state CO standards were not exceeded between 2016 and 2020.

PARTICULATE MATTER (PM₁₀ AND PM_{2.5})

Particulate matter is a class of air pollutants that consists of heterogeneous solid and liquid airborne particles from man-made and natural sources. Particulate matter regulated by the state and federal Clean Air Acts is measured in two size ranges: PM₁₀ for particles less than 10 microns in diameter, and PM_{2.5} for particles less than 2.5 microns in diameter. In the bay area, motor vehicles generate about one-half of the air basin’s particulates, through tailpipe emissions as well as brake pad and tire wear. Wood burning in fireplaces and

¹⁹⁸ California Air Resources Board, *California Ambient Air Quality Standards*, last updated August 10, 2017, <https://www.arb.ca.gov/research/aaqs/caaqs/caaqs.htm>, accessed July 15, 2021.

¹⁹⁹ See <https://www.law.cornell.edu/uscode/text/42/7409>.

stoves, industrial facilities, and ground-disturbing activities such as construction are other sources of fine particulates. These fine particulates are small enough to be inhaled into the deepest parts of the human lung and can cause adverse health effects. According to CARB, studies in the United States and elsewhere “have demonstrated a strong link between elevated particulate levels and premature deaths, hospital admissions, emergency room visits, and asthma attacks,” and studies of children’s health in California have demonstrated that particle pollution “may significantly reduce lung function growth in children.” CARB also reports that statewide attainment of particulate matter standards could prevent thousands of premature deaths, lower hospital admissions for cardiovascular and respiratory disease and asthma-related emergency room visits, and avoid hundreds of thousands of episodes of respiratory illness in California. Among the criteria air pollutants that are regulated, particulates appear to represent a serious ongoing health hazard. In 1999, the air district reported in its CEQA Air Quality Guidelines that studies had shown that elevated particulate levels contribute to the death of approximately 200 to 500 people per year in the bay area. High levels of particulate matter can exacerbate chronic respiratory ailments, such as bronchitis and asthma, and have been associated with increased emergency room visits and hospital admissions.

PM_{2.5} is of particular concern because epidemiologic studies have demonstrated that people who live near freeways and high-traffic roadways have poorer health outcomes, including increased asthma symptoms and respiratory infections, and decreased pulmonary function and lung development in children.²⁰⁰ New studies are also showing that long-term average exposure to PM_{2.5} is associated with an increased risk of death from the novel coronavirus 2019 disease (COVID-19) in the United States. One study found that an increase of 1 microgram per cubic meter (µg/m³) in PM_{2.5} is associated with an 8 percent increase in the COVID-19 death rate.²⁰¹ Exposure to wildfire smoke (which includes PM_{2.5}) experienced by Californians in 2020 also could have contributed to increased cases of COVID-19.²⁰² Note that these studies all demonstrate a correlational relationship between exposure to PM_{2.5} and increases in the COVID-19 death rate, not a causal relationship.

Table 4.E-1, p. 4.E-3, shows that the state 24-hour PM₁₀ standard of 50 micrograms per cubic meter (µg/m³) was exceeded on four monitored days per year between 2016 and 2020. The federal 24-hour PM_{2.5} standard was exceeded on seven days per year in 2017, 14 days per year in 2018, and 8 days per year in 2020. The state annual average standard was not exceeded between 2016 and 2020.

NITROGEN DIOXIDE

NO₂ is a reddish-brown gas that is a byproduct of combustion processes. Automobiles and industrial operations are the main sources of NO₂. Aside from its contribution to ozone formation, NO₂ can increase the risk of acute and chronic respiratory disease and reduce visibility. NO₂ may be visible as a coloring component on high pollution days, especially in conjunction with high ozone levels. In 2010, the U.S. EPA implemented a new one-hour NO₂ standard presented in Table 4.E-2, p. 4.E-4. On November 15, 2012, CARB approved a revision to the State Implementation Plan for implementing the 2010 federal NO₂ standards. All areas in

²⁰⁰ San Francisco Department of Public Health, *Assessment and Mitigation of Air Pollutant Health Effect from Intra-urban Roadways: Guidance for Land Use Planning and Environmental Review*, May 2008, p. 7, <http://www.sfhealthequity.org/component/jdownloads/summary/3-air/90-assessment-and-mitigation-of-air-pollutant-health-effects-from-intra-urban-roadways-guidance-for-land-use-planning-and-environmental-review?Itemid=62>, accessed July 15, 2021.

²⁰¹ Wu, X., R. C. Nethery, B. M. Sabath, D. Braun, and F. Dominici, *Exposure to Air Pollution and COVID-19 Mortality in the United States*, April 24, 2020, medRxiv 2020.04.05.20054502, <https://doi.org/10.1101/2020.04.05.20054502>, accessed September 15, 2021. Note that this article has not yet been peer-reviewed.

²⁰² Xiaodan Zhou, Kevin Josey, Leila Kamareddine, Miah C. Caine, Tianjia Liu, Loretta J. Mickley, Matthew Cooper, and Francesca Dominici, *Excess of COVID-19 Cases and Deaths due to Fine Particulate Matter Exposure During the 2020 Wildfires in the United States*, August 13, 2021, <https://pubmed.ncbi.nlm.nih.gov/34389545/>, accessed September 15, 2021.

California are designated as attainment/unclassified for the federal NO₂ standards.²⁰³ Table 4.E-1, p. 4.E-3, shows the new federal standard was not exceeded at the San Francisco station between 2016 and 2020.

U.S. EPA also has established requirements for a new monitoring network to measure NO₂ concentrations near major roadways in urban areas with a population of 500,000 or more. Sixteen new near-roadway monitoring sites are required in California, three of which are in the bay area. These monitors are located in Berkeley, Oakland, and San Jose. The Oakland station commenced operation in February 2014, the San Jose station commenced operation in March 2015, and the Berkeley station commenced operation in July 2016. The new monitoring data has not resulted in a need to change area attainment designations.²⁰⁴

SULFUR DIOXIDE

SO₂ is a colorless acidic gas with a strong odor. It is produced by the combustion of sulfur-containing fuels such as oil, coal, and diesel. SO₂ has the potential to damage materials and can cause health effects at high concentrations. It can irritate lung tissue and increase the risk of acute and chronic respiratory disease.^{205,206} SO₂ monitoring was terminated at the San Francisco station in 2009 because the state standard for SO₂ is being met in the bay area, and pollutant trends suggest that the air basin will continue to meet this standard for the foreseeable future.

In 2010, the U.S. EPA implemented a new one-hour SO₂ standard presented in Table 4.E-2, p. 4.E-4. The U.S. EPA has initially designated the air basin as an attainment area for SO₂. Similar to the new federal standard for NO₂, the U.S. EPA has established requirements for a new monitoring network to measure SO₂ concentrations.²⁰⁷ No additional SO₂ monitors are required for the bay area because the air basin has never been designated as non-attainment for SO₂ and no State Implementation Plan or maintenance plans have been prepared for SO₂.²⁰⁸

LEAD

Leaded gasoline (phased out in the United States beginning in 1973), paint (on older houses and cars), smelters (metal refineries), and manufacture of lead storage batteries have been the primary sources of lead released into the atmosphere. Lead has a range of adverse neurotoxic health effects, which put children at special risk. Some lead-containing chemicals cause cancer in animals. Lead levels in the air have decreased substantially since leaded gasoline was eliminated. Ambient lead concentrations are only monitored on an as-warranted, site-specific basis in California. On October 15, 2008, the U.S. EPA strengthened the national ambient air quality standard for lead by lowering it from 1.5 µg/m³ to 0.15 µg/m³. The U.S. EPA revised the monitoring requirements for lead in December 2010. These requirements focus on airports and large urban areas resulting

²⁰³ California Air Resources Board, *State Implementation Plan Revision for Federal Nitrogen Dioxide Standard Infrastructure Requirements*, October 2012, <http://www.arb.ca.gov/desig/no2isip.pdf>, accessed July 15, 2021.

²⁰⁴ Bay Area Air Quality Management District, 2013 Air Monitoring Network Plan, July 2014, <https://www.baaqmd.gov/about-air-quality/air-quality-measurement/ambient-air-monitoring-network>, accessed September 16, 2021.

²⁰⁵ Bay Area Air Quality Management District, *California Environmental Quality Act Air Quality Guidelines*, p. B-2, accessed July 15, 2021.

²⁰⁶ Bay Area Air Quality Management District, *California Environmental Quality Act Air Quality Guidelines*, May 2011, p. C-16, https://www.baaqmd.gov/~media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en, accessed July 15, 2021.

²⁰⁷ United States Environmental Protection Agency (U.S. EPA), *Fact Sheet: Revisions to the Primary National Ambient Air Quality Standard, Monitoring Network, and Data Reporting Requirements for Sulfur Dioxide*, May 2016, https://www.epa.gov/sites/default/files/2016-05/documents/final_primary_naaqs_factsheet.pdf, accessed July 15, 2021.

²⁰⁸ Bay Area Air Quality Management District, *2012 Air Monitoring Network Plan*, July 1, 2013, p. 30, https://www.baaqmd.gov/~media/files/technical-services/2012_network_plan.pdf?la=en, accessed July 15, 2021.

in an increase in 76 monitors nationally.²⁰⁹ Lead monitoring stations in the bay area are located at Palo Alto Airport, Reid-Hillview Airport (San Jose) and San Carlos Airport. Non-airport locations for lead monitoring are located in Redwood City and San Jose.

AIR QUALITY INDEX

The U.S. EPA developed the Air Quality Index (AQI) scale to make the public health impacts of air pollution concentrations easily understandable. The AQI, much like an air quality “thermometer,” translates daily air pollution concentrations into a number on a scale between 0 and 500. The numbers in the scale are divided into six color-coded ranges, with numbers 0–300 as outlined below:

- **Green (0–50)** indicates “good” air quality. No health impacts are expected when air quality is in the green range.
- **Yellow (51–100)** indicates air quality is “moderate.” Unusually sensitive people should consider limited prolonged outdoor exertion.
- **Orange (101–150)** indicates air quality is “unhealthy for sensitive groups.” Active children and adults, and people with respiratory disease, such as asthma, should limit outdoor exertion.
- **Red (151–200)** indicates air quality is “unhealthy.” Active children and adults, and people with respiratory disease, such as asthma should avoid prolonged outdoor exertion; everyone else, especially children, should limit prolonged outdoor exertion.
- **Purple (201–300)** indicates air quality is “very unhealthy.” Active children and adults, and people with respiratory disease, such as asthma, should avoid prolonged outdoor exertion; everyone else, especially children, should limit outdoor exertion.

The AQI numbers refer to specific amounts of pollution in the air, and are based on the federal air quality standards for ozone, CO, NO₂, SO₂, PM₁₀, and PM_{2.5}. In most cases, the federal standard for these air pollutants corresponds to the number 100 on the AQI chart. If the concentration of any of these pollutants rises above its respective standard, it can be unhealthy for the public. In determining the air quality forecast, local air districts use the anticipated concentration measurements for each of the major pollutants, converts them into AQI numbers, and determines the highest AQI for each zone in a district.

Readings below 100 on the AQI scale would not typically affect the health of the general public (although readings in the moderate range of 50 to 100 may affect unusually sensitive people). Levels above 300 rarely occur in the United States, and readings above 200 have not occurred in the bay area in decades, with the exception of the October 2017 and November 2018 wildfires north of San Francisco and the August/September 2020 complex wildfires that occurred throughout the bay area.²¹⁰ Wildfires appear to be occurring with increasing frequency in California and the bay area as the climate changes (since 2000, 17 of the state’s 20 largest wildfires and 16 of the state’s 20 most destructive fires on record have occurred).²¹¹

²⁰⁹ U.S. EPA, *Fact Sheet: Revisions to Lead Ambient Air Quality Monitoring Requirements*, March 2016, https://www.epa.gov/sites/default/files/2016-03/documents/leadmonitoring_finalrule_factsheet.pdf, accessed July 15, 2021.

²¹⁰ Bay Area Air Quality Management District, *Current Air Quality*, n.d., <http://www.baaqmd.gov/about-air-quality/current-air-quality>, accessed July 15, 2021.

²¹¹ Cal Fire, *Stats & Events, Top 20 Largest California Wildfires*, April 28, 2021, https://www.fire.ca.gov/media/4jandlhh/top20_acres.pdf, and *Top 20 Most Destructive California Wildfires*, April 28, 2021, https://www.fire.ca.gov/media/t1rdhizr/top20_destruction.pdf, accessed September 15, 2021.

As a result, the AQI in several neighboring counties reached the “very unhealthy” and “hazardous” designations, ranging from values of 201 to above 350. During those periods, the air district issued “Spare the Air” alerts and recommended that individuals stay inside with windows closed and refrain from significant outdoor activity.

AQI statistics over recent years indicate that air quality in the bay area is predominantly in the “Good” or “Moderate” categories and healthy on most days for most people. Historical air district data indicate that the air basin experienced air quality in the red level (unhealthy) on 36 days between 2016 and 2020. As shown in **Table 4.E-3**, the air basin had a total of 110 red-level or orange-level (unhealthy or unhealthy for sensitive groups) days between 2016 and 2020. A number of these days are attributable to the increasing frequency of wildfires. This table also shows that the air basin experienced a total of 9 purple level (very unhealthy) days in between 2016 and 2020. The annual AQI summary is not yet available for the year 2021, but data so far show that for the project area the AQI did not exceed 150 on any day.²¹²

Table 4.E-3 Air Quality Index Statistics for the San Francisco Bay Area Air Basin

AQI Statistics for air basin	Number of Days by Year				
	2016	2017	2018	2019	2020
Unhealthy for Sensitive Groups (Orange)	13	9	8	10	34
Unhealthy (Red)	2	9	8	0	17
Very Unhealthy (Purple)	0	3	5	0	1

SOURCE: Air district, 2021.

TOXIC AIR CONTAMINANTS AND LOCAL HEALTH RISKS AND HAZARDS

In addition to criteria air pollutants, plans and individual projects may directly or indirectly emit toxic air contaminants (TACs). TACs collectively refer to a diverse group of air pollutants that are capable of causing chronic (i.e., long-duration) and acute (i.e., severe but short-term) adverse effects to human health, including carcinogenic effects. Human health effects of TACs include birth defects, neurological damage, cancer, and death. There are hundreds of different types of TACs with varying degrees of toxicity. Individual TACs vary greatly in the health risk they present; at a given level of exposure, one TAC may pose a hazard that is many times greater than another.

Unlike criteria air pollutants, TACs do not have ambient air quality standards but instead are regulated by the air district using a risk-based approach to determine which sources and pollutants to control as well as the degree of control. A health risk assessment is an analysis in which human health exposure to toxic substances is estimated and considered together with information regarding the toxic potency of the substances to provide quantitative estimates of health risks.²¹³

²¹² Bay Area Air Quality Management District, Monthly Air Quality Index for Coast & Central Bay, 2021, <https://www.baaqmd.gov/about-air-quality/current-air-quality/air-monitoring-data/#/aqi-highs?date=2021-12-02&view=monthly>, accessed December 2, 2021.

²¹³ In general, a health risk assessment is required if the air district concludes that projected emissions of a specific air toxic compound from a proposed new or modified source suggest a potential public health risk. The applicant of the project that would emit TACs is required to conduct a health risk assessment for the source in question. Such an assessment generally evaluates chronic, long-term effects, estimating the increased risk of cancer as a result of exposure to one or more TACs.

Chapter 4. Environmental Setting, Impacts, and Mitigation Measures

4.E. Air Quality

Exposure assessment guidance published by the air district in January 2016 adopts the assumption that residences would be exposed to air pollution 24 hours per day, 350 days per year, for 30 years.²¹⁴ Therefore, assessments of air pollutant exposure to residents typically result in the greatest adverse health outcomes of all population groups.

Exposures to PM_{2.5} are strongly associated with mortality, respiratory diseases, and reductions in lung development in children, and other endpoints such as hospitalization for cardiopulmonary disease.²¹⁵ In addition to PM_{2.5}, diesel particulate matter (DPM) is also of concern. CARB identified DPM as a TAC in 1998, primarily based on evidence demonstrating cancer effects in humans.²¹⁶ The estimated cancer risk from exposure to diesel exhaust is much higher than the risk associated with any other TAC routinely measured in the region.

In addition to monitoring criteria air pollutants, both the air district and CARB operate TAC monitoring networks in the air basin. These stations measure 10 to 15 TACs, depending on the specific station. The TACs selected for monitoring are those that have traditionally been found in the highest concentrations in ambient air and therefore tend to produce the most substantial risk. The nearest air district ambient TAC monitoring station to the Plan area is the station at 16th and Arkansas streets in San Francisco. **Table 4.E-4** shows ambient concentrations of carcinogenic TACs measured at the Arkansas Street station as well as the estimated cancer risks from a lifetime exposure (70 years) for these substances. When TAC measurements at this station are compared to ambient concentrations of various TACs for the bay area as a whole, the cancer risks associated with mean TAC concentrations in San Francisco are similar to those for the region.

ROADWAY-RELATED POLLUTANTS

Motor vehicles are responsible for a large share of air pollution, especially in California. Vehicle tailpipe emissions contain diverse forms of particles and gases and also contribute to particulates by generating road dust and through tire wear. Epidemiologic studies have demonstrated that people living in proximity to freeways or busy roadways have poorer health outcomes, including increased asthma symptoms and respiratory infections and decreased pulmonary function and lung development in children. Air pollution monitoring conducted in conjunction with epidemiologic studies has confirmed that roadway-related health effects vary with modeled exposure to particulate matter and NO₂. In traffic-related studies, the additional non-cancer health risk attributable to roadway proximity was seen within 1,000 feet of the roadway and was strongest within 300 feet.²¹⁷

²¹⁴ Bay Area Air Quality Management District, *Air Toxics NSR Program Health Risk Assessment (HRA) Guidelines*, January 2016, accessed July 15, 2020.

²¹⁵ San Francisco Department of Public Works, *Assessment and Mitigation of Air Pollutant Health Effects from Intra-Urban Roadways: Guidance for Land Use Planning and Environmental Review*, May 6, 2008.

²¹⁶ California Air Resources Board, *Fact Sheet: The Toxic Air Contaminant Identification Process: Toxic Air Contaminant Emissions from Diesel-Fueled Engines*, October 1998.

²¹⁷ California ARB, *Air Quality and Land Use Handbook: A Community Health Perspective*, April 2005, <http://www.arb.ca.gov/ch/handbook.pdf>.

Table 4.E-4 Annual Average Ambient Concentrations of Carcinogenic Toxic Air Contaminants Measured at Air District Monitoring Station in 2019, 10 Arkansas Street, San Francisco

Substance	Concentration	Cancer Risk per Million
GASEOUS TACS	(PPB)	
Acetaldehyde	0.38	6
Benzene	0.111	29
1,3-Butadiene	0.024	26
Carbon Tetrachloride	0.069	53
Formaldehyde	1.29	27
Perchloroethylene	0.006	0.7
Methylene Chloride	0.078	0.8
Chloroform	0.017	1
Trichloroethylene	0.01	0.3
PARTICULATE TACS	(NG/M ³)	
Chromium (Hexavalent)	0.043	18
Total Risk for All TACS		161.8

SOURCE: California Air Resources Board, Ambient Air Toxics Summary, 2019, <http://www.arb.ca.gov/adam/toxics/sitesubstance.html>, accessed September 13, 2021.

NOTES:

TACS = toxic air contaminants; ppb = part per billion; ng/m³ = nanograms per cubic meter.

DIESEL PARTICULATE MATTER

The exhaust from diesel engines includes hundreds of different gaseous and particulate components, many of which are toxic. Mobile sources, such as trucks and buses, are among the primary sources of diesel emissions, and concentrations of DPM are higher near heavily traveled highways. CARB estimated average bay area cancer risk from exposure to diesel particulate, based on a population-weighted average ambient diesel particulate concentration, at about 480 in one million as of the year 2000, which is much higher than the risk associated with any other toxic air pollutant routinely measured in the region. The statewide risk from DPM, as determined by CARB, declined from 750 in one million in 1990 to 570 in one million in 1995; by 2000, CARB estimated the average statewide cancer risk from DPM at 540 in one million.^{218,219}

In 2000, CARB approved a comprehensive Diesel Risk Reduction Plan to reduce diesel emissions from both new and existing diesel-fueled vehicles and engines. Subsequent CARB regulations apply to new trucks and diesel fuel. With new controls and fuel requirements, 60 trucks built in 2007 would have the same particulate

²¹⁸ California Air Resources Board, *California Almanac of Emissions and Air Quality – 2009 Edition*, Table 5-44 and Figure 5-12, <https://www.arb.ca.gov/aqd/%E2%80%8Calmanac/almanac09/chap509.htm>, accessed July 15, 2021.

²¹⁹ This calculated cancer risk value from ambient air exposure in the bay area can be compared against the lifetime probability of being diagnosed with cancer in the United States, from all causes, which is more than 40 percent (based on a sampling of 17 regions nationwide), or greater than 400,000 in one million, according to the American Cancer Society. (American Cancer Society, Lifetime Probability of Developing or Dying from Cancer, last revised July 13, 2009, <https://www.cancer.org/cancer/cancer-basics/lifetime-probability-of-developing-or-dying-from-Cancer.html>, accessed July 15, 2021.

exhaust emissions as one truck built in 1988.²²⁰ The regulation is anticipated to result in an 80 percent decrease in statewide diesel health risk in 2020 as compared with the diesel health risk in 2000. Many of the measures of the Diesel Risk Reduction Plan have been approved and adopted, including the federal on-road and non-road diesel engine emission standards for new engines, as well as adoption of regulations for low sulfur fuel in California. Subsequent regulations regarding on-road diesel truck retrofits with particulate matter controls, 2010 or later engine standards, and fleet average emission rate standards to increase turnover have resulted in much lower DPM and PM_{2.5} emissions.

Despite notable emission reductions, CARB recommends that proximity to sources of DPM emissions be considered in the siting of new sensitive land uses. CARB notes that these recommendations are advisory and should not be interpreted as defined “buffer zones,” and that local agencies must balance other considerations, including transportation needs, the benefits of urban infill, community economic development priorities, and other quality of life issues. With careful evaluation of exposure, health risks, and affirmative steps to reduce risk where necessary, CARB’s position is that infill development, mixed-use, higher density, transit-oriented development, and other concepts that benefit regional air quality can be compatible with protecting the health of individuals at the neighborhood level.²²¹ Also see San Francisco Health Code article 38 discussed under Section 4.E.3, Regulatory Framework.

SAN FRANCISCO MODELING OF AIR POLLUTANT EXPOSURE ZONES

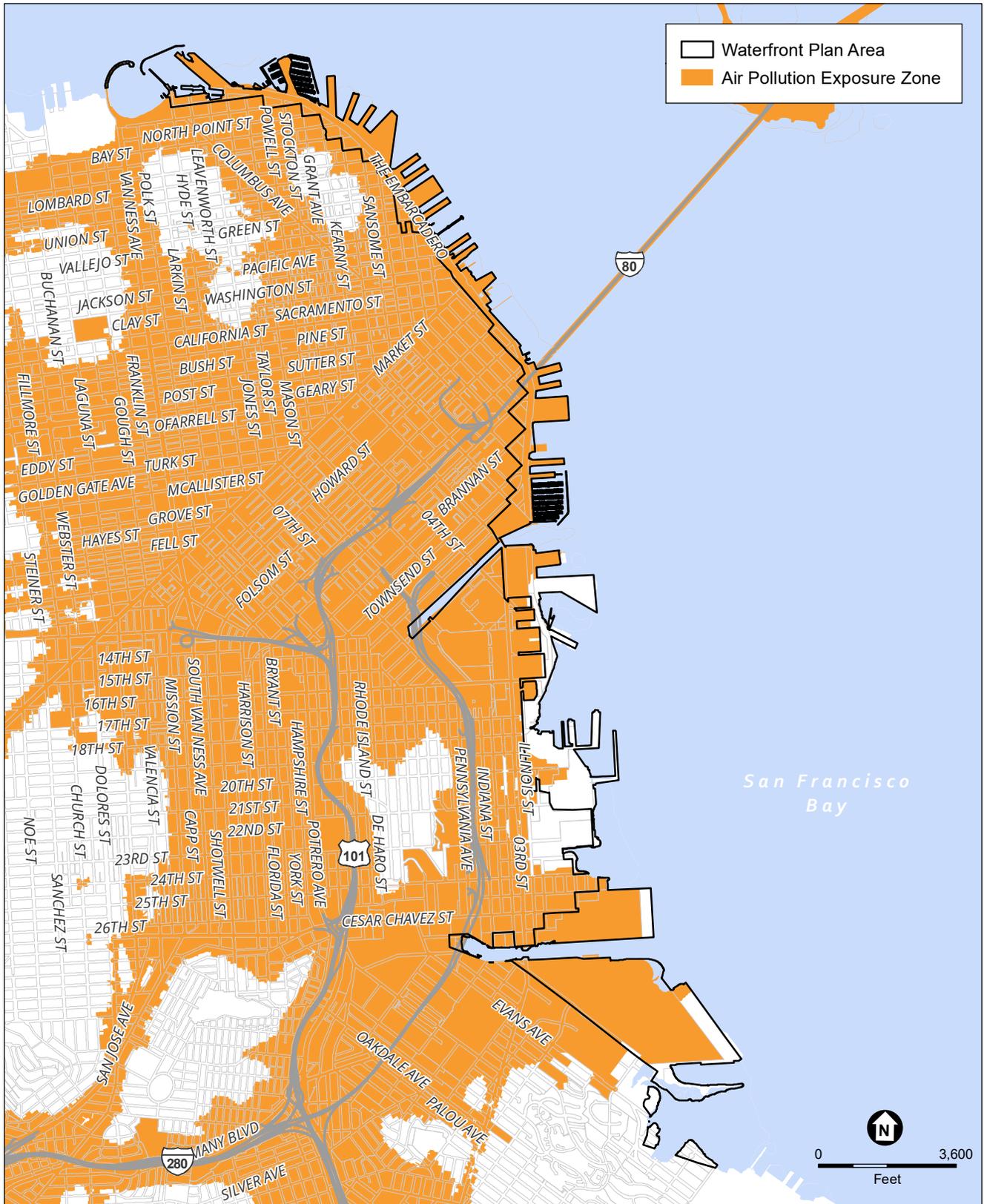
In an effort to identify areas of San Francisco most adversely affected by sources of TACs, San Francisco partnered with the air district to inventory and assess air pollution and exposure from mobile, stationary, and area sources within San Francisco. This analysis is known as the 2020 Citywide Health Risk Assessment (2020 Citywide HRA), and is documented in the *San Francisco Citywide Health Risk Assessment: Technical Support Documentation*.²²² Areas with poor air quality, referred to as the Air Pollutant Exposure Zone (APEZ), were identified based on the following health-protective criteria: (1) excess cancer risk greater than 100 per one million population from the contribution of emissions from all modeled sources; or (2) cumulative PM_{2.5} concentrations greater than 10 µg/m³. The APEZ is expanded in certain geographic health vulnerable²²³ areas of the city, primarily the Bayview, Tenderloin, and much of the South of Market area, including the northern and southern portions of the Plan area, to be more protective, with the areas included in the APEZ based on a standard that is 10 percent more stringent than elsewhere in the city (i.e., areas where the excess cancer risk exceeds 90 in one million or the PM_{2.5} concentration exceeds 9 µg/m³). The Southern Waterfront subarea contains ZIP Code 94124, which is an identified health vulnerable area. The APEZ also includes all parcels within 500 feet of a freeway. **Figure 4.E-1** shows the location of the APEZ within and adjacent to the Plan area. The APEZ is based on modeling that was prepared using a 20-meter by 20-meter receptor grid covering the entire city. The following summarizes the evidence supporting the APEZ criteria followed by a discussion of major sources of emissions within and near the Plan area.

²²⁰ Pollution Engineering, *New Clean Diesel Fuel Rules Start*, July 2, 2006, https://sj-admin.s3-us-west-2.amazonaws.com/2006_0700-PollutionEngineering_NewCleanDiesel.pdf, accessed July 15, 2021.

²²¹ California Air Resources Board, *Air Quality and Land Use Handbook: A Community Health Perspective*, April 2005, <http://www.arb.ca.gov/ch/handbook.pdf>, accessed July 15, 2021.

²²² San Francisco Department of Public Health, San Francisco Planning Department, & Ramboll, *San Francisco Citywide Health Risk Assessment: Technical Support Documentation*, September 2020. https://www.sfdph.org/dph/files/EHSdocs/AirQuality/Air_Pollutant_Exposure_Zone_Technical_Documentation_2020.pdf, accessed July 15, 2020.

²²³ Health vulnerable areas were identified as those bay area zip codes in the worst quintile of bay area Health Vulnerability Scores. San Francisco Department of Public Works and San Francisco Department of Planning, *San Francisco Citywide Health Risk Assessment: Technical Support Documentation*, February 2020, https://www.sfdph.org/dph/files/EHSdocs/AirQuality/Air_Pollutant_Exposure_Zone_Technical_Documentation_2020.pdf, accessed July 15, 2021.



SOURCE: San Francisco Planning Department, 2021; ESA, 2021

Waterfront Plan

FIGURE 4.E-1
WATERFRONT PLAN AREA AND AIR POLLUTION EXPOSURE ZONE

EXCESS CANCER RISK

The greater than 100 per one million persons exposed (100 excess cancer risk) criterion for defining the APEZ is based on the U.S. EPA's guidance for conducting air toxic analyses and making risk management decisions at the facility and community-scale level.²²⁴ As described by the air district, the U.S. EPA considers a cancer risk of 100 per million to be within the "acceptable" range of cancer risk. Furthermore, in the 1989 preamble to the benzene National Emissions Standards for Hazardous Air Pollutants rulemaking,²²⁵ the U.S. EPA states that it "... strives to provide maximum feasible protection against risks to health from hazardous air pollutants by (1) protecting the greatest number of persons possible to an individual lifetime risk level no higher than approximately one in one million; and (2) limiting to no higher than approximately one in ten thousand [100 in one million] the estimated risk that a person living near a plant would have if he or she were exposed to the maximum pollutant concentrations for 70 years." The 100 per one million excess cancer risk is also consistent with the ambient cancer risk in the most pristine portions of the bay area based on the air district's regional modeling.²²⁶

FINE PARTICULATE MATTER

In April 2011, the U.S. EPA published *Policy Assessment for the Particulate Matter Review of the National Ambient Air Quality Standards*. In this document, the U.S. EPA concludes that the then current federal annual PM_{2.5} standard of 15 µg/m³ should be revised to a level within the range of 13 to 11 µg/m³, with evidence strongly supporting a standard within the range of 12 to 11 µg/m³. In December 2012, the U.S. EPA strengthened the annual PM_{2.5} standard from 15 to 12 µg/m³ and issued final area designations based on that standard. The U.S. EPA published a new policy assessment in January 2020.²²⁷ The policy assessment did not include recommendations to change the standards for particulate matter. The APEZ for San Francisco is based on the health protective PM_{2.5} standard of 11 µg/m³, as supported by the U.S. EPA's particulate matter policy assessment, although lowered to 10 µg/m³ to account for uncertainty in accurately predicting air pollutant concentrations using emissions modeling programs.

AIR POLLUTION SOURCES

Air pollution sources evaluated in the 2020 Citywide HRA and contributing to emissions within and near the Plan area include the sources described below.

STATIONARY SOURCES

The air district's inventory of permitted stationary sources of emissions indicates that there are dozens of permitted stationary emission sources present within or near the Plan area. These permitted stationary sources are primarily standby generators, gasoline stations, and other facilities such as auto body shops.

²²⁴ Bay Area Air Quality Management District, *Revised Draft Options and Justification Report, California Environmental Quality Act Thresholds of Significance*, October 2009, p. 67.

²²⁵ 54 *Federal Register* 38044, September 14, 1989.

²²⁶ Bay Area Air Quality Management District, *Revised Draft Options and Justification Report, California Environmental Quality Act Thresholds of Significance*, October 2009, p. 67.

²²⁷ U.S. EPA, *Policy Assessment for the Review of the National Ambient Air Quality Standards for Particulate Matter*, January 2020, https://www.epa.gov/sites/default/files/2020-04/documents/fact_sheet_pm_naaqs_proposal.pdf, and <https://www.epa.gov/pm-pollution/national-ambient-air-quality-standards-naaqs-pm>, accessed September 15, 2021.

TRAFFIC EMISSIONS ON MAJOR ROADWAYS

The air district guidance indicates that roadways with volumes exceeding 10,000 average annual daily traffic may impact sensitive receptors if they are located within 1,000 feet of any sensitive receptor. This traffic contributes to elevated concentrations of PM_{2.5}, DPM, and other contaminants emitted from motor vehicles near the street level. A review of average daily roadway volumes from the San Francisco County Transportation Authority traffic model indicates that roadways with more than 10,000 average annual daily traffic in the Plan area and vicinity include I-80, Market Street, Mission Street, Howard Street, Folsom Street, Harrison Street, Bryant Street, Brannan Street, Third Street, Fourth Street, Fifth Street, and Sixth Street. This concentration of high-volume roadways within and proximate to the Plan area is one of the reasons that the majority of the Plan area is identified as being within the APEZ.

OTHER MAJOR SOURCES CONTRIBUTING TO AIR POLLUTION

The San Francisco Caltrain railyard is located across Townsend Street, west of the Plan area. Substantial DPM emissions are generated at this location from diesel locomotive operations, which include a substantial amount of engine idling as trains await departure. Ocean-going vessels and tugboats are also sources of DPM and PM_{2.5}, especially near the Pier 50 tug and towboat terminal.

SENSITIVE RECEPTORS

Air quality does not affect every individual in the population in the same way, and some groups are more sensitive to adverse health effects than others. Population subgroups sensitive to the health effects of air pollutants include the elderly and the young, population subgroups with higher rates of respiratory disease such as asthma and chronic obstructive pulmonary disease, and populations with other environmental or occupational health exposures (e.g., indoor air quality) that affect cardiovascular or respiratory diseases such as asthma and chronic obstructive pulmonary disease. The factors responsible for variation in exposure are also often similar to factors associated with greater susceptibility to air quality health effects. For example, lower income residents may be more likely to live in substandard housing and be more likely to live near industrial or roadway sources of air pollution.

The air district defines sensitive receptors as facilities or land uses that include members of the population that are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Examples include schools, hospitals and residential areas. Land uses such as schools, children's day care centers, hospitals, and nursing and convalescent homes are considered to be sensitive to poor air quality because the population groups associated with these uses have increased susceptibility to respiratory distress. Residential areas are considered more sensitive to air quality conditions compared to commercial and industrial areas because people generally spend longer periods of time at their residences, with associated greater exposure to ambient air quality conditions.

Residential land uses are located within and adjacent to the Plan area. Residential uses within the Plan area are located in the South Beach neighborhood along The Embarcadero between Bryant Street and 2nd Street. There are no licensed child care centers located in the Plan area, but several such facilities are located in close proximity, including facilities at 95 Hawthorne Street between Harrison and Folsom streets, 303 Second Street at Folsom Street, 790 Folsom Street at Fourth Street, 375 Seventh Street (in the Bessie Carmichael Elementary School), and in the Federal Building at Seventh and Mission Streets. In addition, the University of California, San Francisco Medical Center at Mission Bay and the Mission Bay Convalescent Hospital are both adjacent to the Plan area.

ODORS

Sources that typically generate odors include wastewater treatment and pumping facilities; landfills, transfer stations, and composting facilities; petroleum refineries, asphalt batch plants, chemical (including fiberglass) manufacturing, and metal smelters; painting and coating operations; rendering plants; coffee roasters and food processing facilities; and animal feed lots and dairies. Sources of odors in the Plan area include a recycling and transfer facility located at Pier 96, a tallow processing plant near Pier 92, and wastewater treatment and pump stations, auto body shops with spray booths, and coffee roasters just outside the Plan area.

4.E.3 Regulatory Framework

FEDERAL REGULATIONS

The 1970 Clean Air Act (most recently amended in 1990) requires that regional planning and air pollution control agencies prepare a regional air quality plan to outline the measures by which both stationary and mobile sources of pollutants will be controlled in order to achieve all standards by the deadlines specified in the act. These ambient air quality standards are intended to protect the public health and welfare, and they specify the concentration of pollutants (with an adequate margin of safety) to which the public can be exposed without adverse health effects. They are designed to protect those segments of the public most susceptible to respiratory distress, including asthmatics, the very young, the elderly, people weakened from other illness or disease, or persons engaged in strenuous work or exercise. Healthy adults can tolerate occasional exposure to air pollution levels that are somewhat above ambient air quality standards before adverse health effects are observed.

The current attainment status for the air basin, with respect to federal standards, is summarized in Table 4.E-2, p. 4.E-4. In general, the air basin experiences low concentrations of most pollutants when compared to federal standards, except for PM₁₀ and PM_{2.5}, and ozone, for which standards are exceeded periodically (see Table 4.E-1, p. 4.E-3,).

In June 2004, the air basin was designated as a marginal nonattainment area for the national eight-hour ozone standard.²²⁸ The U.S. EPA lowered the national eight-hour ozone standard from 0.80 to 0.75 parts per million (ppm) effective May 27, 2008. In April 2012, the U.S. EPA designated the bay area as a marginal nonattainment²²⁹ region for the 0.75 ppm ozone standard established in 2008.²³⁰ The air basin is in attainment for other criteria air pollutants, with the exception of the 24-hour standards for PM₁₀ and PM_{2.5}, for which the bay area is designated as “Unclassified” and non-attainment, respectively. “Unclassified” is defined by the Clean Air Act as any area that cannot be classified, on the basis of available information, as meeting or not meeting the national primary or secondary ambient air quality standard for the pollutant. The air basin is designated as an attainment area with respect to the federal annual average PM_{2.5} standard.

STATE REGULATIONS

Although the federal Clean Air Act established national ambient air quality standards, individual states retained the option to adopt more stringent standards and to include other pollution sources. California had

²²⁸ U.S. EPA, Area Designations for 1997 Ground-Level Ozone Standards, Ozone & Health – A Timeline, <https://archive.epa.gov/ozonedesignations/web/html/timeline.html>, accessed July 15, 2021.

²²⁹ “Marginal nonattainment area” refers to those areas where the fourth highest reading over any 24-hour period in the past 3 years exceeds the 8-hour national ambient air quality standard for ozone at concentrations of between 0.076 and 0.086 ppm.

²³⁰ U.S. EPA, 2008 Ground-level Ozone Standards — Region 9 Final Designations, April 2012, <https://archive.epa.gov/ozonedesignations/web/html/region9f.html>, accessed July 15, 2021.

already established its own air quality standards when federal standards were established, and because of the unique meteorological challenges in California, there are many differences between the state and national ambient air quality standards, as shown in Table 4.E-2, p. 4.E-4. California ambient standards tend to be at least as protective as national ambient standards and are often more stringent.

In 1988, California passed the California Clean Air Act (California Health and Safety Code section 39600 et seq.), which, like its federal counterpart, called for the designation of areas as attainment or nonattainment, but based on state ambient air quality standards rather than the federal standards. As indicated in Table 4.E-2, p. 4.E-4, the air basin is designated as “nonattainment” for state ozone, PM₁₀, and PM_{2.5} standards. The air basin is designated as “attainment” for other pollutants.

TOXIC AIR CONTAMINANTS

In 2005, CARB approved a regulatory measure to reduce emissions of toxic and criteria air pollutants by limiting the idling of new heavy-duty diesel vehicles. The regulations generally limit idling of commercial motor vehicles (including buses and trucks) within 100 feet of a school or residential area for more than 5 consecutive minutes or periods aggregating more than 5 minutes in any one hour. Buses or vehicles also must turn off their engines upon stopping at a school and must not turn on their engines more than 30 seconds before beginning to depart from a school. Also, Senate Bill 352 was adopted in 2003 and limits locating public schools within 500 feet of a freeway or busy traffic corridor.

CARB has also adopted rules for new diesel trucks and for off-road diesel equipment. Along with rules adopted by the U.S. EPA, these regulations have resulted in substantially more stringent emissions standards for new diesel trucks and new off-road diesel equipment, such as construction vehicles. Effective January 2011, both the U.S. EPA and CARB adopted so-called Interim Tier 4 standards for new equipment with diesel engines of 175 hp or greater. The interim Tier 4 emissions standards for particulate matter are about 85 percent more restrictive than previous particulate matter emissions standards (Tier 2 or Tier 3, depending on the size of the engine²³¹) for these larger off-road engines. As a result, use of engines that meet the interim Tier 4 standards would reduce diesel exhaust emissions of particulate matter by approximately 85 percent, compared to new engines produced under the previous standards. Tier 4 Final standards are required for new off-road engines, depending on engine size, for all model years starting in 2014 or 2015. Compared to Tier 4 Interim standards, Tier 4 Final standards are about 80 percent more restrictive for NO_x emissions and 30 percent more restrictive for particulate matter emissions. As a result, use of engines that meet the Tier 4 Final standards would reduce exhaust emissions of NO_x by approximately 80 percent and reduce diesel exhaust emissions of particulate matter by approximately 30 percent compared to new engines produced under Tier 4 Interim standards.²³²

Tier 2 or Tier 3 engines (for larger equipment, those manufactured since 2006) can achieve generally the same reduction in particulate matter emissions through retrofitting by installing a diesel particulate filter (a CARB-certified Level 3 Verified Diesel Emissions Control System). Beginning in 2014, CARB regulations require off-road equipment fleets to begin gradual replacement of older engines with newer, cleaner engines, the installation of exhaust filters on remaining older engines, or some combination of the two to achieve fleet-wide emissions reductions. Because only a certain percentage of each fleet’s engines must be replaced or

²³¹ For most construction equipment other than that with extremely powerful engines (greater than 750 hp), Tier 2 and Tier 3 emissions standards are the same with respect to particulate matter. Therefore, cancer risk from DPM—a subset of all particulate matter—is essentially the same for Tier 2 and Tier 3 engines.

²³² California Air Resources Board, *Non-road Diesel Engine Certification Tier Chart*, <https://ww2.arb.ca.gov/resources/documents/non-road-diesel-engine-certification-tier-chart>, accessed November 2, 2021.

retrofitted on an annual or periodic basis to achieve the required emissions reductions, and because fleet turnover of heavy-duty off-road equipment takes many years, the full effect of the regulations on emissions reduction is not anticipated to be realized until sometime between 2020 and 2030, depending on the engine size and pollutant.²³³

Regarding equipment already in use, CARB adopted rules for in-use off-road diesel vehicles—including construction equipment—in 2007. Those rules also limit idling to 5 minutes, require a written idling policy for larger vehicle fleets, and require that fleet operators provide information on their engines to CARB and label vehicles with a CARB-issued vehicle identification number. The off-road rules require the retrofit or replacement of diesel engines in existing equipment. This “repowering” was originally to be required beginning in 2010 (for the largest fleets). However, in 2010, CARB delayed the start of repowering to 2014 for large fleets, 2017 for medium-size fleets, and 2019 for small fleets.²³⁴ CARB stated that the delayed implementation was justified because the recession had dramatically reduced emissions, and because the board staff found that the data on which the original rule was based had overestimated emissions. According to CARB, under the revised rules, DPM emissions from off-road equipment will decrease by more than 40 percent from 2010 levels by the year 2020, and by 2030, they will decrease by more than 75 percent.²³⁵

REGIONAL AND LOCAL REGULATIONS

BAY AREA AIR QUALITY PLANNING

Air quality plans developed to meet federal requirements are referred to as State Implementation Plans. The federal and state Clean Air Acts require plans to be developed for areas designated as nonattainment (with the exception of areas designated as nonattainment for the state PM₁₀ standard).

The air district’s *2017 Clean Air Plan: Spare the Air, Cool the Climate* was adopted on April 19, 2017 by the air district in cooperation with the Metropolitan Transportation Commission, the San Francisco Bay Conservation and Development Commission, and the Association of Bay Area Governments to provide a regional strategy to improve bay area air quality and meet public health goals.²³⁶ The control strategy described in the 2017 Clean Air Plan includes a wide range of control measures designed to reduce emissions and lower ambient concentrations of harmful pollutants, safeguard public health by reducing exposure to air pollutants that pose the greatest health risk, and reduce greenhouse gas (GHG) emissions to protect the climate.

The 2017 Clean Air Plan addresses four categories of pollutants: ground-level ozone and its key precursors, ROG and NO_x; PM, primarily PM_{2.5}, and precursors to secondary PM_{2.5}; air toxics; and GHG emissions. The control measures are categorized based on the economic sector framework including stationary sources, transportation, energy, buildings, agriculture, natural and working lands, waste management, and water measures.

²³³ California Air Resources Board, *2017 Off-Road Diesel Emission Factor Update for NO_x and PM*, https://ww3.arb.ca.gov/msei/ordiesel/ordas_ef_fcf_2017.pdf, accessed November 2021.

²³⁴ Fleet size is based on total horsepower: large fleets are those with more than 5,000 hp, medium fleets have 2,501 to 5,000 hp, and small fleets are those with less than 2,500 hp.

²³⁵ California Air Resources Board, “Staff Report: Initial Statement of Reasons for Proposed Rulemaking: Proposed Amendments to the Regulation for In-Use Off-Road Diesel-Fueled Fleets and the Off-Road Large Spark-Ignition Fleet Requirements,” October 2010, p. 44, <http://www.arb.ca.gov/regact/2010/offroadlsi10/offroadisor.pdf>, accessed July 15, 2021.

²³⁶ Bay Area Air Quality Management District, *2017 Clean Air Plan: Spare the Air, Cool the Climate*, April 19, 2017, http://www.baaqmd.gov/~media/files/planning-and-research/plans/2017-clean-air-plan/attachment-a_-_proposed-final-cap-vol-1-pdf.pdf?la=en, accessed July 15, 2021.

The air district is the regional agency with jurisdiction over the nine-county region located in the air basin. The Association of Bay Area Governments, the Metropolitan Transportation Commission, county transportation agencies, cities and counties, and various non-governmental organizations also participate in the efforts to improve air quality through a variety of programs. These programs include the adoption of regulations and policies, as well as implementation of extensive education and public outreach programs. The air district is responsible for attaining and/or maintaining air quality in the region within federal and state air quality standards. Specifically, the air district has the responsibility to monitor ambient air pollutant levels throughout the region and to develop and implement strategies to attain the applicable federal and state standards. The air district has permit authority over most types of stationary emission sources and can require stationary sources to obtain permits, and can impose emission limits, set fuel or material specifications, or establish operational limits to reduce air emissions. The air district also regulates new or expanding stationary sources of TACs and requires air toxic control measures for many sources emitting TACs.

AIR DISTRICT RULES

The air district rules that would be most applicable to the subsequent projects pertain mostly to permits for emergency generators and include Rules 2-1, 2-2, and 2-5. The air district regulates stationary-source emissions of TACs through Rule 2-1 (General Permit Requirements), Rule 2-2 (New Source Review), and Rule 2-5 (New Source Review of Toxic Air Contaminants). Under these rules, all stationary sources that have the potential to emit TACs above a certain level are required to obtain permits from the air district. These rules provide guidance for the review of new and modified stationary sources of TAC emissions, including evaluation of health risks and potential mitigation measures.

Sources must apply Best Available Control Technology (BACT) to reduce emissions, and the air district recently updated its BACT requirement for emergency generators greater than 1,000 horsepower (hp) to achieve EPA Tier 4 standards.²³⁷

SAN FRANCISCO CONSTRUCTION DUST CONTROL ORDINANCE

Health code article 22B and San Francisco Building Code section 106.A.3.2.6 collectively constitute the Construction Dust Control Ordinance (adopted in July 2008). The ordinance requires that all site preparation work, demolition, or other construction activities within San Francisco that have the potential to create dust or to expose or disturb more than 10 cubic yards or 500 square feet of soil comply with specified dust control measures whether or not the activity requires a Port building permit from the Port of San Francisco Engineering Division (engineering division). For projects over one-half acre and within 1,000 feet of sensitive receptor(s) (e.g., residences and group living quarters, schools, child care centers, and hospitals and other health-care facilities), and other projects as deemed necessary by the Director of the San Francisco Department of Public Health (health department), the Construction Dust Control Ordinance requires that the project sponsor submit a Dust Control Plan, with a goal of minimizing visible dust, for approval by the health department prior to issuance of a building permit. Such larger projects must also identify a compliance monitor and that person must be available at all times during construction activities.

Port building code section 106A.3.2.3 addresses issues of construction dust control, which is modeled on San Francisco Building Code section 106.A.3.2.6. The Port building code addresses general requirements, five basic requirements for all activities, compliance with San Francisco Health Code article 22B, and allows for waivers.

²³⁷ Bay Area Air Quality Management District, BACT for Emergency Backup Engines greater than or equal to 1,000 brake-horsepower, 2021, <https://www.baaqmd.gov/permits/apply-for-a-permit/engine-permits>, accessed September 15, 2021.

Chapter 4. Environmental Setting, Impacts, and Mitigation Measures

4.E. Air Quality

With regard to compliance with health code article 22B, the Port Chief Harbor Engineer must receive notification from the Director of the health department that the plan is approved and the project sponsor must designate a person for monitoring of and compliance with all dust control requirements.

Dust suppression activities may include watering of all active construction areas sufficiently to prevent dust from becoming airborne; increased watering frequency may be necessary whenever wind speeds exceed 15 miles per hour. Reclaimed water must be used if required by the San Francisco Public Works Code article 21, section 1100 et seq.

Pursuant to health code article 22B, section 1247, all departments, boards, commissions, and City agencies that authorize construction or improvements on land under their jurisdiction under circumstances where no building, excavation, grading, foundation or other permits are required to be obtained under the building code shall adopt rules and regulations to ensure that the same dust control requirements that are set forth in this article are followed.

CLEAN CONSTRUCTION ORDINANCE

The City's Clean Construction Ordinance (San Francisco Environment Code, chapter 25, and San Francisco Administrative Code, section 6.25, as amended March 2015), applicable to City-funded projects that require the use of heavy off-road equipment for 20 days or more that are located within 1,000 feet of any residence, school, child care center, health facility, or similar sensitive receptor, requires implementation of measures to reduce diesel emissions generated at publicly funded construction sites. Specifically, for projects located within the APEZ, the ordinance requires the use of diesel engines that meet or exceed either the U.S. EPA or CARB Tier 2 off-road emission standards, and that are retrofitted with a CARB Level 3 Verified Diesel Emissions Control Strategy. Additionally, the ordinance prohibits the use of portable diesel engines where alternative sources of power are available (i.e., requires use of available utility-provided electricity in lieu of a diesel generator), limits idling of diesel engines, requires that equipment be properly maintained and tuned, and mandates submittal to the authorizing City department of a Construction Emissions Minimization Plan prior to the start of work. Waivers to the equipment requirements may be granted only if compliance is not feasible or in case of emergency. For projects outside the APEZ, the ordinance requires the use of biodiesel fuel grade B20²³⁸ or higher for off-road diesel equipment and use of Tier 2 or similar off-road equipment.

Compliance with the Clean Construction Ordinance is achieved through the building permit review process for Port projects. Where applicable, environmental staff will stipulate compliance as a condition of the permit.

HEALTH CODE ARTICLE 38

San Francisco adopted health code article 38 in 2008, and amended it in 2014, to protect new sensitive uses from existing sources of air pollution by requiring enhanced ventilation and filtration systems in certain areas of the city. The 2014 amendments make the health code and building code consistent with the results of the air quality modeling undertaken to identify the City's APEZ. As revised in 2014, article 38 applies to all development that includes "sensitive uses," as defined in the health code, including all residential units; adult, child and infant care centers; schools; and nursing homes. The revised article 38 considers all existing known sources of TACs and PM_{2.5}, and requires "enhanced ventilation," including filtration of outdoor air, for all such projects located in the APEZ. The filtration requirement of article 38 specifies Minimum Efficiency Reporting Value (MERV) 13 or equivalent, based on American Society of Heating, Refrigerating and Air-Conditioning

²³⁸ B20 is a mixture of 20 percent biodiesel and 80 percent petroleum.

Engineers (ASHRAE) Standard 52.2, and requires the health department to confer with other City departments and report to the San Francisco Board of Supervisors concerning technologies it has identified or evaluated that may comply with the requirements of the health code. Article 38 also requires periodic updating of the APEZ map (about every 5 years) to account for changes in sources of TACs and PM_{2.5} emissions or updated health risk quantification methodologies. The 2020 Citywide HRA was used to prepare the most recent 2020 APEZ map update. Article 38 applies within the APEZ, which includes much of Port property. Port development projects resulting in newly constructed buildings that would contain sensitive uses within the APEZ would trigger article 38 requirements.

REGULATION OF ODORS

The air district's regulation 7 places general limitations on odorous substances and specific emission limitations on certain odorous compounds. The regulation limits the "discharge of any odorous substance which causes the ambient air at or beyond the property line ... to be odorous and to remain odorous after dilution with four parts of odor-free air." The air district must receive odor complaints from 10 or more complainants within a 90-day period in order for the limitations of this regulation to go into effect. If this criterion has been met, an odor violation can be issued by the air district if a test panel of people can detect an odor in samples collected periodically from the source.

4.E.4 Impacts and Mitigation Measures

This section analyzes impacts related to air quality for the Waterfront Plan. It describes the methods used to determine the impacts of subsequent lease, development, and improvement projects (subsequent projects) that could occur with implementation of the Waterfront Plan and lists the thresholds that were used to conclude whether an impact would be significant. Mitigation measures are identified as necessary to reduce or avoid significant impacts.

SIGNIFICANCE CRITERIA

Implementation of the Waterfront Plan would have a significant impact related to air quality if it would:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Result in a cumulatively considerable net increase of any criteria air pollutant for which the project region is in nonattainment under an applicable federal or state ambient air quality standard;
- Expose sensitive receptors to substantial pollutant concentrations;
- Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

WATERFRONT PLAN

The Plan would accommodate additional growth that would generate vehicle trips. The travel demand memorandum²³⁹ assessed roadways within the Plan area that would be affected by this growth. This air quality analysis estimates impacts from an increase in vehicle miles traveled (VMT), in addition to a health risk assessment of vehicle trip increases on roadways most affected by the Plan.

²³⁹ LCW Consulting and Advant Consulting, Waterfront Plan EIR – Estimation of Proposed Project Travel Demand (see Appendix E), January 28, 2022.

Chapter 4. Environmental Setting, Impacts, and Mitigation Measures

4.E. Air Quality

As part of implementation of the Waterfront Plan, the Port would allow cruise ships to dock at Pier 50, which has shoreside power that can be upgraded to support cruise vessels, as an alternate location to Pier 35, which does not have shoreside power.²⁴⁰ As such, health risk impacts were also evaluated for marine emissions associated with cruise ships berthing at Pier 50 with the Plan that were previously berthing at Pier 35.

The Plan would not result in direct emissions of air pollutants. Rather, the Plan would guide subsequent projects within the Plan area. Those subsequent projects would result in direct air pollutant emissions, such as construction and mobile source emissions from traffic associated with the projects. It is these emissions sources that are evaluated in the air quality analysis.

APPROACH TO ANALYSIS

The Waterfront Plan goals and policies guide the type and mix of land uses and improvement projects that could be constructed or implemented along the 7.5-mile waterfront and adjacent properties within the Port's jurisdiction. Under the Plan the Port may pursue leases and development agreements to encourage commercial, retail, and office development in existing buildings; develop buildings on subsequent project sites; implement improvements and enhancements of open space and recreational facilities; and promote the design of resilient landscapes along shoreline edges. In order to analyze the environmental impacts as a result of changes that could occur pursuant to the Plan, the San Francisco Planning Department developed land use assumptions and growth projections in coordination with the Port, based on the amended goals and policies proposed in the Waterfront Plan. These land use assumptions and growth projections formed the basis of the analysis of air quality impacts.

The thresholds of significance used as the basis for determining criteria air pollutant and odor air quality impacts under the California Environmental Quality Act (CEQA) are discussed below and are based on substantial evidence identified in Appendix D of the 2017 air district's CEQA Air Quality Guidelines²⁴¹ and its 2009 Justification Report.²⁴² As discussed below, the air district's guidelines identify different significance thresholds for plans versus projects. The discussion below presents a plan-level analysis to address implementation of the Waterfront Plan and a programmatic project-level analysis to address subsequent projects that could occur under the Plan. This approach to the analysis allows for full disclosure of air quality impacts resulting from the Plan and subsequent projects that may be constructed pursuant to the Plan.

CRITERIA AIR POLLUTANTS

The significance thresholds for a plan-level analysis include evaluation of whether:

- The plan would be consistent with the control measures contained in the current regional air quality plan (the *2017 Clean Air Plan*), would support the primary objectives of that plan and would not hinder implementation of that plan; the plan's growth in VMT do not exceed the plan's population growth; and the plan would not cause localized CO impacts.

²⁴⁰ Allowing cruise ships to dock at Pier 50 would not induce demand nor increase the number of cruise ships docking annually on Port property. See Appendix C, Land Use Assumptions and Growth Projections Memorandum, for more detail regarding the land use assumptions and growth projections anticipated for the Waterfront Plan.

²⁴¹ Bay Area Air Quality Management District, *California Environmental Quality Act Air Quality Guidelines*, May 2017. Table D-2.

²⁴² Bay Area Air Quality Management District, *Revised Draft Options and Justification Report, California Environmental Quality Act Thresholds of Significance*, October 2009, pp. 22–76.

If the foregoing questions can be answered in the affirmative, the Waterfront Plan would not:

- Conflict with or obstruct implementation of the applicable air quality plan; nor
- Result in a cumulatively considerable net increase of any criteria air pollutant for which the project region is in nonattainment under an applicable federal or state ambient air quality standard.

Impact AQ-1 analyzes the plan's impact with respect to a conflict or obstruction of implementation of the 2017 Clean Air Plan. Impact AQ-2 analyzes the criteria air pollutant impact of the plan.

CONSISTENCY WITH THE CLEAN AIR PLAN

The most recently adopted air quality plan for the air basin is the *2017 Clean Air Plan: Spare the Air, Cool the Climate*.²⁴³ The 2017 Clean Air Plan is a road map that demonstrates how the San Francisco Bay Area will achieve compliance with the state ozone standards as expeditiously as practicable and how the region will reduce the transport of ozone and ozone precursors to neighboring air basins. In determining consistency with the 2017 Clean Air Plan, this analysis considers whether the Waterfront Plan would (1) support the primary goals of the 2017 Clean Air Plan, (2) include applicable control measures from the 2017 Clean Air Plan, and (3) avoid disrupting or hindering implementation of control measures identified in the 2017 Clean Air Plan. To meet the primary goals, the 2017 Clean Air Plan recommends specific control measures and actions. These control measures are grouped into various categories and include stationary and area source measures, mobile source measures, transportation control measures, land use measures, and energy and climate measures. The 2017 Clean Air Plan recognizes that to a great extent, community design dictates individual travel mode, and that a key long-term control strategy to reduce emissions of criteria air pollutants, air toxics, and GHG emissions from motor vehicles is to channel future bay area growth into urban communities where goods and services are close at hand, and people have a range of viable transportation options. To this end, the 2017 Clean Air Plan includes 85 control measures aimed at reducing air pollution in the air basin.

Vehicle Miles Traveled and Population Growth Analysis

The threshold of significance for evaluation of a plan's emissions of criteria air pollutants is based on consistency with regional air quality planning, including an evaluation of population growth and growth in VMT. For a proposed plan to result in less-than-significant criteria air pollutant impacts, an analysis must demonstrate that the plan's growth in VMT would not exceed the plan's population growth.

Local Carbon Monoxide Analysis

The air district has demonstrated, based on modeling, that in order to exceed the California ambient air quality standard of 9.0 ppm (8-hour average) or 20.0 ppm (1-hour average) for CO, project traffic in addition to existing traffic would need to exceed 44,000 vehicles per hour at affected intersections (or 24,000 vehicles per hour where vertical and/or horizontal mixing is limited). Projects or plans that do not result in 44,000 vehicles per hour in combination with background traffic (or 24,000 vehicles per hour where applicable), would not have the potential to result in a significant CO impact. The plan-level analysis assesses the potential for the Waterfront Plan to result in intersections exceeding these screening criteria.

²⁴³ Bay Area Air Quality Management District, *2017 Clean Air Plan: Spare the Air, Cool the Climate*, April 19, 2017, http://www.baaqmd.gov/~media/files/planning-and-research/plans/2017-clean-air-plan/attachment-a_proposed-final-cap-vol-1-pdf.pdf?la=en, accessed July 15, 2021.

PROGRAMMATIC CRITERIA AIR POLLUTANT ANALYSIS OF SUBSEQUENT PROJECTS

In order to disclose the criteria air pollutant impacts of subsequent projects that may be constructed pursuant to the Plan, the analysis contains a programmatic assessment of the potential for such development to exceed the air district’s criteria air pollutant significance thresholds, shown in **Table 4.E-5**. Impact AQ-3 analyzes the criteria air pollutant impacts from construction of subsequent projects and Impact AQ-4 analyzes the criteria air pollutant impacts from operation of subsequent projects.

Table 4.E-5 Criteria Air Pollutant Significance Thresholds

Pollutant	Construction Thresholds	Operational Thresholds	
	Average Daily Emissions (lbs./day)	Average Daily Emissions (lbs./day)	Maximum Annual Emissions (tons/year)
ROG	54	54	10
NOx	54	54	10
PM10	82 (exhaust)	82	15
PM _{2.5}	54 (exhaust)	54	10
Fugitive Dust	Construction Dust Ordinance or other Best Management Practices	Not Applicable	

SOURCE: Bay Area Air Quality Management District, *California Environmental Quality Act Air Quality Guidelines*, May 2017, p. 2-2.

As explained by the air district in its 2009 report justifying the above criteria air pollutant significance thresholds, the thresholds for the ozone precursors ROG and NOx are tied to the air district’s offset requirements for ozone precursors based on the fact that the bay area is not in attainment with the federal ozone standard and therefore such an approach is appropriate “to prevent further deterioration of ambient air quality and thus has nexus and proportionality to prevention of a regionally cumulative significant impact (e.g., worsened status of nonattainment).”²⁴⁴ As discussed on page 4.E-16 the ambient air quality standards have been established by developing specific public-health-based and welfare-based criteria as the basis for setting permissible levels. Therefore, attainment can be considered protective of public health, thus providing a strong link between a mass emission threshold and avoidance of health effects. For PM₁₀ and PM_{2.5}, the air district established significance thresholds based on the federal New Source Review program for new stationary sources of pollution, which contains stricter thresholds than the air district’s offset program for these pollutants. “These thresholds represent the emission levels above which a project’s individual emissions would result in a considerable adverse contribution to the [San Francisco Bay Area Air Basin]’s existing air quality conditions.” As with ROG and NOx, these thresholds likewise provide a connection between a mass emission threshold and avoidance of health effects.

COMMUNITY RISK AND HAZARD IMPACTS

This analysis responds to the criterion that asks whether the Waterfront Plan would:

- Expose sensitive receptors to substantial pollutant concentrations.

²⁴⁴ Bay Area Air Quality Management District, *Revised Draft Options and Justification Report, California Environmental Quality Act Thresholds of Significance*, October 2009, pp. D-47.

The threshold of significance used to evaluate community health risks and hazards from new sources of TACs is based on the potential for the Waterfront Plan to substantially affect the geography and severity of the APEZ at sensitive receptor locations. If the Plan would result in sensitive receptor locations meeting the APEZ criteria that otherwise would not without the Plan, a substantial health risk contribution standard is defined as a PM_{2.5} concentration at or above 0.3 µg/m³ or an excess cancer risk at or greater than 10.0 per million at sensitive receptor locations. The 0.3 µg/m³ PM_{2.5} concentration and the excess cancer risk of 10.0 per million persons exposed are the levels below which the air district considers new sources not to make a considerable contribution to cumulative health risks.²⁴⁵ For those locations already meeting the APEZ criteria, a lower significance standard is required to ensure that the Plan's contribution to existing health risks would not be significant. In these areas, the Plan's PM_{2.5} concentration at or above 0.2 µg/m³ or an excess cancer risk at or greater than 7.0 per million, would be a substantial health risk contribution and a significant impact would occur.²⁴⁶

Impact AQ-5 analyzes the health risk impact resulting from implementation of the Plan and programmatically analyzes the health risk impact resulting from subsequent projects under the Plan.

ODORS

The Waterfront Plan would result in a significant impact with respect to odors if it would:

- Create objectionable odors affecting a substantial number of people.

For odors, a proposed land use plan must identify the location of existing and planned odor sources. The proposed land use plan must also include policies to reduce potential odor impacts if such sources are anticipated from the plan. Typical odor sources of concern include wastewater treatment plants, sanitary landfills, transfer stations, composting facilities, petroleum refineries, asphalt batch plants, chemical manufacturing facilities, fiberglass manufacturing facilities, auto body shops, rendering plants, and coffee roasting facilities. The air district identifies a screening distance for new sources of potential odors, such as wastewater treatment plants, landfills and transfer stations, refineries, asphalt and chemical plants, food processing facilities, and the like, of one or two miles, depending on use. In general, such setback distances would avoid the potential for significant odor impacts.

ANALYSIS ASSUMPTIONS

TAC emissions were quantitatively estimated for three sources associated with Plan implementation: on-road mobile sources (traffic), marine sources (cruise ships and tugs), and stationary sources (diesel generators). Detailed analysis methods, assumptions, and results are presented in Appendix G, Waterfront Plan Air Quality Technical Memorandum and Health Risk Assessment. See Impact AQ-5 for analysis methods used for the health risk assessment.

Total on-road mobile source TAC emissions associated with Plan traffic were calculated using the difference between the 2020 existing and the 2020 existing plus Plan scenario from the travel demand memorandum.²⁴⁷ However, development that could occur pursuant to the Plan would not be built out in 2020. The anticipated

²⁴⁵ Bay Area Air Quality Management District, *California Environmental Quality Act Guidelines 2017*, https://www.baaqmd.gov/-/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en, accessed July 15, 2021.

²⁴⁶ A 0.2 µg/m³ increase in PM_{2.5} would result in a 0.28 percent increase in non-injury mortality or an increase of about twenty-one excess deaths per 1,000,000 population per year from non-injury causes in San Francisco. This information is based on Jerrett M. et al., *Spatial Analysis of Air Pollution and Mortality in Los Angeles*, *Epidemiology* 16 (2005): 727–736. The excess cancer risk has been proportionally reduced to result in a significance criterion of 7 per million persons exposed.

²⁴⁷ LCW Consulting and Advant Consulting, Waterfront Plan EIR – Estimation of Proposed Project Travel Demand (see Appendix E), January 28, 2022.

date for the earliest portion of Plan construction would be approximately 2024 or 2025. Furthermore, subsequent projects that could occur under the Plan would be constructed over several years and would likely continue beyond 2030. Therefore, a full buildout year of 2030 was conservatively assumed for the operational traffic-generated TAC emissions analysis. Traffic that could occur with implementation of the Plan was evaluated using the CARB 2021 Emission FACTor (EMFAC2021) model, using the vehicle fleet mix in San Francisco County and calendar year 2030 emissions factors.

TAC emissions were estimated for maritime sources that would be relocated to a new terminal as a result of implementation of the Plan, including cruise ships at berth, commercial harbor craft, tugs, and any other in-water equipment anticipated under the Plan. Marine emissions were estimated using methods from the 2017 Emissions Inventory developed for the Port of San Francisco and from CARB.^{248,249} Emissions were estimated for cruise ships and assist tugs. Assist tug emissions were calculated for the entire Port of San Francisco fleet and then proportioned for this analysis based on the number of cruise ships reporting to Pier 35 relative to the entire waterfront. For the health risk assessment, only maneuvering emissions within 1,000 meters of the shore were considered for cruise ships because TAC concentrations and associated human health risks are localized due to dispersion of emissions that increases substantially with distance.²⁵⁰

Stationary sources modeled for the Plan include back-up diesel generators. This analysis assumes that each subarea would include up to one large diesel generator at 1,500 kilowatts (kW). Emergency generator emissions were estimated based on a maximum annual non-emergency operation schedule of 50 hours each, consistent with emergency standby engine testing limits established in the air district's Regulation 9-8-330.3. Emissions factors for the generators were based on the U.S. EPA's federal Tier 4 diesel engine standards for diesel engines with a power rating >560 kW [751 hp], since all new generators within the air district greater than 746 kW (1,000 hp) must meet Tier 4 final standards.²⁵¹

CONSISTENCY WITH THE 2017 CLEAN AIR PLAN

Impact AQ-1: The Waterfront Plan would not conflict with or obstruct implementation of the 2017 Clean Air Plan. (*Less than Significant*)

As previously discussed, the most recently adopted air quality plan for the air basin is the *2017 Clean Air Plan (2017 Clean Air Plan): Spare the Air, Cool the Climate*.²⁵² The 2017 Clean Air Plan is a road map that demonstrates how the bay area will, in accordance with the requirements of the California Clean Air Act, implement all feasible measures to reduce ozone precursors (ROG and NOx) and reduce the transport of ozone and its precursors to neighboring air basins. It also provides a climate and air pollution control strategy to reduce ozone, PM, TACs, and GHG emissions that builds upon existing regional, state and national programs.

²⁴⁸ Ramboll, *Port of San Francisco Seaport Air Emissions Inventory 2017*, Prepared for the Port of San Francisco, August 2019, https://www.portofoakland.com/files/PDF/Port_Oakland_2017_Emissions_Inventory.pdf, accessed July 15, 2021.

²⁴⁹ California Air Resources Board, *Appendix B: Emissions Estimation Methodology for Commercial Harbor Craft Operating in California*, 2012, <https://ww3.arb.ca.gov/msei/chc-appendix-b-emission-estimates-ver02-27-2012.pdf>, accessed July 15, 2021.

²⁵⁰ According to the CEQA Guidelines, CARB recommends avoiding siting sensitive land uses within 1,000 feet of a distribution center and major rail yard and some studies have shown that the concentrations of particulate matter tend to be reduced substantially or can even be indistinguishable from upwind background concentrations at a distance 1,000 feet downwind from sources such as freeways or large distribution centers. The 1,000-meter modeling radius used in this analysis is therefore highly conservative.

²⁵¹ Bay Area Air Quality Management District, *BACT Determination for Diesel Back-Up Engines Greater than or equal to 1,000 Brake Horsepower*, December 2020.

²⁵² Bay Area Air Quality Management District, *2017 Clean Air Plan: Spare the Air, Cool the Climate*, April 19, 2017, http://www.baaqmd.gov/~media/files/planning-and-research/plans/2017-clean-air-plan/attachment-a_-_proposed-final-cap-vol-1-pdf.pdf?la=en, accessed July 15, 2021.

In determining consistency with the 2017 Clean Air Plan, this analysis considers whether the Waterfront Plan would (1) support the primary goals of the 2017 Clean Air Plan, (2) include applicable control measures from the 2017 Clean Air Plan, and (3) avoid disrupting or hindering implementation of control measures identified in the 2017 Clean Air Plan.

The primary goals of the 2017 Clean Air Plan are: to protect air quality and public health at the regional and local scale and protect the climate by reducing regional criteria air pollutant emissions; reducing local air-quality-related health risks (by meeting state and national ambient air quality standards); and reducing GHG emissions (by reducing GHG emissions to 40 percent below 1990 levels by 2030 and to 80 percent below 1990 levels by 2050).²⁵³

To meet these goals, the 2017 Clean Air Plan has defined 85 individual control measures that describe specific actions to reduce emissions of air and climate pollutants across a full range of emission sources.²⁵⁴ These control measures are grouped into the following sectors based upon the economic sector framework used by CARB for the AB 32 Scoping Plan Update: stationary (industrial) sources, transportation, energy, buildings, agriculture, natural and working lands, waste management, water, and super-GHG pollutants.

The Waterfront Plan and its related actions would support the primary goals of the 2017 Clean Air Plan by supporting the applicable measures that aim to achieve these goals, as discussed below. It is noted that the vast majority of the control measures included in the 2017 Clean Air Plan do not apply directly to the Plan and its related subsequent projects because they target facilities or land uses that do not currently exist and would not be permitted in the Plan area (e.g., energy generation, waste management, agricultural, forest or pasture lands); vehicles or equipment that would not be employed in the Plan area (e.g., airplanes, farming equipment); and/or involve rulemaking or other actions under the jurisdiction of agencies not directly involved with design and approval of the Plan and its related actions. For example, 40 of these measures address stationary sources (such as oil refineries and cement kilns, but also include large boilers used in commercial and industrial facilities) and will be implemented by the air district using its permit authority and are therefore not suited to implementation through local planning efforts.

In general, new development in San Francisco incorporates many of the applicable control measures identified in the 2017 Clean Air Plan through a combination of the planning code and Port building code (including green building code) provisions, and various local and state policies that promote high-density land use patterns, allow or require reduction of off-street parking facilities, encourage tree plantings and water and energy conservation, divert waste, and promote transit and bicycling as primary modes of transport. The Plan would continue to support these measures and would not hinder their implementation. The most relevant and applicable measures that the Plan would support (and thus, include as part of its implementation) are discussed in detail below. While subsequent projects that could occur under the Plan are expected to increase demand for travel in the Plan area, safe and convenient pedestrian, transit, and bicycle access to and within the Plan area is necessary for the success of the subsequent projects. The Plan includes “A Safe Pedestrian and Bicycle Environment” as a primary objective and includes many policies to achieve this goal.

²⁵³ The air district’s 2030 GHG target is consistent with the California’s GHG 2030 reduction target, per Senate Bill 32. The air district’s 2050 target is consistent with the state’s 2050 GHG reduction target per Executive Order S-3-05.

²⁵⁴ Bay Area Air Quality Management District, *2017 Clean Air Plan: Spare the Air, Cool the Climate*, April 19, 2017, Table 5-13, http://www.baaqmd.gov/~media/files/planning-and-research/plans/2017-clean-air-plan/attachment-a_-_proposed-final-cap-vol-1-pdf.pdf?la=en, accessed July 15, 2021.

The control measures most applicable to the Waterfront Plan are the Transportation Control Measures. The Transportation Control Measures concern improving transit systems, improving efficiency of the region’s transportation system, encouraging residents and employees to exhibit “sustainable transportation behavior,” improving bicycle and pedestrian facilities, and supporting high-density growth. As discussed below, the Plan would address many of these transportation measures. The Waterfront Plan, through implementation of existing City policies and new policies in the Plan, also would further the 2017 Clean Air Plan’s Energy and Buildings Measures. The Agriculture, Natural and Working Lands, Water, and Super-GHG Pollutant measures address emissions sources not applicable to the Plan, but rather the air district’s own programs and regional air quality planning, and are less applicable to local agencies’ decisions and projects.

An objective of the Waterfront Plan would be to maintain close working relationships with the San Francisco Municipal Transportation Agency (SFMTA) and transportation agency partners to support the expansion of public transit and alternative transportation services that serve new development along the waterfront, while maintaining viable access for Port maritime and maintenance services. Transportation Control Measures in the 2017 Clean Air Plan are identified in **Table 4.E-6**. Inasmuch as the Transportation Control Measures are generally those most applicable to an individual plan or development project, the table identifies each measure or group of measures and correlates the measures to specific elements of the Waterfront Plan or explains why the strategy does not apply to the Plan. As indicated in the table, the Plan directly addresses many of the Transportation Control Measures, particularly those that emphasize higher-density development, a mix of uses, and increased transit ridership and pedestrian and bicycle use. Based on the analysis in Table 4.E-6, implementation of the Waterfront Plan would promote implementation of, and in some cases go beyond, these measures. Therefore, the Plan would be consistent with the applicable Transportation Control Measures in the 2017 Clean Air Plan.

Table 4.E-6 Consistency of the Plan with Transportation Control Measures of the 2017 Clean Air Plan

2017 Clean Air Plan Control Measure		Elements of the Plan Consistent with the Measure or Explanation of Non-Applicability
TR-2 – Trip Reduction Programs	Implement the regional Commuter Benefits Program (Rule 14-1) that requires employers with 50 or more bay area employees to provide commuter benefits. Encourage trip reduction policies and programs in local plans, e.g., general and specific plans while providing grants to support trip reduction efforts. Encourage local governments to require mitigation of vehicle travel as part of new development approval; to adopt transit benefits ordinances in order to reduce transit costs to employees; and to develop innovative ways to encourage rideshare, transit, cycling, and walking for work trips. Fund various employer-based trip reduction programs.	San Francisco employers operate (or contract for) numerous shuttle bus services, many of which serve parts of the Plan area. The City’s Commuter Benefits Ordinance (section 421 of the Environment Code) requires that employers with more than 20 employees provide pre-tax purchase of transit passes, employer-paid passes, or employer-provided transit. Subsequent projects that could occur pursuant to the Waterfront Plan also would be required to comply with the City’s Transportation Demand Management (TDM) Program, which encourages a mode shift away from private automobile use by requiring that future project sponsors choose from a list of measures that include physical features to support trip reduction (e.g., bike parking, decreased private parking) as well as information to encourage users to take these other modes (e.g., transit information, subsidized transit passes, etc.).

2017 Clean Air Plan Control Measure		Elements of the Plan Consistent with the Measure or Explanation of Non-Applicability
TR3 – Local and Regional Bus Service; TR5 – Transit Efficiency and Use	Fund local and regional bus projects, including operations and maintenance.	<p>The Waterfront Plan includes “Strong Public Transit and Agency Partnerships” as a goal, and includes implementation of the following policies:</p> <ul style="list-style-type: none"> • Work with the SFMTA, the Water Emergency Transportation Authority, Golden Gate Ferry, and other public transit agencies to ensure that access to all transportation services is affordable, inclusive, and equitable, particularly for major destinations along the waterfront. • Promote public transit, walking, bicycling, and new forms of “last mile” devices as the primary modes for moving people along the waterfront and within San Francisco and the region. • Support funding for local and regional transit providers to improve and expand fast, frequent, and reliable service between the waterfront and the rest of the city and bay area. • Collaborate with other transportation operators to provide affordable and accessible transportation options to visitors and workers, particularly for major destinations along the waterfront. • Design Port streets and transit facilities on Port property to support transit reliability, resiliency, and flexibility. Encourage and, where feasible, provide areas for transit providers to locate transit stops and stations, with pedestrian and disabled access, within 0.25 mile of major Port destinations.
TR5 – Transit Efficiency and Use	Improve transit efficiency and make transit more convenient for riders through continued operation of 511 Transit, full implementation of Clipper® fare payment system and the Transit Hub Signage Program.	These measures address infrastructure improvements to increase operational efficiencies, such as common fare payment systems, and are geared primarily toward regional agencies, such as the Metropolitan Transportation Commission and Caltrans. The Waterfront Plan seeks to accommodate the variety of Plan area transportation needs by concentrating and facilitating transit in the Plan area.

Chapter 4. Environmental Setting, Impacts, and Mitigation Measures

4.E. Air Quality

2017 Clean Air Plan Control Measure		Elements of the Plan Consistent with the Measure or Explanation of Non-Applicability
TR8 – Ridesharing, Last-Mile Connection	Promote carpooling and vanpooling by providing funding to continue regional and local ridesharing programs, and support the expansion of carsharing programs. Provide incentive funding for pilot projects to evaluate the feasibility and cost-effectiveness of innovative ridesharing and other last-mile solution trip reduction strategies. Encourage employers to promote ridesharing and carsharing to their employees.	Through the 511 commuter information program, preferential vanpool parking, guaranteed ride home in emergencies, and carpool parking permits are provided in San Francisco. Section 166 of the planning code requires that car-share parking be provided in new parking garages.
TR9 – Bicycle and Pedestrian Access and Facilities	Encourage planning for bicycle and pedestrian facilities in local plans, e.g., general and specific plans, fund bike lanes, routes, paths, and bicycle parking facilities.	<p>The Waterfront Plan includes 11 policies to achieve “A Safe Pedestrian and Bicycle Environment,” including but not limited to:</p> <ul style="list-style-type: none"> • By 2030, complete the San Francisco Bay Trail as a continuous walking and cycling path along the entire waterfront, from Aquatic Park to India Basin. • Coordinate with the SFMTA on projects to make bicycling more attractive than driving for most trips. • Educate to promote awareness, respect, and safety for all modes of travel. • Reduce conflicts between vehicles, pedestrians, and cyclists by reducing vehicle crossings of The Embarcadero Promenade where possible, coordinated with reasonable transportation access needs of Port tenants. • Coordinate with the SFMTA to ensure that expansion of bike sharing supports access to major destinations and transportation hubs along the waterfront. • Provide secure bicycle parking, particularly at high-volume destinations and in new Port development.

2017 Clean Air Plan Control Measure		Elements of the Plan Consistent with the Measure or Explanation of Non-Applicability
TR13 – Parking Policies	Encourage parking policies and programs in local plans, e.g., reduce minimum parking requirements; limit the supply of off-street parking in transit-oriented areas; unbundle the price of parking spaces; support implementation of demand-based pricing (such as “SF Park”) in high-traffic areas.	The planning code currently requires that new off-street parking provided for uses other than residential units in most of the Plan area, except for the Southern Waterfront subarea, be priced so as to discourage long-term commuter parking, while still providing adequate short-term parking. Planning code section 155(g) requires that the cost for four hours of parking be no more than four times the rate charged for the first hour, and that the rate charged for eight or more hours of parking be no less than 10 times the rate charged for the first hour. Furthermore, weekly or monthly discounts are prohibited. Planning code section 167 requires that residential parking be priced separately from dwelling units themselves, capturing the real cost for parking. Moreover, parking is not required under the planning code in any use districts in the Plan area.
TR18 – Goods Movement	Continue participation in the preparation and implementation of the Regional Goods Movement Plan. Participate in the Goods Movement Collaborative, led by the Alameda County Transportation Commission, and assist the Metropolitan Transportation Commission in development of the Freight Emissions Action Plan.	This measure implements the Regional Goods Movement Plan. The Waterfront Plan includes “Functional Goods Movement and Industrial Access” as a key action, with implementing policies that include: <ul style="list-style-type: none"> • Coordinate with the SFMTA on plans to develop, maintain, and enhance the sustainable and reliable movement of goods within and through the city, including safe and efficient truck and freight rail access to Port facilities on The Embarcadero, Terry A. Francois Boulevard, Third Street, Illinois Street, Cargo Way, and Cesar Chavez Street. • Recognize the importance of the freight network to the city’s economic health and disaster recovery when making decisions that affect major truck routes and the region’s roadway system. • Maintain a forum for the freight community to comment and advise the City and other entities when reviewing potential operational changes, capital projects, and regulations that may affect land-based freight transportation. • Work with the SFMTA to ensure that industrial goods movement and loading needs on The Embarcadero are addressed in curb zone management decisions, to avoid the need for trucks to cross The Embarcadero Promenade into pier facilities.

Chapter 4. Environmental Setting, Impacts, and Mitigation Measures

4.E. Air Quality

2017 Clean Air Plan Control Measure		Elements of the Plan Consistent with the Measure or Explanation of Non-Applicability
		<ul style="list-style-type: none"> Evaluate commercial deliveries and freight loading needs for future Port land uses, and provide sufficient off-street loading areas where feasible.
TR20 – Ocean Going Vessels	Replicate the Green Ship Program that has been implemented at the ports of Los Angeles and Long Beach. Financial incentives for cleaner Tier 2 and Tier 3 oceangoing vessels to call at the ports serve as the basis of the program. The program was initiated as part of the San Pedro Bay Ports Clean Air Action Plan. This measure also recognizes the need to monitor progress under such programs and augment them as necessary to ensure sufficient results.	This measure aims to replicate the Green Ship Program implemented at the ports of Los Angeles and Long Beach, which includes cleaner ocean-going vessels and emission reductions. The Plan would further the goal of this strategy by reducing emissions because as part of implementation of the Waterfront Plan, the Port would allow cruise ships to dock at Pier 50, which has shoreside power that can be upgraded to support cruise vessels, as an alternate location to Pier 35, which does not have shoreside power. Therefore, the emissions currently generated by cruise ships hoteling at Pier 35 would be eliminated by the Plan.

SOURCE: Bay Area Air Quality Management District, *2017 Clean Air Plan: Spare the Air, Cool the Climate*, April 19, 2017, <http://www.baaqmd.gov/~media/files/planning-and-research/plans/2017-clean-air-plan/attachment-a-proposed-final-cap-vol-1-pdf.pdf?la=en>, accessed July 15, 2021.

The building sector control measure BL1, “Green Buildings,” calls for identifying barriers to effective local implementation of the CALGreen (Title 24) statewide building energy code and developing solutions to improve implementation/enforcement. Subsequent projects under the Plan would be subject to the Port building code, (which has incorporated the provisions of the San Francisco Green Building Code) and, as such, would comply with some of the most stringent building energy-related requirements in the country. Energy control measure EN2, “Decrease Electricity Demand,” involves working with local governments to adopt and support additional energy efficiency policies and programs. The Plan also would promote the highest feasible level of “green building” in Port leasing and development by encouraging the adaptive reuse of existing buildings, using green building practices, implementing the Port’s Green Building Standards Code, meeting LEED standards, reducing GHG emissions, conserving water, improving energy efficiency, and using healthier or environmentally preferred building materials. Measure BL4, “Urban Heat Island Mitigation,”²⁵⁵ would be supported through the Plan’s goal to implement the City’s Better Roofs Ordinance, included in the Port’s Green Building requirements, and which requires new commercial and residential buildings to install either a rooftop solar system for heat or electricity or a living roof. Energy control measure EN2, “Decarbonize Buildings,” plans to increase renewable energy production and consumption in bay area buildings. All subsequent projects under the Waterfront Plan would be required to comply with the City’s All-Electric Ordinance, which prohibits natural gas infrastructure in new construction. Under the “Greenhouse Gas Emissions” strategy of the Waterfront Plan, the Port would explore new funding and other opportunities to improve energy efficiency; generate and use solar, wind, or other renewable power; and facilitate use of alternative fuels, consistent with the City’s 0-80-100-Roots policy (see Appendix B, Initial Study, Section E.9, Greenhouse Gas Emissions).

²⁵⁵ The text of Measure BL4 is as follows: “Develop and urge adoption of a model ordinance for “cool parking” that promotes the use of cool surface treatments for new parking facilities, as well existing surface lots undergoing resurfacing. Develop and promote adoption of model building code requirements for new construction or re-roofing/roofing upgrades for commercial and residential multi-family housing. Collaborate with expert partners to perform outreach to cities and counties to make them aware of cool roofing and cool paving techniques, and of new tools available.”

The waste sector control measure WA3, “Green Waste Diversion,” calls for developing model policies to facilitate local adoption of ordinances and programs to reduce the amount of green waste going to landfills. Subsequent projects that could be implemented under the Plan would support this measure by complying with the Mandatory Recycling and Composting Ordinance as well as requirements in the Port building code, which has incorporated the provision of the San Francisco Green Building Code to divert 75 percent of demolition debris from landfills. Measure WA4, “Recycling and Waste Reduction,” promotes model ordinances on community-wide zero waste goals and recycling of construction and demolition materials in commercial and public construction projects. The Waterfront Plan would work toward zero waste by implementing Port and City requirements and policies that promote reuse, recycling, and composting in construction and operations.

Control measure WR2, “Support Water Conservation,” strives to reduce water consumption through best management practices and increase on-site water recycling in new and existing buildings. The Waterfront Plan’s “Water Quality and Conservation” strategy aims to conserve water via state and local water conservation requirements and policies and by implementing City goals and requirements for design and installation of infrastructure that reuses recycled water, stormwater, and wastewater in new construction.

As noted above, the Waterfront Plan would support the primary goals of the 2017 Clean Air Plan by including applicable control measures in the Plan and through continued implementation of numerous existing regulations that are already established for new developments throughout the city. Additionally, as part of implementation of the Waterfront Plan, the Port would allow cruise ships to dock at Pier 50, which has shoreside power that can be upgraded to support cruise vessels, as an alternate location to Pier 35, which does not have shoreside power. Therefore, emissions currently generated by cruise ships hoteling at Pier 35 would be eliminated under the Plan, resulting in a decrease in cruise ship-generated regional ozone precursor emissions, which is consistent with the goals of the 2017 Clean Air Plan.

Regarding air quality health risks, although the Waterfront Plan would encourage new sensitive land uses, including residents in the APEZ, the Plan area is in proximity to numerous transit and other amenities that support a reduction in VMT and consequent mobile source emissions. Furthermore, health code article 38 (Enhanced Ventilation Required for Urban Infill Sensitive Use Developments Ordinance) is intended to reduce air quality health impacts on new residential uses in areas of poor air quality by requiring enhanced ventilation. Subsequent projects that include sensitive land uses under the Waterfront Plan would be subject to this requirement; therefore, the Plan is consistent with the 2017 Clean Air Plan goals and would protect public health through required adherence to health code article 38.

GHG emissions associated with the Waterfront Plan are addressed in Section E.9, Greenhouse Gas Emissions, of the initial study (see Appendix B). The analysis determined that the Waterfront Plan would be consistent with the Greenhouse Gas Reduction Strategy, and therefore would result in a less-than-significant impact with regard to GHG emissions. Subsequent projects that could occur pursuant to the Waterfront Plan would be required to demonstrate consistency with San Francisco’s *Strategies to Address Greenhouse Gas Emissions*, which presents a comprehensive assessment of policies, programs, and ordinances that collectively represent San Francisco’s qualified GHG reduction strategy in compliance with CEQA Guidelines. Moreover, the Waterfront Plan would not otherwise disrupt or hinder implementation of the 2017 Clean Air Plan by, for example, precluding extension or expansion of bikeways or routes. Rather, the Plan proposes to enhance existing and planned bicycle lanes and provide bicycle facilities and infrastructure in the Plan area. The Waterfront Plan would not preclude extension of a transit line and aims to enhance transit use. The Plan would not provide excessive parking beyond parking requirements as the Plan would limit the amount of parking allowed for subsequent projects.

For these reasons, the Waterfront Plan would be consistent with the 2017 Clean Air Plan control measures, would not hinder implementation of the 2017 Clean Air Plan, and would support the primary goals of the 2017 Clean Air Plan. Thus, the Waterfront Plan would not conflict with or obstruct implementation of the 2017 Clean Air Plan and this impact would be **less than significant** and no mitigation measures are required.

CRITERIA AIR POLLUTANTS

Impact AQ-2: The Waterfront Plan would not result in a cumulatively considerable net increase of any criteria air pollutant for which the project region is in nonattainment under an applicable federal or state ambient air quality standard. (Less than Significant)

As discussed under Section 4.E.4’s Approach to Analysis, p. 4.E-22, in order for a plan to result in less-than-significant criteria air pollutant impacts, an analysis must demonstrate that the plan would be consistent with the control measures contained in the current regional air quality plan (the 2017 Clean Air Plan), would support the primary objectives of the 2017 Clean Air Plan, and would not hinder implementation of the 2017 Clean Air Plan. That analysis is contained in Impact AQ-1, above. Furthermore, based on the plan-level thresholds identified by the air district in their CEQA Air Quality Guidelines, the analysis must demonstrate that the plan’s growth in VMT would not exceed the plan’s population growth, and the plan would not cause localized CO impacts. These analyses are provided below.

GROWTH IN VEHICLE MILES TRAVELED COMPARED TO GROWTH IN POPULATION

Growth projections prepared by the San Francisco Planning Department²⁵⁶ indicate that residential growth and employment growth referred to as “service population” attributed to implementation of the Plan would increase approximately 111 percent, from the 2020 existing conditions to full buildout, as shown in **Table 4.E-7**.

Table 4.E-7 Plan VMT versus Service Population Growth

	2020 Existing Conditions	Waterfront Plan Growth	2020 Existing Conditions Plus Waterfront Plan Growth	% Increase
Population ^a	853	530	1,383	62%
Employment ^a	12,908	14,795	27,703	115%
Service Population (Population + Employment)	13,761	15,325	29,086	111%
Daily VMT in the Plan area ^b	492,592	220,331	712,923	45%

SOURCES:

- ^a SOURCE: Draft EIR Table 4-1, p. 4-6. For informational purposes, service population in 2050 without the Plan would be 42,310.
- ^b SOURCE: VMT data from 2020 Baseline Scenario, SFCTA, April 2021. For informational purposes, VMT in 2050 without the Plan are 838,801, and the Plan growth in VMT would be 206,670. The slight difference between 2020 and 2050 plan growth VMT is due to SF-CHAMP model assumptions for the 2050 Baseline Scenario, including future changes to the transportation network and different travel mode assignments that result in fewer vehicle trips. This represents a difference of less than 1.5% of the total cumulative daily VMT.

²⁵⁶ The planning department regularly updates citywide growth forecasts that are based on the Association of Bay Area Governments’ regional projections of housing and employment growth.

Based on output from the County Transportation Authority travel demand model, daily VMT for the Plan area associated with Plan implementation would increase by approximately 220,331 from the 2020 baseline of approximately 492,592, as shown in Table 4.E-7. This represents a growth of 45 percent attributable to the Waterfront Plan. Because the growth in vehicle miles would be less than the growth in “service population,” the Plan would result in a less-than-significant impact with respect to regional criteria air pollutants. In addition, the Plan includes goals and policies that would reduce criteria air pollutant emissions. For example, the Plan seeks to improve transit, pedestrian, and bicycle accessibility and connections, thereby minimizing the need for automobile travel. The Plan also would allow cruise ships to dock at Pier 50, which has shoreside power that can be upgraded to support cruise vessels, eliminating cruise ship hoteling emissions. For these reasons, implementation of the Waterfront Plan would result in a **less-than-significant** impact with respect to regional emissions of criteria air pollutants and no mitigation measures are required.

CARBON MONOXIDE

Unlike other criteria air pollutants, whose effects are regional, CO impacts are evaluated locally. However, the air district generally recommends intersection-specific modeling of CO concentrations only for intersections where traffic volumes would exceed 44,000 vehicles per hour, based on modeling of vehicle emissions demonstrating that below this volume of traffic CO concentrations would not exceed the applicable state air quality standards. Based on the traffic analysis completed for the Waterfront Plan, the maximum with Plan peak-hour traffic volume at any of the study intersections in the transportation study area (The Embarcadero at Broadway) would be 2,401 vehicles per hour, and the maximum at any of the study intersections would be 3,974 vehicles per hour under 2050 cumulative conditions (King Street at Third Street).²⁵⁷ Therefore, modeling of CO concentrations is not required, and the Waterfront Plan would not exceed the state one-hour or eight-hour CO standards. Therefore, impacts related to CO also would be **less than significant** and no mitigation measures are required.

While the Waterfront Plan would result in less than significant criteria air pollutant impacts, subsequent projects under the Plan could result in significant criteria air pollutant impacts based on the air district’s criteria air pollutant thresholds for individual projects. The criteria air pollutant impact of subsequent projects under the Plan are addressed in Impact AQ-3 and Impact AQ-4, below.

Impact AQ-3: The Waterfront Plan could involve construction activities that could result in a cumulatively considerable net increase in any criteria air pollutant for which the project region is in nonattainment status under an applicable federal, state, or regional ambient air quality standard. (Significant and Unavoidable with Mitigation)

Implementation of the Waterfront Plan would not, in and of itself, result in construction-related emissions. However, it is recognized that a foreseeable outcome of Plan implementation would include construction of subsequent projects that would result in criteria air pollutant emissions, the effects of which are analyzed here.

Implementation of the Waterfront Plan would allow for development of new residential, office, retail, industrial/Production, Distribution and Repair (PDR) uses, and open space improvements.²⁵⁸ Some of the subsequent projects under the Waterfront Plan would entail demolition and removal of existing structures,

²⁵⁷ LCW Consulting and Advant Consulting, Waterfront Plan EIR – Estimation of Proposed Project Travel Demand (see Appendix E), January 28, 2022.

²⁵⁸ Subsequent projects are defined in Section 2.F of the PD and in Table 4-2, p. 4-8, in the Summary of Growth Projections section.

excavation, site preparation, and construction of new buildings. Emissions generated during construction activities would include exhaust emissions from the use of heavy off-road diesel equipment, on-road diesel trucks, and employee vehicles, as well as fugitive dust emissions associated with earth-disturbing activities and other demolition and construction work.

CONSTRUCTION DUST

Activities that generate dust include demolition, excavation, and equipment movement across unpaved construction sites. Dust can be an irritant causing watering eyes or irritation to the lungs, nose, and throat. Demolition, excavation, grading, and other construction activities can cause wind-blown dust that adds particulate matter to the local atmosphere. Depending on exposure, adverse health effects can occur due to this particulate matter in general and also due to specific contaminants such as lead or asbestos that may be constituents of soil.

The Port implemented Port building code section 106A.3.2.3, which is modeled on the San Francisco Construction Dust Control Ordinance (ordinance 176-08, effective July 30, 2008) with the intent of reducing the quantity of dust generated during site preparation, demolition and construction work in order to protect the health of the general public and of onsite workers, minimize public nuisance complaints, and avoid orders to stop work by the Port. The Port building code addresses general requirements, five basic requirements for all activities, compliance with article 22B of the San Francisco Health Code, and allows for limited waivers in the event the activity is unlikely to result in any visible wind-blown dust. With regard to compliance with health code article 22B, the Port Chief Harbor Engineer must receive notification from the Director of the health department that the plan is approved and the project sponsor must designate a person for monitoring of and compliance with all dust control requirements.

The Port 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 Port building permit from the engineering division. The Port Chief Harbor Engineer may waive this requirement for activities on sites less than one-half acre that are unlikely to result in any visible wind-blown dust.

For project sites over one-half acre, the Port building code requires that the project sponsor submit a Dust Control Plan for approval by the San Francisco Department of Public Health. The Port Chief Harbor Engineer then must receive notification from the Director of the health department that the plan is approved and the project sponsor must designate a person for monitoring of and compliance with all dust control requirements. The Port will not issue a building permit without written notification from the Director of the health department that the applicant has a site-specific Dust Control Plan, unless the Director waives the requirement.

The site-specific Dust Control Plan requires the project sponsor to submit a map to the Director of the health department showing all sensitive receptors within 1,000 feet of the project site; wet down areas of soil at least three times per day; provide an analysis of wind direction and install upwind and downwind particulate dust monitors; record particulate monitoring results; hire an independent, third-party to conduct inspections and keep a record of those inspections; establish shut-down conditions based on wind, soil migration, etc.; establish a hotline for surrounding community members who may be potentially affected by project-related dust; limit the area subject to construction activities at any one time; install dust curtains and windbreaks on the property lines, as necessary; limit the amount of soil in haul trucks to the size of the truck bed and secure with a tarpaulin; enforce a 15-mile-per-hour speed limit for vehicles entering and exiting construction areas;

sweep affected streets with water sweepers at the end of the day; install and use wheel washers to clean truck tires; terminate construction activities when winds exceed 25 miles per hour; apply soil stabilizers to inactive areas; and sweep off adjacent streets to reduce particulate emissions. The project sponsor would be required to designate an individual to monitor compliance with these dust control requirements.

Compliance with the regulations and procedures set forth in the Port building code would ensure that potential dust-related construction air quality impacts from subsequent projects would be reduced to a **less-than-significant** level.

CONSTRUCTION EQUIPMENT EXHAUST

The air district, in its CEQA Air Quality Guidelines, developed screening criteria to determine if construction or operational emissions from individual projects would result in a cumulatively considerable net increase in non-attainment criteria air pollutants. A project that doesn't meet the screening criteria may require a detailed air quality assessment to determine whether criteria air pollutant emissions would exceed significance thresholds, which are provided in Table 4.E-5, p. 4.E-24.²⁵⁹ Projects that meet all screening criteria would not require future analysis and the criteria air pollutant impact from those projects are presumed to be less than significant. The screening level sizes for land uses expected in the Waterfront Plan area are shown in **Table 4.E-8**. If a project meets all of the following screening criteria, construction of the proposed project would result in a less-than-significant impact from criteria air pollutant and precursor emissions:

1. The project is below the applicable screening level size shown in Table 4.E-8; and
2. Construction-related activities would not include any of the following:
 - a. Demolition;
 - b. Simultaneous occurrence of more than two construction phases (e.g., paving and building construction would occur simultaneously);
 - c. Simultaneous construction of more than one land use type (e.g., project would develop residential and commercial uses on the same site) (not applicable to high density infill development);
 - d. Extensive site preparation (i.e., greater than default assumptions used by the CalEEMod model for grading, cut/fill, or earth movement); or
 - e. Extensive material transport (e.g., greater than 10,000 cubic yards of soil import/export) requiring a considerable amount of haul truck activity.

All screening criteria for would be considered during the review of subsequent projects.

²⁵⁹ Bay Area Air Quality Management District, *California Environmental Quality Act Air Quality Guidelines*, May 2017, Table 3-1, https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en, accessed July 15, 2021.

Table 4.E-8 Operational and Construction Criteria Pollutant Screening for Potential Waterfront Plan Uses

	Screening Size for Operational Criteria Pollutants (Pollutant of Concern in Parentheses)	Screening Size for Construction Criteria Pollutants (Pollutant of Concern in Parentheses)
Apartment/Condo, mid-rise	494 du (ROG)	240 du (ROG)
Day-care center	53 ksf (NOx)	277 ksf (ROG)
City park	2613 acres (ROG)	67 acres (PM ₁₀)
Health club	128 ksf (NOx)	277 ksf (ROG)
Quality restaurant	47 ksf (NOx)	277 ksf (ROG)
High-turnover restaurant	33 ksf (NOx)	277 ksf (ROG)
Retail store	83 ksf (NOx)	277 ksf (ROG)
General office building	346 ksf (NOx)	277 ksf (ROG)
Warehouse	864 ksf (NOx)	259 ksf (NOx)
General light industry	541 ksf (NOx)	259 ksf (NOx)

SOURCE: Bay Area Air Quality Management District, *California Environmental Quality Act Air Quality Guidelines*, May 2017, Table 3-1, https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en, accessed July 15, 2021.

NOTES:

du = dwelling units; ksf = thousand square feet; NOx = oxides of nitrogen; ROG = reactive organic gases.

Screening levels include indirect and area source emissions, but not backup generators or industrial sources.

It is likely that most subsequent projects would propose land uses that are below these screening levels and therefore would not result in criteria air pollutant emissions that exceed the air district’s significance thresholds.²⁶⁰ Even projects that exceed the screening criteria are likely to find that upon detailed evaluation, the project’s emissions do not exceed the air district’s significance thresholds. All of these projects would result in less-than-significant construction criteria air pollutant impacts. However, as discussed in more detail below, other subsequent projects have the potential to generate emissions of criteria air pollutants that would exceed the screening criteria established by the air district, the subsequent project is an infrastructure project that does not have an associated screening size, or the subsequent project includes use of high emissions equipment, such as in-water equipment. These subsequent projects could, depending on the scope, require a detailed air quality assessment to determine whether criteria air pollutant emissions would exceed significance thresholds.

Based on quantitative air quality assessments conducted by the planning department for large projects over the years, projects on large sites that require substantial ground disturbance; projects requiring extremely compressed construction schedules; projects which require specialty equipment such a drilling rigs, and in particular projects requiring in-water construction activities; are the types of projects that could exceed the significance thresholds. For example, in-water construction equipment like workboats, dredges, and barges typically have high NOx emission rates. Large single- and multiple-building projects often do not exceed the significance thresholds. While several locations in the Waterfront Plan area that could be proposed for new construction are low-rise infill development sites, which, if redeveloped, would not be expected to exceed the

²⁶⁰ For a discussion of these subsequent projects, refer to Table 4-2, p. 4-8, and Figure 4-1, p. 4-7.

screening criteria or significance thresholds, development on Piers 30–32 and SWL 330 in the South Beach subarea and the Pier 94 Backlands in the Southern Waterfront subarea could be large enough, require enough extensive ground disturbance, or involve enough specialty or in-water construction equipment to exceed the criteria air pollutant significance thresholds for construction, potentially resulting in a significant impact.

Because the specific characteristics of each subsequent project and the required construction equipment information (year and duration of construction, equipment type, operating hours, horsepower, etc.) are not known, subsequent projects would be required to undergo a project-level criteria air pollutant assessment at the time the project is proposed. The project-level assessment could include an evaluation of the project compared to the screening levels in Table 4.E-7, p. 4.E-34 and the additional construction-related screening criteria listed above, a comparison of the project with other similar projects where a quantitative analysis has been conducted, or a project-specific criteria air pollutant analysis to determine whether the project exceeds the air district's criteria air pollutant thresholds.

For these reasons, the following mitigation measures would be required for subsequent projects that could occur with implementation of the Waterfront Plan in the event that the project specific analysis finds that the project could result in significant construction-related criteria air pollutant emissions. For such projects, the mitigation measures would be required to the degree necessary to avoid a significant impact (e.g., if use of Tier 4 equipment avoids a significant impact additional measures would not be required).

Mitigation Measure M-AQ-3a: Clean Construction Equipment. The project sponsor shall submit a construction emissions minimization plan to the Port Chief Harbor Engineer, who will then notify the Port Environmental Regulatory Compliance staff and an Environmental Planning Air Quality Specialist for review and approval.

The construction emissions minimization plan shall apply to all off-road and in-water marine equipment operating for more than 20 total hours over the entire duration of construction activities. The plan shall detail project compliance with the following requirements as necessary:

1. All off-road equipment greater than 25 horsepower shall meet the following requirements:
 - a) Where access to grid-powered electricity is reasonably available, portable diesel engines shall be prohibited and electric engines shall be used for concrete/industrial saws, sweepers/scrubbers, aerial lifts, welders, air compressors, fixed cranes, forklifts, and cement and mortar mixers, pressure washers, and pumps. If grid electricity is not available, propane or natural gas generators shall be used if feasible. Diesel engines shall only be used if grid electricity is not available and propane or natural gas generators cannot meet the electrical demand;
 - b) All other off-road equipment shall have engines that meet or exceed either U.S. Environmental Protection Agency (U.S. EPA) or California Air Resources Board (CARB) Tier 4 Interim or Final off-road emission standards;
2. All in-water marine equipment greater than 100 horsepower shall have engines that meet or exceed U.S. EPA or CARB Tier 3 Marine Engine emission standards;
3. Any other best available technology that reduces emissions offered at the time that future projects are reviewed may be included in the construction emissions minimization plan (e.g., alternative fuel sources, etc.).

4. Exceptions to requirements 1 and 2 above may be granted if the project sponsor has submitted information providing evidence that meeting the requirement (1) is technically not feasible, (2) would not produce desired emissions reductions due to expected operating modes, or (3) there is a compelling emergency need to use equipment that to not meet the engine standards and the sponsor has submitted documentation that the requirements of this exception provision apply. In seeking an exception, the project sponsor shall demonstrate that the project will use the cleanest piece of construction equipment available and feasible and strive to meet a performance standard of average construction emissions of ROG, NO_x, PM_{2.5} below 54 lbs/day, and PM₁₀ emissions below 82 lbs/day.
5. The project sponsor shall require the idling time for off-road and on-road equipment be limited to no more than 2 minutes, except as provided in exceptions to the applicable state regulations regarding idling for off-road and on-road equipment. Legible and visible signs shall be posted in multiple languages (English, Spanish, Chinese) in designated queuing areas and at the construction site to remind operators of the 2-minute idling limit.
6. The project sponsor shall require that construction operators properly maintain and tune equipment in accordance with manufacturer specifications.
7. The construction emissions minimization plan shall include estimates of the construction timeline by phase with a description of each piece of off-road and marine equipment required for every construction phase. Off-road and marine equipment descriptions and information may include, but is not limited to, equipment type, equipment manufacturer, equipment identification number, engine model year, engine certification (Tier rating), horsepower, engine serial number, and expected fuel use and type, and hours of operation.
8. The construction emissions minimization plan shall be kept on site and available for review during working hours by any persons requesting it and a legible sign shall be posted at the perimeter of the construction site indicating to the public the basic requirements of the plan and a way to request a copy of the plan. The project sponsor shall provide copies of the construction emissions minimization plan as requested.
9. *Reporting.* Biannual reports shall be submitted to the Port Chief Harbor Engineer and Port Environmental Regulatory Compliance staff, in addition to an Environmental Planning Air Quality Specialist for review, indicating the construction phase and equipment information used during each phase including the information required in requirement 7, above.

Within six months of the completion of construction activities, the project sponsor shall submit to the Port Chief Harbor Engineer and Port Environmental Regulatory Compliance staff, in addition to an Environmental Planning Air Quality Specialist for review, a final report summarizing construction activities. The final report shall indicate the start and end dates and duration of each construction phase. For each phase, the report shall include detailed information required in requirement 7.

10. *Certification Statement and On-Site Requirements.* Prior to the commencement of construction activities, the project sponsor shall certify (1) compliance with the construction emissions minimization plan, and (2) all applicable requirements of the construction emissions minimization plan have been incorporated into contract specifications.

Mitigation Measure M-AQ-3b: Super-Compliant VOC Architectural Coatings during Construction.

The project sponsor shall use super-compliant VOC architectural coatings during construction for all interior spaces and shall include this requirement on plans submitted for review by the Port engineering division. “Super-Compliant” refers to paints that meet the more stringent regulatory limits in South Coast Air Quality Management District rule 1113, which requires a limit of 10 grams VOC per liter (<http://www.aqmd.gov/home/regulations/compliance/architectural-coatings/super-compliant-coatings>).

Significance after Mitigation: Mitigation Measure M-AQ-3a would reduce criteria air pollutant emissions associated with off-road construction equipment, including in-water equipment. Tier 4 Interim off-road engines emit 80 to 90 percent less PM and 45 percent less NO_x than Tier 2 engines; Tier 4 Final engines emit 80 percent less NO_x than Tier 4 Interim engines. Mitigation Measure M-AQ-3b would reduce ROG emissions associated with architectural coatings applied during construction. Even with implementation of these mitigation measures, it cannot be stated with certainty that mitigation would reduce construction criteria air pollutant impacts associated with all subsequent projects to less-than-significant levels. However, as discussed above, only large construction projects with substantial ground disturbance, specialty construction equipment, in-water construction equipment, or compressed and highly intensive construction schedules would be expected to exceed significance thresholds. Nevertheless, without detailed project proposals impacts from construction of subsequent projects that could occur under the Waterfront Plan would be **significant and unavoidable with mitigation**. The identification of this significant and unavoidable impact does not preclude the finding of a less-than-significant or less-than-significant-with-mitigation impact for subsequent projects that are below the applicable screening criteria or meet the criteria air pollutant thresholds of significance with or without application of Mitigation Measures M-AQ-3a and M-AQ-3b.

Impact AQ-4: The Waterfront Plan could result in operational activities that could result in a cumulatively considerable net increase in any criteria air pollutant for which the project region is in nonattainment status under an applicable federal, state, or regional ambient air quality standard. (Significant and Unavoidable with Mitigation)

Subsequent projects that could occur under the Waterfront Plan would generate vehicle trips and other operational emissions, such as emissions from landscape maintenance activities, painting, and the use of consumer products.²⁶¹ Sufficient detail about subsequent projects is not currently known to allow a quantitative analysis that could demonstrate that emissions are below significance thresholds for criteria air pollutants. As discussed under Impact AQ-4, the air district established screening criteria to determine if operational emissions from projects would result in a cumulatively considerable net increase in criteria air pollutants; the screening criteria for land uses expected in the Waterfront Plan area are shown in Table 4.E-8, p. 4.E-38. A project that exceeds the operational screening criteria would require a detailed air quality assessment to determine whether criteria air pollutant emissions would exceed significance thresholds.

Most subsequent projects are not anticipated to exceed the thresholds of significance. The majority of operational emissions from residential and commercial development are from gasoline-powered passenger vehicles, which do not emit a substantial amount of NO_x. Some VOC would be emitted from personal product

²⁶¹ Natural gas combustion would not be a source of emissions, due to the all-electric building ordinance (San Francisco Department of Building Inspection 2021, All-Electric New Construction Ordinance, <https://sfdbi.org/AllElectricNewConstructionOrdinance>, accessed October 29, 2021). Some exceptions could apply that would necessitate natural gas usage (section 106A.1.17.1), such as areas specifically designated for occupancy by a commercial food service establishment, or where electricity use is physically or technologically infeasible, as stated in the code.

and solvent use (i.e., consumer products), but these emissions typically do not exceed thresholds for small and mid-size projects. Vehicles also emit fugitive PM_{2.5} in the form of road dust, brake wear, and tire wear. Any individual project is unlikely to emit enough fugitive PM_{2.5} to exceed significance thresholds. Only the largest projects or projects with substantial diesel truck activity, such as last mile delivery or distribution center projects, would be expected to exceed the thresholds.

As discussed under Impact AQ-1, the Waterfront Plan would further a number of the Clean Air Plan Transportation Control Measures that would be expected to minimize vehicle trips. Additionally, the planning code contains requirements applicable to individual development projects that would serve to reduce vehicle trips, compared to conditions without such requirements. These include, but are not limited to, limits on permitted parking (section 151.1); pricing non-residential parking to discourage long-term parking (section 155(g)); provision of showers/lockers in new or renovated commercial projects (section 155.3) and bicycle parking in commercial and residential projects (sections 155.4 and 155.5); provision of onsite transportation brokerage services in larger office projects (section 163); provision of car-share parking (section 166); separating the cost of residential parking from the cost of a dwelling unit (section 167); payment of a Transportation Sustainability Fee (section 411A); and provision of onsite child care²⁶² in office and hotel projects (section 414). The City's TDM Program, which subsequent projects would have to comply with, seeks to promote sustainable travel modes by requiring new development projects to incorporate design features, incentives, and tools that support transit, ride-sharing, walking, and bicycling for the residents, tenants, employees, and visitors of their projects. The City's Environment Code (section 421) mandates that larger employers provide transit, transit passes, or financial incentives for transit use, which also has the potential to reduce vehicle travel. Additionally, the San Francisco General Plan and the City Charter contain numerous policy directives aimed at reducing auto trips, not the least of which is the City's Transit First Policy (section 16.102 of the Charter). However, it is not possible to precisely quantify the reduction in vehicle trips that these code provisions and policies, in combination, would attain. Furthermore, while the above requirements would serve to reduce vehicle trips and their emissions, they do not address other sources of operational criteria air pollutants that could be emitted by subsequent projects such as criteria air pollutant emissions from consumer products, landscape maintenance and painting. Thus, because subsequent projects under the Waterfront Plan could exceed the air district's screening criteria and could also exceed the significance thresholds for criteria air pollutants, subsequent projects are assumed to have the potential to result in emissions that could exceed applicable significance thresholds.

Subsequent projects would be compared to screening levels provided in Table 4.E-8, p. 4.E-38, to determine if it would exceed the screening-level sizes, and if so, a project-level analysis would be required to determine if criteria air pollutant emissions are below significance thresholds. If a subsequent project exceeds the significance thresholds, the following mitigation measures would be required to the degree necessary to avoid a significant impact.

Mitigation Measure M-AQ-4a: Educate Residential and Commercial Tenants Concerning Low-VOC Consumer Products. Prior to receipt of any building permit and every 5 years thereafter, the project sponsor shall develop electronic correspondence to be distributed by email or posted on site annually to tenants of the project that encourages the purchase of consumer products and paints that are better for the environment and generate less volatile organic compound emissions. The

²⁶² This provision may be satisfied by an in-lieu fee, which would not necessarily result in the same trip reduction benefit.

correspondence shall encourage environmentally preferable purchasing and shall include contact information and links to SF Approved (<https://www.sfapproved.org/>).

Mitigation Measure M-AQ-4b: Reduce Operational Emissions. Subsequent projects shall implement the following additional measures to reduce operational criteria air pollutant emissions:

1. For any proposed refrigerated warehouses or large (greater than 20,000 square feet) retailers, provide electrical hook-ups for diesel trucks with Transportation Refrigeration Units (TRU) at the loading docks.
2. Encourage the use of trucks equipped with TRUs that meet U.S. Environmental Protection Agency Tier 4 emission standards.
3. Prohibit TRUs from operating at loading docks for more than 30 minutes by posting signs at each loading dock presenting this TRU limit.
4. All newly constructed loading docks that are on a commercial or industrial property, and can accommodate trucks with TRUs shall be equipped with electric vehicle (EV) charging equipment for heavy-duty trucks. This measure does not apply to temporary street parking for loading or unloading.
5. Require that all future tenants have a plan to convert their vehicle fleet(s) to zero emission vehicles (ZEVs) no later than 2040. This would be a condition of all leases at the project site.
6. Prohibit trucks from idling for more than 2 minutes by posting “no idling” signs at the site entry point, at all loading locations, and throughout the project site.
7. Use super-compliant VOC architectural coatings in maintaining buildings. “Super-Compliant” refers to paints that meet the more stringent regulatory limits in South Coast Air Quality Management District rule 1113, which requires a limit of 10 grams VOC per liter (<http://www.aqmd.gov/home/regulations/compliance/architectural-coatings/super-compliant-coatings>).
8. Other measures that become available and are shown to effectively reduce criteria air pollutant emissions on site or off site if emission reductions are realized within the air basin. Measures to reduce emissions on site are preferable to off-site emissions reductions.

Mitigation Measure M-AQ-4c: Best Available Control Technology for Projects with Diesel Generators and Fire Pumps. The project applicant shall implement the following measures. These features shall be submitted to the Port Chief Harbor Engineer and Port Environmental Regulatory Compliance staff, in addition to an Environmental Planning Air Quality Specialist for review and approval, and shall be included on the project drawings submitted for the construction-related permit(s) or on other documentation submitted to the San Francisco Planning Department prior to the issuance of any building permits:

1. All diesel generators and fire pumps shall have engines that meet or exceed California Air Resources Board Tier 4 Final emission standards (California Code of Regulations title 13, section 2423).
2. Non-diesel-fueled emergency generator technology (e.g., battery technology) shall be installed if it is commercially available, subject to the review and approval of the City fire department for safety purposes, and is demonstrated to reduce criteria pollutant emissions.

3. Permanent stationary emergency diesel backup generators shall have an annual maintenance testing limit of 20 hours, subject to any further restrictions as may be imposed by Bay Area Air Quality Management District (air district) in its permitting process. Additional restrictions limiting the hours per year that generators may be tested may also be required, as determined necessary by the San Francisco Planning Department.
4. For each new diesel backup generator or fire pump permit submitted for a project, including any associated generator pads, engine specifications shall be submitted to the San Francisco Planning Department for review and approval prior to issuance of a permit for the generator or fire pump from the Port Chief Harbor Engineer. Once operational, all diesel backup generators shall be maintained in good working order for the life of the equipment and any future replacement of the diesel backup generators or fire pumps shall be required to be consistent with these emissions specifications. The operator of the facility at which the generator or fire pump is located shall maintain records of the testing schedule for each diesel backup generator and fire pump for the life of that diesel backup generator and fire pump and provide this information for review to the planning department within three months of requesting such information.

Mitigation Measure M-AQ-4d: Electric Vehicle Charging. Prior to the issuance of the building's final certificate of occupancy, the project applicant shall demonstrate that at least 15 percent of all parking spaces are equipped with electric vehicle (EV) charging equipment. The installation of all EV charging equipment shall be included on the project drawings submitted for the construction-related permit(s) or on other documentation submitted to the City.

Significance after Mitigation: Mitigation Measure M-AQ-4a would encourage tenants to reduce ROG emissions associated with area sources. Mitigation Measure M-AQ-4b would reduce criteria air pollutant emissions from a wide variety of operational emissions sources, including on-road trucks, Transportation Refrigeration Units, vehicles, and architectural coatings. Mitigation Measure M-AQ-4c would reduce criteria air pollutant emissions from generators. Mitigation Measure M-AQ-4d would reduce emissions from mobile sources by encouraging the use of electric vehicles and thereby reducing tailpipe emissions from gasoline and diesel vehicles.²⁶³ However, even with implementation of these mitigation measures, it cannot be stated with certainty that operational criteria air pollutant impacts associated with all subsequent projects would be reduced to less-than-significant levels. It is anticipated that only very large projects with substantial heavy-duty truck activity or considerable marine activity would be expected to exceed the criteria air pollutant significance thresholds. Nevertheless, due to this uncertainty, impacts from subsequent projects in the Plan area would be **significant and unavoidable with mitigation**. The identification of this significant impact does not preclude the finding of a less-than-significant impact or less-than-significant-with-mitigation impact for subsequent projects that are below the applicable screening criteria or meet the criteria air pollutant thresholds of significance with or without application of Mitigation Measures M-AQ-4a through M-AQ-4d.

²⁶³ 2019 Port of San Francisco Green Building Standards Code, Section 4.106.4: Electric Vehicle (EV) Charging for New Construction and Major Alterations, [chrome-extension://efaidnbmnnnibpcjpcglclefindmkaj/viewer.html?pdfurl=https%3A%2F%2Fsport.com%2Fsites%2Fdefault%2Ffiles%2FBusiness%2FDocs%2FPermit%2520Services%2F2019-Port-Green-Building-Code-Final.pdf&clen=374181&chunk=true](https://efaidnbmnnnibpcjpcglclefindmkaj/viewer.html?pdfurl=https%3A%2F%2Fsport.com%2Fsites%2Fdefault%2Ffiles%2FBusiness%2FDocs%2FPermit%2520Services%2F2019-Port-Green-Building-Code-Final.pdf&clen=374181&chunk=true), accessed January 13, 2022.

COMMUNITY RISK AND HAZARD IMPACTS

Impact AQ-5: The Waterfront Plan could result in emissions of fine particulate matter (PM_{2.5}) and toxic air contaminants that could expose sensitive receptors to substantial pollutant concentrations. (Significant and Unavoidable with Mitigation)

As discussed above, the City has modeled air pollution from all known sources and has identified areas with poor air quality, referred to as the APEZ. Implementation of the Waterfront Plan would not, in and of itself, result in PM_{2.5} and TAC emissions. However, it is recognized that a foreseeable outcome of plan implementation would include subsequent projects that would result in these emissions. Sources that emit TACs and PM_{2.5} are on- and off-road vehicle trips, marine vessel trips, and emergency backup generator(s). Emissions of PM_{2.5} and other TACs could affect existing residences or other sensitive receptors, the effects of which are analyzed below.

At present, the majority of the Plan area is located within the City's identified APEZ, an area where air pollutant levels exceed health protective standards. Subsequent projects under the Plan would produce TAC emissions from construction and operation.

A health risk assessment (HRA) was conducted to estimate the incremental change in cancer risks and localized PM_{2.5} concentrations that would result from the Waterfront Plan, including an evaluation of operational impacts from the increase in traffic in the Plan area, operational impacts from relocating cruise ships from Pier 35 to Pier 50, and operational impacts from potential emergency backup diesel generators.

Sufficient detail about type and location of subsequent projects are not currently known to allow a quantitative analysis of health risks at sensitive receptors resulting from construction activities. For example, construction TAC emissions from subsequent projects is based on project-specific construction information, which is unavailable at this time.²⁶⁴ Therefore, because the health risk analysis cannot reasonably account construction emissions from subsequent projects, construction health risks are evaluated programmatically.

In addition, health risk impacts depend on several factors, most of which are not known at this stage, including the proximity of receptors to the emissions source, the direction of the receptor from the emissions source (i.e., upwind or downwind), the local meteorology (i.e., predominant wind direction), local topography, and the diurnal variability of the emissions. The following sections discuss the quantitative analysis that was conducted to provide an evaluation of health risk to nearby sensitive receptors. See Appendix G for a detailed description of the methods used to conduct the HRA.

PLAN-GENERATED MOBILE AND STATIONARY SOURCE EMISSIONS

Mobile Source Emissions

Plan-generated traffic associated with subsequent projects that could occur under the Plan would expose sensitive receptors to TAC concentrations that pose health risks.

Health risks were evaluated for three of the five Plan subareas: South Beach, Mission Bay, and Southern Waterfront. The South Beach subarea was selected due to the high background risks, especially near the San

²⁶⁴ See Chapter 4, Environmental Setting, Impacts, and Mitigation Measures, and Appendix C, Land Use Assumptions, Growth Projections, and Subsequent Projects, for a more detailed description of the subsequent projects and the land use assumptions growth projections developed for the Waterfront Plan.

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Francisco-Oakland Bay Bridge, and the proximity of sensitive receptors. It was also selected because it has the roadway segment with the greatest plan-generated increase in vehicle traffic of any subarea, as modeled in the traffic analysis. The Mission Bay subarea was selected because of the large number of existing TAC sources in the area, including I-280, the Caltrain Fourth and Townsend Street station, King Street, and the Pier 50 tug and towboat terminal. Also, this subarea is directly adjacent to existing sensitive receptors in the Mission Bay neighborhood and also adjacent to potential future sensitive receptors at Mission Rock, which is currently under construction. In addition, the Mission Bay subarea is where Pier 50 is located, which is where some cruise ships and their assist tugs (a source of TACs) would relocate under the Plan. The Southern Waterfront subarea was selected because it is adjacent to the Hunter's Point and Bayview District health-vulnerable communities that already experience poor air quality due to the industrial nature of the area. It also is likely to have the greatest number of plan-generated heavy-duty diesel trucks due to the subarea's industrial uses. All three subareas are located in the APEZ.

Mobile source emissions along two roadway segments within each subarea were estimated and then input into the AERMOD air quality dispersion model to determine concentrations of DPM, total organic gases (TOG), and PM_{2.5} at all sensitive receptor locations included in the modeling domain. Receptors were modeled on a 20-by-20-meter receptor grid, consistent with the 2020 Citywide HRA conducted for the APEZ, and include all sensitive receptors within 1,000 meters of each subarea boundary. Health risks from Plan-generated traffic were then estimated for the roadway segments in the South Beach, Mission Bay, and Southern Waterfront subareas. Other modeling parameters included air district meteorological data from the air district's Mission Bay station; United States Geological Survey elevation data, vehicle emissions rates adjusted for San Francisco's variation in traffic volumes throughout the day, a source release height of 2.5 meters and a source vertical dimension of 2.3 meters, and a ground-floor receptor height (0 meters). These parameters, and all other analysis methods, are consistent with those employed in the 2020 Citywide HRA. The health risk calculations follow the 2015 OEHHA risk assessment guidelines.²⁶⁵ The results of modeled cancer risk and PM_{2.5} concentrations at the maximally exposed individual sensitive receptor (MEISR) were added to existing cancer risk and PM_{2.5} concentrations from the 2020 Citywide HRA at the MEISR.

Marine Sources

In addition, some cruise ships that currently berth at Pier 35 would berth at Pier 50 with implementation of the Plan. The ships as they maneuver into the berth, and their assist tugs, while not a new source of emissions under the Plan (cruise, tug and pilot vessels operate under existing conditions), would relocate their exhaust TAC emissions close to existing sensitive receptors near Pier 50 that were not previously exposed to these TAC emissions. In addition, cruise ships docking at Pier 50 would be able to access shoreside power and eliminate hoteling emissions that are required at Pier 35.

TAC emissions were estimated based on the number of cruise ships and assist tugs currently calling at Pier 35 that would re-route to Pier 50 with Plan implementation. For the exposure of sensitive receptors to TAC emissions associated with the relocation of the cruise ships, maneuvering emissions were estimated from the

²⁶⁵ Office of Environmental Health Hazard Assessment, *Air Toxics Hot Spots Program: Risk Assessment Guidelines: Guidance Manual for Preparation of Health Risk Assessments*, February 2015, <https://oehha.ca.gov/air/cnr/notice-adoption-air-toxics-hot-spots-program-guidance-manual-preparation-health-risk-0>, accessed July 15, 2021.

pier out to 1,000 meters, which represents the modeling domain for the HRA. The Waterfront Plan would not result in any additional cruise ships docking annually on Port property.²⁶⁶

Emergency Backup Generators

Subsequent projects in the Plan area would result in potential health risks for sensitive receptors (primarily residents) in or near the Plan area if these projects were to include stationary sources of TACs. Among these sources could be diesel-powered emergency backup generators, which are required to be installed in taller buildings (generally, those with occupiable floors above 75 feet in height, in accordance with San Francisco Building Code section 2702.2.15 [2013], adopted from the California Building Code without modification, and consistent with the Port building code).²⁶⁷ Operation of these generators could expose nearby sensitive receptors to elevated concentrations of TACs and PM_{2.5}, although it would be speculative to try to identify where these generators would be located. Instead, a proxy generator was modeled to capture local TAC emissions dispersion and potential associated health risks. The health risk assessment modeled this generator at various distances and the maximum risk and PM_{2.5} concentrations were added to those from traffic and marine sources at the MEISR. This generator was assumed to be a 1,500 kW (2,011 hp) generator with a Tier 4 Final engine.²⁶⁸ TAC emissions were estimated based on a maximum annual non-emergency operation schedule of 50 hours, consistent with emergency standby engine testing limits established in air district regulation 9-8-330.3.

Emergency backup generators would require a permit from the air district and air district permit requirements would generally reduce emissions from such sources. For example, all stationary engines greater than 37.7 kW (50 hp) require an air district permit and diesel engines must comply with a state-mandated TAC control measure for such engines, which is administered by the air district. In general, the air district will not issue a permit for a stationary diesel engine that would result in a cancer risk greater than ten in one million for the MEISR.

HEALTH RISK MODEL RESULTS

The MEISR was determined by identifying the sensitive receptor with the maximum impact from the Waterfront Plan's emissions sources for each of the three subareas. The health risk from the Waterfront Plan at all other sensitive receptor locations would be less than that reported for the MEISR. Additionally, the impacts from the Plan at each sensitive receptor were added to the background existing (2020) no plan scenario impacts to determine the total health impact at each sensitive receptor.

Results of the modeling were used to determine whether the Waterfront Plan would exceed thresholds for total excess lifetime cancer risk of seven in one million and/or PM_{2.5} concentrations of 0.2 µg/m³ at the Plan MEISRs for the three modeled subareas (all of which are located within the APEZ). As shown in **Table 4.E-9** and **Table 4.E-10**, cancer risk (under the unmitigated scenario²⁶⁹) from modeled Plan sources would increase by as much as 3.4 in 1 million for sensitive receptors that are not located in the APEZ but would be brought into the APEZ with the Plan's health risk contribution ("type 1" receptors) and by 5.4 in 1 million for sensitive receptors within the APEZ ("type 2" receptors), and the annual average PM_{2.5} concentration would increase by

²⁶⁶ See Appendix C, Land Use Assumptions and Growth Projections Memorandum, for more detail regarding the land use assumptions and growth projections anticipated for the Waterfront Plan.

²⁶⁷ Although the only subsequent project under the Waterfront Plan that could exceed 75 feet in height would occur on Seawall Lot 330 (located in the South Beach subarea), for purposes of a conservative analysis, a generator was modeled for the Mission Bay and Southern Waterfront subareas as well.

²⁶⁸ Bay Area Air Quality Management District requires emergency backup generator permit applicants to achieve EPA Tier 4 emissions standards as Best Available Control Technology, <https://www.baaqmd.gov/permits/apply-for-a-permit/engine-permits>, accessed on September 13, 2021.

²⁶⁹ The unmitigated scenario evaluated health risks associated with operation of Plan-level traffic, marine vessels, and emergency generators without any controls.

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up to 0.08 µg/m³ for type 1 receptors and by 0.21 µg/m³ for type 2 receptors. These levels would not exceed the significance thresholds of an increased cancer risk of 10.0 per 1 million people exposed for type 1 receptors, an increased cancer risk of 7.0 per 1 million people exposed for type 2 receptors, and an annual average PM_{2.5} concentration of 0.3 µg/m³ for type 1 receptors. However, these levels would exceed the significance threshold of annual average PM_{2.5} concentrations of 0.2 µg/m³ for type 2 receptors, as identified in Table 4.E-10. Therefore, the Waterfront Plan would result in significant impacts related to exposure of sensitive receptors to substantial levels of TACs. Note that the modeling does not account for emissions from construction of subsequent projects because those emissions are based on detailed project-specific information, which is not known at this time. Refer to “Health Risks from Subsequent Projects,” below, for a programmatic analysis of construction health risks.

Table 4.E-9 Lifetime Excess Cancer Risk and Annual Average PM_{2.5} Concentrations – Receptors Not Located in the APEZ but Would Be Located in the APEZ with Plan Implementation (Type 1)

Subarea/Scenario/ Receptor Type	South Beach Subarea		Mission Bay Subarea		Southern Waterfront Subarea	
	Lifetime Excess Cancer Risk (chances per million) ^a	Annual Average PM _{2.5} Concentrations (µg/m ³) ^a	Lifetime Excess Cancer Risk (chances per million) ^a	Annual Average PM _{2.5} Concentrations (µg/m ³) ^a	Lifetime Excess Cancer Risk (chances per million) ^a	Annual Average PM _{2.5} Concentrations (µg/m ³) ^a
Receptor Location ^b (UTM X, UTM Y)	(553900, 4180680)	(553900, 4180680)	(553900, 4180700)	(553880, 4179720)	(553540, 4176920)	(553540, 4176920)
Mobile Sources ^c	<0.01	<0.01	0.46	0.08	0.02	<0.01
Marine Vessels ^c	—	—	1.89	<0.01	—	—
Generator ^c	1.04	<0.01	1.04	<0.01	1.04	<0.01
Plan Total at MEISR not in APEZ (2030)	1.04	0.001	3.40	0.08	1.0	0.002
Existing (2020)	99.15	8.78	98.8	9.21	81.3	9.00
Existing + Plan ^d	100.2	8.78	102.2	9.30	82.4	9.00
THRESHOLDS FOR PLAN CONTRIBUTION						
Significance Threshold	10	0.3	10	0.3	10	0.3
Threshold Exceeded?	No	No	No	No	No	No

SOURCE: ESA 2021; see Appendix G.

ABBREVIATIONS:

PM_{2.5} = fine particulate matter less than 2.5 micrometers in aerodynamic diameter; µg/m³ = micrograms per cubic meters; UTM = Universal Transverse Mercator; UTM X = eastward-measured distance; UTM Y = northward-measured distance; MEISR = maximally exposed individual sensitive receptor.

NOTES:

^a **Bold** values = threshold exceedance.

^b MEISR.

^c Categories defined as follows:

Mobile Sources = Operational emission from Plan-generated traffic. Emissions were modeled using EMFAC2021.

Generators = Operational emissions from emergency diesel generators. Emissions were modeled using U.S. EPA Tier 4 final standards.

Marine Vessels = Operational emissions from cruise ship maneuvering within 1,000 meters of Pier 50 and assist tug operations. TACs from TOG are not included in the HRA because DPM emissions represent the majority of cancer risk associated with diesel engines. Emissions were modeled using methods from the 2017 Emissions Inventory developed for the Port of San Francisco.

^d Existing + Plan and/or Cumulative Total risk may not appear to add due to rounding.

Table 4.E-10 Lifetime Excess Cancer Risk and Annual Average PM_{2.5} Concentrations – Receptors Located in the APEZ (Type 2)

Subarea/Scenario/ Receptor Type	South Beach Subarea ^a		Mission Bay Subarea		Southern Waterfront Subarea	
	Lifetime Excess Cancer Risk (chances per million) ^b	Annual Average PM _{2.5} Concentrations (µg/m ³) ^b	Lifetime Excess Cancer Risk (chances per million) ^b	Annual Average PM _{2.5} Concentrations (µg/m ³) ^b	Lifetime Excess Cancer Risk (chances per million) ^b	Annual Average PM _{2.5} Concentrations (µg/m ³) ^b
Receptor Location ^c (UTM X, UTM Y)	(553860, 4182360)	(553860, 4182360)	(553780, 4180620)	(553780, 4180620)	(553880, 4177360)	(553880, 4177360)
Mobile Sources ^d	3.04	0.21	2.80	0.20	0.17	0.01
Marine Vessels ^d	—	—	1.58	<0.01	—	—
Generator ^d	1.04	<0.01	1.04	<0.01	1.04	<0.01
Plan Total at MEISR in APEZ (2030)	4.1	0.21	5.4	0.20	1.2	0.01
Existing (2020)	316.7	12.80	140.3	9.42	135.4	10.23
Existing + Plan ^e	320.8	13.01	145.8	9.62	136.6	10.24
THRESHOLDS FOR PLAN CONTRIBUTION						
Significance Threshold	7	0.2	7	0.2	7	0.2
Threshold Exceeded?	No	Yes	No	Yes	No	No

SOURCE: ESA 2021; see Appendix G.

ABBREVIATIONS:

PM_{2.5} = fine particulate matter less than 2.5 micrometers in aerodynamic diameter; µg/m³ = micrograms per cubic meters; UTM = Universal Transverse Mercator; UTM X = eastward-measured distance; UTM Y = northward-measured distance; MEISR = maximally exposed individual sensitive receptor

NOTES:

- ^a South Beach Subarea MEISR is located on a subsequent project site where a residential development could be constructed pursuant to the Plan (Seawall Lot 330). Given that this site is located in the APEZ, any new residential development would need to have MERV 13 air filtration, which would reduce PM exposure to building occupants by approximately 60 percent. Thus, the MEISR in this location is not likely to experience PM_{2.5} concentrations from the plan that exceed 0.2 µg/m³.
- ^b **Bold** values = threshold exceedance.
- ^c MEISR. Bold values indicate a significant impact.
- ^d Categories defined as follows:
Mobile Sources = Operational emission from Plan-generated traffic. Emissions were modeled using EMFAC2021.
Generators = Operational emissions from emergency diesel generators. Emissions were modeled using U.S. EPA Tier 4 final standards.
Marine Vessels = Operational emissions from cruise ship maneuvering within 1,000 meters of Pier 50 and assist tug operations. TACs from TOG are not included in the HRA because DPM emissions represent the majority of cancer risk associated with diesel engines. Emissions were modeled using methods from the 2017 Emissions Inventory developed for the Port of San Francisco.
- ^e Existing + Plan and/or Cumulative Total risk may not appear to add due to rounding.

With respect to mobile-source emissions, the City’s requirement for subsequent projects to prepare TDM plans would reduce vehicle emissions by reducing the number of vehicle trips. For subsequent projects within the Plan area, TDM plans would require a project TDM coordinator to be identified; transportation and trip planning information to be provided to building occupants; and components that encourage bicycling, car sharing, and transit; reduce vehicular parking; allow City access for data collection; and monitor the TDM program. In addition, the planning code contains requirements applicable to individual development projects

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that would serve to reduce vehicle trips, compared to conditions without such requirements. San Francisco Environment Code section 421 mandates that larger employers provide transit, transit passes, or financial incentives for transit use, which also has the potential to reduce vehicle travel. Additionally, the San Francisco General Plan and the City Charter contain numerous policy directives aimed at reducing auto trips, not the least of which is the City's Transit First Policy (section 16.102 of the charter). However, the efficacy of these requirements to reduce tailpipe emissions cannot be quantified because the degree to which these measures would reduce the number of vehicle trips, as well as the resulting tailpipe emissions, is uncertain. Furthermore, vehicle emissions are regulated at the state and federal level, and local governments do not have the authority to establish vehicle emissions standards and regulations.

The Plan includes a number of strategies to reduce single-occupancy vehicle trips and encourage alternative transportation modes, and the analysis does not account for these strategies or the above TDM requirements. Therefore, traffic-related PM_{2.5} emissions would likely be lower and continue to be reduced as the City reaches its sustainable mode share goals of 80 percent low carbon trips under Roots 0-80-100.²⁷⁰ Plan policies that support this include the following:

1. Coordinating with SFMTA to develop and enhance sustainable and reliable goods movement and industrial transportation access within the city and to Port facilities, including designation and management of curb zones for loading and access (Policies 23–30).
2. Reducing parking demand and manage parking supply to improve use of pedestrian, bicycle, and transit modes; safety; neighborhood and business vitality; reduce vehicle miles traveled and associated air quality impacts; manage parking spaces for shared use and priority for electric vehicles (Policies 31, 39);
3. Limiting or prohibiting net new automobile parking spaces, residential parking permits, and bundling of parking in Port leases (Policies 34, 37, 38);
4. Working with SFMTA to develop transportation improvements and implementation timeframes for Port tenant operations and projects consistent with the City's Climate Action Plan to work toward a goal of achieving 80 percent of trips by non-driving modes by 2030 (Policy 44);
5. Developing and implementing Port-wide and subarea Transportation Demand Management plans (Policy 46);
6. Reducing environmental health risks from Port operations (Policy 6).
7. Coordinate with the SFMTA on plans to develop, maintain, and enhance the sustainable and reliable movement of goods within and through the city, including safe and efficient truck and freight rail access to Port facilities on The Embarcadero, Terry A. Francois Boulevard, Third Street, Illinois Street, Cargo Way, and Cesar Chavez Street.
8. Recognize the importance of the freight network to the city's economic health and disaster recovery when making decisions that affect major truck routes and the region's roadway system.

With implementation of the Plan, the PM_{2.5} emissions would likely be reduced to levels below 0.2 µg/m³; however, because the analysis doesn't account for construction emissions, health risks are likely to remain significant.

²⁷⁰ San Francisco Climate Action: 0-80-100-Roots is San Francisco's climate action framework, <https://sfenvironment.org/sfclimateaction>, accessed September 13, 2021.

Health Risks from Subsequent Projects

Given the lack of project-specific information regarding the specific size and location of subsequent projects, much less the construction phasing, equipment, and number of employees associated with subsequent projects that could occur under the Waterfront Plan, construction emissions from subsequent projects were not modeled as part of this analysis. However, construction of subsequent projects could result in TAC emissions and health risks. To disclose potential health risk impacts from construction activities, projects with completed health risk analyses are presented as examples in **Table 4.E-11**. It is noted that the majority of subsequent projects would be smaller in scale than the examples provided herein and that health risks are highly dependent on the distance between the emissions source and sensitive receptors.

Table 4.E-11 Health Risk Impacts of Example Projects

No.	Project Description	Unmitigated Construction Health Risk at MEISR		Mitigated Construction Health Risk at MEISR ^a	
		Lifetime Excess Cancer Risk (chances per million)	Annual Average PM _{2.5} Concentrations (µg/m ³)	Lifetime Excess Cancer Risk (chances per million)	Annual Average PM _{2.5} Concentrations (µg/m ³)
1	Demolition of 109,000 square feet of existing facility and construction of new 1.3-million-gross-square-foot residential, commercial, and transit facility ²⁷¹	17.8	0.05	6.3	0.02
2	Demolition of 143,500 square feet of existing buildings and construction of 2.4 million square feet of office, retail, and vendor space ²⁷²	65.8	1.1	5.4	<0.1

SOURCES: 1. San Francisco Planning Department, *Potrero Yard Modernization Project Draft Environmental Impact Report*, State Clearinghouse Number 2020089022, 2019, https://sfplanning.org/environmental-review-documents?title=potrero+yard+modernization+project&field_environmental_review_categ_target_id=All&items_per_page=10, accessed September 14, 2021;
2. San Francisco Environmental Planning Department, *Initial Study – Community Plan Evaluation Checklist Addendum to Environmental Impact Report*, Case Number 2015-004256ENV, 2019, https://sfplanning.org/environmental-review-documents?title=flower+mart&field_environmental_review_categ_target_id=All&items_per_page=10, accessed September 14, 2021

ABBREVIATIONS:

PM_{2.5} = fine particulate matter less than 2.5 micrometers in aerodynamic diameter; µg/m³ = micrograms per cubic meters; MEISR = maximally exposed individual sensitive receptor

NOTES:

^a Mitigated health risks include implementation of Tier 4 off-road construction equipment and electric equipment for smaller equipment pieces.

As shown in Table 4.E-11, subsequent projects that require substantial construction activities are likely to result in a significant impact because they may exceed a cancer risk of 7.0 per million and/or PM_{2.5} concentrations above 0.2 µg/m³ (for sensitive receptors located in the APEZ), resulting in a significant impact.

²⁷¹ San Francisco Planning Department, 2019, Potrero Yard Modernization Project Draft Environmental Impact Report. State Clearinghouse Number 2020089022, https://sfplanning.org/environmental-review-documents?title=potrero+yard+modernization+project&field_environmental_review_categ_target_id=All&items_per_page=10, accessed September 14, 2021.

²⁷² San Francisco Environmental Planning Department, 2019, Initial Study – Community Plan Evaluation Checklist Addendum to Environmental Impact Report. Case number 2015-004256ENV, https://sfplanning.org/environmental-review-documents?title=flower+mart&field_environmental_review_categ_target_id=All&items_per_page=10, accessed September 14, 2021.

Because the specific characteristics of each subsequent project and the required construction equipment information (year and duration of construction, equipment type, operating hours, horsepower, etc.) are not known, subsequent projects would be required to undergo a project-level assessment at the time the project is proposed. The project-level assessment could include an evaluation of the project's construction and operational characteristics, a comparison of the project with other projects where a quantitative analysis has been conducted, or a project-specific health risk assessment to determine whether the project exceeds health risk thresholds. Should it be determined that a subsequent project would exceed health risk thresholds, implementation of Mitigation Measures M-AQ-3a, M-AQ-4b, M-AQ-4c, M-AQ-4d could be required. In addition, M-AQ-5a, M-AQ-5b, and M-AQ-5c, could be required to further reduce operational-related health risks to the degree necessary to avoid a significant health risk impact (e.g., if use of Tier 4 equipment avoids a significant impact additional measures would not be required).

With application of mitigation measures during construction and operations, subsequent projects (including ones that require substantial construction and operational activities) are likely to result in health risks that can be mitigated to less-than-significant levels. However, it cannot be stated with certainty that mitigation would reduce health risk impacts associated with all potential subsequent projects to less-than-significant levels. Due to this uncertainty, health risk impacts from subsequent projects in the Plan area would be **significant and unavoidable with mitigation**. The identification of this significant impact does not preclude the finding of a less-than-significant impact or less-than-significant-with-mitigation impact for subsequent projects with application of Mitigation Measures M-AQ-3a, M-AQ-4b, M-AQ-4c, M-AQ-4d, M-AQ-5a, M-AQ-5b, and M-AQ-5c.

Mitigation Measure M-AQ-5a: Design Land Use Buffers around Active Loading Docks. For subsequent projects that include newly constructed loading docks that are on a commercial or industrial property, especially in the Pier 94 Backlands in the Southern Waterfront subarea, that would be expected to accommodate more than 100 trucks per day (or 40 transportation refrigeration trucks per day), locate truck activity areas, including loading docks and delivery areas, as far away from sensitive receptors (such as residences, child care, or medical facilities) as feasible.

Mitigation Measure M-AQ-5b: Reduce Exposure to Toxic Air Contaminants. The project applicant shall incorporate the following health risk reduction measures into the project design, as feasible. These features shall be included on the project drawings submitted for the construction-related permit(s) or on other documentation submitted to the City:

- Plant trees and/or vegetation between sensitive receptors and the project's operational source(s) of TACs, if feasible. In addition, plant trees and/or vegetation between sensitive receptors and existing sources of toxic air contaminants, if feasible. Locally native trees that provide suitable trapping of particulate matter are preferred (redwood, deodar cedar, oak, and oleander).²⁷³

Mitigation Measure M-AQ-5c: Implement a Truck Route Plan. For subsequent projects that include construction of loading docks on a commercial or industrial property and that are found to result in significant health risk impacts, the project sponsor shall develop a Truck Route Plan that establishes operational truck routes to avoid sensitive receptors as identified in the environmental review analysis completed for the project. The purpose of the Truck Route Plan is to route trucks on streets that are located as far from offsite sensitive receptors as possible, while still maintaining the operational goals of the project. The Truck Route Plan must include route restrictions, truck calming,

²⁷³ Bay Area Air Quality Management District, *California Environmental Quality Act Air Quality Guidelines*, May 2017. Page 5-17.

truck parking, and truck delivery restrictions to minimize exposure of nearby sensitive receptors to truck exhaust and fugitive particulate emissions.

Prior to the commencement of operational activities, the project sponsor shall certify (1) compliance with the Truck Route Plan, and (2) all applicable requirements of the Truck Route Plan have been incorporated into tenant contract specifications.

EXPOSURE OF NEW SENSITIVE RECEPTORS

The City's APEZ is established based on emissions from all known sources of TACs and PM_{2.5}, including both mobile and stationary sources. As discussed under Section 4.E.3, Regulatory Framework, health code article 38 protects new sensitive land uses from sources of air pollution by requiring that within the APEZ, these uses incorporate enhanced ventilation systems, including MERV 13 filtration, into building design and construction. MERV 13 air filtration is capable of removing 80 percent of particulate matter, thereby reducing an individual's exposure to air pollution (ASHRAE Standard 52.2; AHRI Standard 680). For projects proposing new sensitive land uses, most locations in the Plan area are within the APEZ and would be required to install the enhanced filtration required by health code article 38 and the Title 24 Building Code.²⁷⁴ As discussed in the Regulatory Framework, article 38 requires the public health department to update the APEZ map at least every 5 years. Therefore, as the Plan is built out over time updated mapping would capture new sources of emissions, including emissions generated by the Plan, and would identify additional areas that require enhanced ventilation. Therefore, through regular updating of the APEZ map, as required by article 38, the Plan's health risk impact on new sensitive receptors from sources modeled would be reduced to less-than-significant levels.

Significance after Mitigation: Mitigation Measure M-AQ-3a, which is discussed under Impact AQ-3, would reduce emissions of PM_{2.5} and TACs associated with construction equipment. Mitigation Measures M-AQ-4b, M-AQ-4c, and M-AQ-5b would reduce emissions of PM_{2.5} and other TACs from new operational emission sources such as TRUs and emergency generators. As noted under Section 4.E.3, Regulatory Framework, Tier 4 Final engines emit approximately 85 percent fewer particulate emissions (such as DPM and PM_{2.5}) emissions than Tier 2 engines. Mitigation Measures M-AQ-4d, M-AQ-5a, and M-AQ-5b would reduce emissions of PM_{2.5} and TACs from operational mobile sources and reduce exposure of sensitive receptors to new project TAC emissions. Mitigation Measures M-AQ-5a, M-AQ-5b, and M-AQ-5c also would protect sensitive land uses from emissions associated with truck activity areas, thereby reducing exposure of sensitive land uses from Plan-generated traffic emissions. However, it cannot be stated with certainty that these mitigation measures would reduce exposure of sensitive receptors to less-than-significant health risk levels given that project-specific health risks are highly dependent on the specific characteristics of the project and its surroundings, such as local terrain and meteorology, TAC emission release parameters, nearby building downwash, sensitive receptor proximity, and the specific effectiveness of the mitigation measures on a project's TAC emissions, among other factors. Therefore, this impact is considered **significant and unavoidable with mitigation**. The identification of this significant impact does not preclude the finding of a less-than-significant impact or less-than-significant-with-mitigation impact for subsequent projects that meet the applicable health risk thresholds of significance with application of Mitigation Measures M-AQ-5a, M-AQ-5b, and M-AQ-5c.

²⁷⁴ The California Building Energy Efficiency Standards (Title 24) for air filtration, in effect as of January 1, 2020, requires newly constructed low-rise residential buildings to include air filtration systems equal to or greater than MERV 13 (ASHRAE Standard 52.2), or a particle size efficiency rating equal to or greater than 50 percent in the 0.30–1.0 µm range and equal to or greater than 85 percent in the 1.0–3.0 µm range (AHRI Standard 680). See section 150.0(m)(12).

OTHER EMISSIONS AND ODORS

Impact AQ-6: The Waterfront Plan would not result in other emissions (such as those leading to odors) adversely affecting a substantial number of people. (*Less than Significant*)

PDR uses that could occur in the Southern Waterfront subarea with implementation of the Waterfront Plan could include manufacturing of products that have odors, but these are not expected to be offensive. Some people may find odors from restaurants objectionable at times, although restaurants are unlikely to generate a substantial number of complaints. In addition, air district Regulation 7 places general limitations on odorous substances and specific emission limitations on certain odorous compounds. The Plan does not include zoning changes that would encourage new sources that typically generate odors such as wastewater treatment and pumping facilities; landfills, transfer stations, and composting facilities; petroleum refineries, asphalt batch plants, chemical (including fiberglass) manufacturing, and metal smelters; painting and coating operations; rendering plants; coffee roasters and food processing facilities. Given the limited number of land uses in the Plan area that would likely be associated with odorous emissions, and given that few, if any, major new odor sources are likely to be developed in the Plan area with implementation of the Waterfront Plan, odor impacts would be ***less than significant***, and no mitigation is required.

CUMULATIVE IMPACTS

The air basin is a nonattainment area for both the federal and state ozone standards; therefore, an air quality impact already exists. Additional emissions of ozone precursors NO_x or ROG over threshold amounts would further degrade air quality related to ozone. Impact AQ-2 evaluates whether the Waterfront Plan's contribution to this significant impact would be considerable. In addition, the air district's project-level criteria air pollutant thresholds are based on levels below which new sources would not result in a cumulatively considerable net increase in criteria air pollutants for which the region is in nonattainment. The potential for subsequent projects under the Waterfront Plan area to result in significant criteria air pollutant emissions, and therefore a cumulatively considerable contribution to non-attainment criteria pollutants, is addressed under Impact AQ-3 and AQ-4. Therefore, no separate cumulative criteria air pollutant analysis is required.

Impact C-AQ-1: The Waterfront Plan, in combination with cumulative projects, could result in exposure of sensitive receptors to substantial levels of fine particulate matter (PM_{2.5}) and toxic air contaminants under cumulative conditions. (*Significant and Unavoidable with Mitigation*)

As discussed under Impact AQ-5, the Waterfront Plan would result in construction emissions, traffic emissions, marine vessel emissions, and emissions from stationary sources that would have a significant impact on sensitive receptors. Within the APEZ, these emissions would contribute considerably to existing significant health risk impacts within the Plan area and vicinity. Therefore, the Plan would result in a significant cumulative health risk impact with respect to PM_{2.5} and TAC emissions.

Health risk impacts are localized and TAC concentrations typically decrease substantially or can even be indistinguishable from upwind background concentrations beyond approximately 1,000 feet from the emissions source. The air district refers to this distance as the zone of influence.²⁷⁵ Therefore, the geographic

²⁷⁵ Bay Area Air Quality Management District, Recommended Methods for Screening and Modeling Local Risks and Hazards, 2012, [https://www.baaqmd.gov/~media/files/planning-and-research/ceqa/risk-modeling-approach-may-2012.pdf?la=en&rev=3ed5e81662784057941d97b851900d19](https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/risk-modeling-approach-may-2012.pdf?la=en&rev=3ed5e81662784057941d97b851900d19), accessed September 14, 2021.

context for cumulative health risk effects is evaluated considering cumulative projects within 1,000 feet of the Plan MEISR.

Cumulative projects also would contribute to exposure of TAC and PM_{2.5} emissions to sensitive receptors within and near the Plan area, increasing the total health risks at the MEISR locations. These projects include the TZK Broadway and Teatro Zinzanni project, Pier 70 Mixed-Use District Project (Pier 70 project), the Seawall Lot 337 and Pier 48 Mixed-Use Project (Mission Rock), and the Potrero Power Station Mixed-Use Development Project (Potrero Power Station project), the Port of San Francisco's Waterfront Resilience Program, the San Francisco Housing Element Update, and the Better Market Street Project.

A Mitigated Negative Declaration was prepared for the TZK Broadway and Teatro Zinzanni project, which did not calculate health risks. The Better Market Street Project quantified health risks, but that project's MEISR (Octavia and Market streets) is approximately 3,000 meters from the Mission Bay MEISR identified for the Waterfront Plan, so risk associated with construction and operations of the Better Market Street Project would be negligible and was not included in the quantitative cumulative risk assessment. Neither the Waterfront Resilience Program nor the San Francisco Housing Element Update have completed their environmental review. Because of the lack of available emissions data for these nearby projects, cumulative health risks were not evaluated quantitatively. Nevertheless, these projects would emit PM_{2.5} and TAC emissions in an area that already has elevated health risk levels. Emissions would result from construction equipment, operational traffic, truck-related sources such as TRUs, and emergency generators where required. This would contribute to existing PM_{2.5} and cancer risks at receptors within approximately 1,000 feet of the emissions source associated with these projects.

Health risk values from three nearby cumulative projects were obtained from their CEQA documents and added to the existing and Plan risk values. These projects include the Mission Rock, Pier 70, and Potrero Power Station projects. The results of the cumulative HRA indicate that total health risks would increase when cumulative projects are taken into consideration. **Table 4.E-12** shows the cumulative health risks for the MEISR in each subarea analyzed for the Plan. However, like the existing plus project HRA (see Impact AQ-5 and Table 4.E-8, p. 4.E-38), the cumulative HRA does not account for construction emissions associated with Plan buildout, so the health risks reported in Table 4.E-11, p. 4.E-51, are likely lower than what would actually occur as a result of Plan implementation because they don't account for the contribution from construction emissions.

Additionally, background (without Plan) cancer risk and PM_{2.5} concentrations in 2050 are expected to decrease due to improved vehicle fleets and the electrification of Caltrain. Additionally, any backup diesel generators or other stationary sources that may be proposed by cumulative projects would need to meet current air district permit requirements; therefore, emissions from these sources would be limited.

The cumulative analysis assumes full build out of the Plan traffic, so additional Plan traffic is not anticipated beyond that analyzed for this HRA. The contribution of Plan traffic emissions to cumulative 2050 health risks would likely decrease in the future (as would the contribution of all traffic emissions) because new regulations would require lower emitting vehicles, and vehicle fleet turnover would result in lower emissions because older, dirtier vehicles would be retired from the fleet. Similarly, with the turnover in construction equipment to newer, cleaner equipment, the contribution of off-road equipment to health risks would likely decrease.

Table 4.E-12 Lifetime Excess Plan and Cumulative Cancer Risk and Annual Average PM_{2.5} Concentrations – Receptors Located in the APEZ

Subarea/Scenario/ Receptor Type	South Beach Subarea ^a		Mission Bay Subarea		Southern Waterfront Subarea	
	Lifetime Excess Cancer Risk (chances per million)	Annual Average PM _{2.5} Concentrations (µg/m ³)	Lifetime Excess Cancer Risk (chances per million)	Annual Average PM _{2.5} Concentrations (µg/m ³)	Lifetime Excess Cancer Risk (chances per million)	Annual Average PM _{2.5} Concentrations (µg/m ³)
Receptor Location ^b (UTM X, UTM Y)	(553860, 4182360)	(553860, 4182360)	(553780, 4180620)	(553780, 4180620)	(553880, 4177360)	(553880, 4177360)
Mobile Sources ^c	3.04	0.21	2.80	0.20	0.17	0.01
Marine Vessels ^c	—	—	1.58	<0.01	—	—
Generator ^c	1.04	<0.01	1.04	<0.01	1.04	<0.01
Plan Total at MEISR in APEZ (2030)	4.1	0.21	5.4	0.20	1.2	0.01
Existing (2020)	316.7	12.80	140.3	9.42	135.4	10.23
Existing + Plan ^d	320.8	13.01	145.8	9.62	136.6	10.24
CUMULATIVE PROJECTS FOR WHICH QUANTITATIVE INFORMATION IS AVAILABLE						
Mission Rock	<0.1	<0.01	2.1	0.05	<0.1	<0.01
Pier 70	<0.1	<0.01	<0.1	<0.01	<0.1	<0.01
Potrero Power Station	<0.1	<0.01	<0.1	<0.01	<0.1	<0.01
Cumulative Total ^d	320.8	13.01	147.9	9.68	136.6	10.24
THRESHOLDS FOR PLAN CONTRIBUTION						
Significance Threshold	7	0.2	7	0.2	7	0.2
Threshold Exceeded?	No	Yes	No	Yes	No	No

SOURCE: ESA 2021.

ABBREVIATIONS:

PM_{2.5} = fine particulate matter less than 2.5 micrometers in aerodynamic diameter; µg/m³ = micrograms per cubic meters; UTM = Universal Transverse Mercator; UTM X = eastward-measured distance; UTM Y = northward-measured distance; MEISR = maximally exposed individual sensitive receptor

NOTES:

^a South Beach Subarea MEISR is at a proposed residential development that is part of the plan (Seawall Lot 330)

^b Bold values = threshold exceedance.

^c MEISR.

^d Categories defined as follows:

Mobile Sources = Operational emission from Plan-generated traffic. Refer to Table 1, p. 6, for activity assumptions and Table 2, p. 7, for emission factors. Emissions were modeled using EMFAC2021.

Generators = Operational emissions from emergency diesel generators. Refer to Table 3, p. 8, for activity assumptions and Table 4, p. 9, for emission factors. Emissions were modeled using U.S. EPA Tier 4 final standards.

Marine Vessels = Operational emissions from cruise ship maneuvering within 1,000 meters of Pier 50 and assist tug operations. TACs from TOG are not included in the HRA because DPM emissions represent the majority of cancer risk associated with diesel engines. Refer to Table 4 and Table 5, p. 10, for activity assumptions and Table 6, Table 7, and Table 8, pp. 12 to 13, for emission factors. Emissions were modeled using methods from the 2017 Emissions Inventory developed for the Port of San Francisco.

^e Existing + Plan and/or Cumulative Total risk may not appear to add due to rounding.

Nevertheless, the plan's overall contribution to cumulative health risks would not change when compared to the existing plus plan analysis provided in Impact AQ-5. As discussed in Impact AQ-5, within the APEZ, Plan-generated traffic, marine sources, and generators would increase excess cancer risk by up to 5.4 in one million (less than seven per one million persons exposed) at the Mission Bay subarea MEISR, which is less than the significance threshold of 7.0 in one million. However, annual average PM_{2.5} concentrations would increase by up to 0.20 µg/m³ at the Mission Bay subarea MEISR and 0.21 µg/m³ at the South Beach subarea MEISR. As discussed under Section 4.E.4's Approach to Analysis, p. 4.E-22, an increased PM_{2.5} concentration greater than 0.2 µg/m³ within the APEZ would be a significant impact. When accounting construction activities associated with subsequent projects, health risk impacts would be even greater, likely exceeding the cancer risk thresholds. Therefore, the Plan would significantly affect both the geography and severity of the air pollutant exposure zone within and adjacent to the Plan area under cumulative conditions, resulting in a considerable contribution to cumulative health risk impacts.

For these reasons, the following mitigation measures would be required for subsequent projects that could occur under the Waterfront Plan that are determined to result in a significant cumulative health risk impact: Mitigation Measures M-AQ-3a, M-AQ-4b through M-AQ-4d, and M-AQ-5a through M-AQ-5c.

Significance after Mitigation: As discussed under Impact AQ-5, these mitigation measures would reduce TAC and PM_{2.5} emissions associated with construction and operation of subsequent projects under the Plan and also would reduce exposure of sensitive receptors to Plan-generated TAC emissions. Even with implementation of Mitigation Measures M-AQ-3a, M-AQ-4b through M-AQ-4d, M-AQ-5a, M-AQ-5b, and M-AQ-5c, it cannot be determined with certainty that the mitigation measures would avoid significant cumulative impacts related to all subsequent projects that could occur under the Waterfront Plan, and therefore this impact would be **significant and unavoidable with mitigation**. However, the identification of this significant impact does not preclude the finding of less-than-significant cumulative impacts for subsequent projects that would not result in a considerable contribution to cumulative health risks or a less-than-significant-with-mitigation impact for subsequent projects that meet the applicable health risk thresholds of significance with application of Mitigation Measures M-AQ-3a, M-AQ-4b through M-AQ-4d, and M-AQ-5a through M-AQ-5c.

Impact C-AQ-2: The Waterfront Plan, in combination with cumulative projects, would not combine with other sources of odors that would adversely affect a substantial number of people. (Less than Significant)

Impact AQ-6 describes the potential of odorous emissions from the Waterfront Plan. Section 4.E.2 identifies sources of odors in the vicinity of the Plan area, including a tallow processing plant and wastewater treatment plant and pump stations, which are the type listed in air board district Regulation 7. However, the Plan itself would not add any new sources of odors, hence the potential for the Plan to combine with cumulative projects to result in a significant cumulative odor impact is limited. Therefore, this impact would be **less than significant**.

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4.F Biological Resources

4.F.1 Introduction

This section describes the existing environmental setting for terrestrial and marine biological resources that occur or have the potential to occur in the Plan area or in the immediate vicinity. Regulations and guidelines relevant to biological resources are also discussed, followed by an impacts analysis that evaluates the potential effects on biological resources from the subsequent lease, development, and improvement projects (subsequent projects) that could occur with adoption and implementation of the Waterfront Plan. Mitigation measures that would avoid or reduce impacts to less-than-significant levels are also identified.

4.F.2 Environmental Setting

REGIONAL SETTING

The Plan area is located in the San Francisco Bay Area-Delta region, which hosts a diverse variety of natural communities. The climate is Mediterranean in nature, with relatively mild, wet winters and warm, dry summers. San Francisco Bay is the second largest estuary in the United States and supports numerous marine habitats and biological communities. It encompasses 479 square miles, including shallow mudflats. San Francisco Bay is divided into four main basins: San Pablo or North Bay, Suisun Bay, Central Bay, and South Bay. This analysis focuses on the southernmost portion of the Central Bay basin where the Waterfront Plan is located. For the purposes of this CEQA analysis, the geographic boundaries for the Central Bay basin are between the Richmond-San Rafael Bridge and the San Bruno Shoal, located 11.5 miles south of the San Francisco-Oakland Bay Bridge, and connect to the Pacific Ocean through the Golden Gate. The regional setting for purposes of evaluating marine biological resources includes both the shoreline intertidal habitats and the shallow water habitats—the “baylands” and the deeper waters of San Francisco Bay itself that are located in the southernmost area of the Central Bay basin. The marine biota found in the Central Bay basin includes invertebrate infauna and mobile epifauna that inhabit San Francisco Bay sediments; sessile and encrusting invertebrates and marine vegetation on natural and human-made hard substrates; and planktonic organisms, fish, marine mammals, and marine birds that inhabit or use the open waters of San Francisco Bay. These habitats and their associated biological communities are described below in more detail.

WATERFRONT PLAN AREA SETTING

Although the eastern edge of the San Francisco waterfront is primarily developed, limited areas of landscape plantings (e.g., parks), California annual grassland, ruderal vegetation, tidal marshes, coastal scrub, beaches and dunes are present. The shoreline and adjacent San Francisco Bay waters comprising the marine resources study area have been extensively modified from their prior natural condition; however, they remain ecologically productive habitats.

TERRESTRIAL VEGETATION COMMUNITIES AND ASSOCIATED WILDLIFE HABITATS

A vegetation community is a recognizable collection of plant species that interact with each other and the elements of their environment, and are distinct from adjacent vegetation communities.²⁷⁶ The terrestrial plant community classification presented in this assessment is based on a review of aerial imagery and the

²⁷⁶ Holland, R.F., *Preliminary Descriptions of the Terrestrial Natural Communities of California*, California Department of Fish and Game, 1986.

Preliminary Descriptions of the Terrestrial Natural Communities of California.²⁷⁷ Plant communities generally correlate with wildlife habitat types. Wildlife habitats are typically classified and evaluated using *A Guide to Wildlife Habitats of California*.²⁷⁸ Vegetation communities in the study area²⁷⁹ are described below and shown in **Figure 4.F-1** to **Figure 4.F-6**.

DEVELOPED/BARREN

Terrestrial portions of the study area are largely composed of developed urban land that includes existing buildings, paved streets, sidewalks, parking lots, docks, and piers. Such areas provide very limited habitat opportunities for most sensitive plants and wildlife. Developed and barren areas generally do not include any natural vegetation communities and therefore, cannot technically be classified as vegetation communities.

Paved roads, parking lots, buildings, and empty lots generally lack habitat for wildlife; however, common wildlife such as striped skunk (*Mephitis mephitis*),²⁸⁰ raccoon (*Procyon lotor*), and Virginia opossum (*Didelphis virginiana*) could use these areas to forage for human food waste, shelter from predators and weather, or move to and from patches of undeveloped habitat, such as parks, riprap or abandoned buildings. In addition, killdeer (*Charadrius vociferus*) are known to nest in barren landscapes. Abandoned buildings can also support bat species such as Mexican free-tailed bat (*Tadarida brasiliensis*) and pallid bat (*Antrozous pallidus*). Peregrine falcons (*Falco peregrinus*) commonly breed on high rises and bridges in the San Francisco Bay area. Marine mammals are known to use piers and docks as haul out sites for resting. California sea lions are well-known for hauling out at the K-docks at the Pier 39 Marina in San Francisco.²⁸¹

LANDSCAPE

Areas of landscape plantings in an otherwise urban environment can provide cover, foraging, and nesting habitat for a variety of bird species, as well as reptiles and small mammals, especially those that are tolerant of disturbance and human presence. Birds commonly found in such habitat include non-native species, such as house sparrow (*Passer domesticus*) and European starling (*Sturnus vulgaris*), and native birds such as house finch (*Haemorrhous mexicanus*), California scrub jay (*Aphelocoma californica*), mourning dove (*Zenaida macroura*), Brewer's blackbird (*Euphagus cyanocephalus*), and Anna's hummingbird (*Calypte anna*). Other wildlife common to such an urban area includes striped skunk and raccoon, and non-natives such as Virginia opossum, Norway rat (*Rattus norvegicus*), black rat (*Rattus rattus*), and feral cat (*Felis catus*). Vacant buildings can serve as roosting sites for local bats or as nesting sites for common urban birds such as barn owl (*Tyto alba*), cliff swallow (*Petrochelidon pyrrhonota*), rock pigeon (*Columba livia*), and house sparrow. Common bats, such as Mexican free-tailed bat, can also adapt to living in urban areas near water and roost in structures that provide adequate thermal regulation.

²⁷⁷ Ibid.

²⁷⁸ Mayer, K. R., and W. F. Laudenslayer Jr. (eds.), *A Guide to Wildlife Habitats of California*, 1988.

²⁷⁹ The study area for the biological resources analysis includes a 250-foot buffer around the Waterfront Plan area to account for indirect impacts on biological resources that could occur with implementation of the Waterfront Plan.

²⁸⁰ Scientific names of species are included in parentheses upon first mention of the species by its common name; thereafter, only the common name is used.

²⁸¹ Pier 39 Sea Lion Webcam. <https://www.pier39.com/sealions/>, accessed April 28, 2021.



SOURCE: Google, 2020; San Francisco Planning Department, 2018; SF Port, 2020; ESA, 2021

Waterfront Plan

FIGURE 4.F-1
HABITAT MAP - FISHERMAN'S WHARF SUBAREA



SOURCE: Google, 2020; San Francisco Planning Department, 2018; SF Port, 2020; ESA, 2021

Waterfront Plan

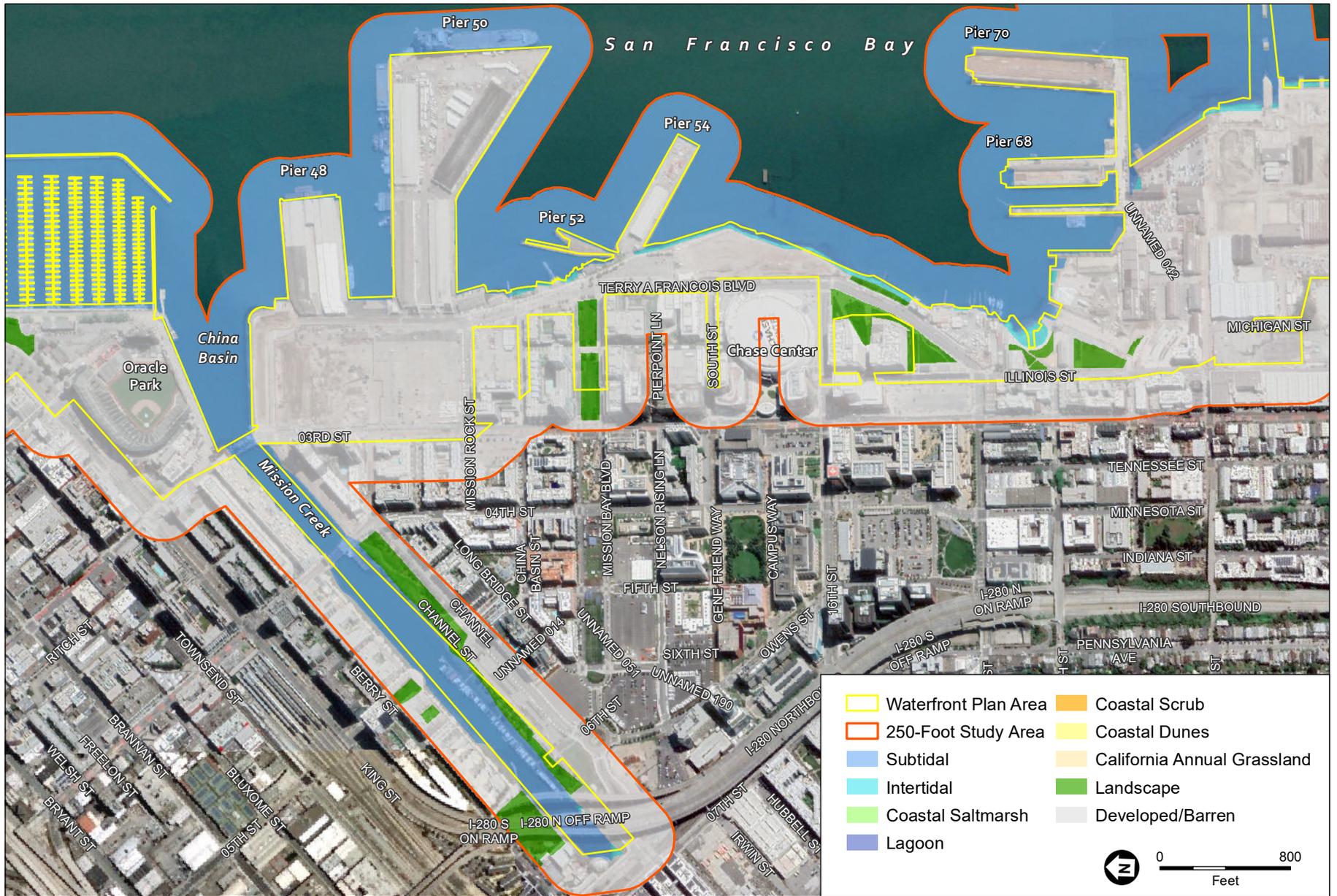
FIGURE 4.F-2
HABITAT MAP - NORTHEAST WATERFRONT SUBAREA



SOURCE: Google, 2020; San Francisco Planning Department, 2018; SF Port, 2020; ESA, 2021

Waterfront Plan

FIGURE 4.F-3
HABITAT MAP - SOUTH BEACH SUBAREA



SOURCE: Google, 2020; San Francisco Planning Department, 2018; SF Port, 2020; ESA, 2021

Waterfront Plan

FIGURE 4.F-4
HABITAT MAP - MISSION BAY SUBAREA



SOURCE: Google, 2020; San Francisco Planning Department, 2018; SF Port, 2020; ESA, 2021

Waterfront Plan

FIGURE 4.F-6

HABITAT MAP - INDIA BASIN WITHIN SOUTHERN WATERFRONT AREA

Landscape vegetation is present in the study area adjacent to buildings and within public parks including, but not limited to, Levi's Plaza, Mission Creek Garden, Mission Bay Commons Park, Warm Water Cove Park, Islais Creek Park, and India Basin Shoreline Park. Mature ornamental landscape trees and shrubs in the study area can provide cover, foraging, and nesting habitat for a variety of bird species, as well as reptiles and small mammals, especially those that are tolerant of disturbance and human presence.

CALIFORNIA ANNUAL GRASSLAND

The California annual grassland community, also known as non-native grassland, is typically composed of a dense cover of introduced annual grasses and ruderal (weedy) forbs (broad-leaved plants) adapted to colonizing and persisting in disturbed upland habitats. Non-native grasses typically include wild and slender oats (*Avena barbata*), barley (*Hordeum vulgare*), soft chess (*Bromus hordeaceus*), foxtail barley (*Hordeum murinum* ssp. *leporinum*), red brome (*Bromus madritensis* ssp. *rubens*), Medusahead (*Elymus caput-medusae*), and an array of associated annual and perennial forbs. California annual grassland is present at Heron's Head Park and Pier 94 where it is interspersed with scattered shrubs such as coyote brush (*Baccharis pilularis*).

California annual grassland community can provide cover, foraging, and nesting habitat for a variety of bird species, as well as reptiles and small mammals. Reptiles inhabiting this community may include western fence lizard (*Sceloporus occidentalis*), California alligator lizard (*Elgaria multicarinata multicarinata*) and Pacific gopher snake (*Pituophis catenifer catenifer*). Bird species may include western meadowlark (*Sturnella neglecta*), white-crowned sparrow (*Zonotrichia leucophrys*), cliff swallow, western bluebird (*Sialia mexicana*) and northern mockingbird (*Mimus polyglottos*). Mammals common to annual grasslands include California ground squirrel (*Otospermophilus beecheyi*), black-tailed jack rabbit (*Lepus californicus*), and Botta's pocket gopher (*Thomomys bottae*).

COASTAL SCRUB

Coastal scrub is present only at the easternmost portion of the study area, within India Basin Open Space. Coastal scrub commonly includes buckwheat (*Eriogonum* spp.), sage (*Salvia* spp.), bush monkeyflower (*Mimulus aurantiacus*) and poison oak (*Toxicodendron diversilobum*). Typical wildlife species found in scrub habitat include common mammalian species such as Botta's pocket gopher, house mouse (*Mus musculus*), California vole (*Microtus californicus*), raccoon, and striped skunk. Reptile species common to these areas include California kingsnake (*Lampropeltis californiae*), Pacific gopher snake, and western fence lizard. These species in turn attract larger predators and scavengers, particularly to scrub edges and nearby grassland clearings. These areas provide habitat for wrenit (*Chamaea fasciata*), California scrub jay, spotted towhee (*Pipilo maculatus*), white-crowned sparrow and northern mockingbird, and also serve as a food bank of insects and seeds.

COASTAL DUNES

This community is present in an approximately 0.3-acre area of dunes at the northern extent of the India Basin Open Space. This area consists of wind-swept sand that has formed dunes in which sparse vegetation is present at the crest of the dunes. Western gull (*Larus occidentalis*), California gull (*L. californicus*), common raven (*Corvus corax*), and American crow (*C. brachyrhynchos*) may loaf scavenge drift debris and litter on the sand within this community. Several special-status plants have the potential to occur in coastal dunes, including round-headed Chinese houses (*Collinsia corymbosa*), a California Native Plant Society (CNPS) California Rare Plant Rank (CRPR) 1B.2 species and blue coast gilia (*Gilia capitata* ssp. *chamissonis*), a CNPS CRPR 1B.1 species.

COASTAL SALTMARSH

Mixed coastal saltmarsh (coastal saltmarsh) is a wetland type that is located in the zone between high and low tides and composed of a variety of species. Coastal saltmarshes can be fully tidal or brackish if they are located near the mouth of a freshwater source. Vegetation associated with coastal saltmarsh includes pickleweed (*Salicornia pacifica*), marsh jaumea (*Jaumea carnosa*), alkali heath (*Frankenia salina*), cordgrass (*Spartina* sp.), salt grass (*Distichlis spicata*), alkali bulrush (*Bolboschoenus maritimus*), and cattail (*Typha* sp.). Coastal saltmarsh is present in the Southern Waterfront subarea, including at the Pier 94 Wetlands, Heron's Head Park, India Basin Shoreline Park, and India Basin Open Space. The coastal saltmarsh at Heron's Head is interspersed with areas of unvegetated salt panne. Salt pannes are topographic depressions occurring within salt marsh habitat that are typically seasonally inundated. The accumulated salts associated with seasonal inundation and drying can inhibit the establishment of vegetation, leaving the area barren.

Coastal saltmarshes in the Central and South Bay are mere remnants of their former extent. Where extensive salt marshes are still present, they support high densities and fairly high diversity of wildlife species, including the Ridgway's rail (*Rallus obsoletus*) and salt marsh harvest mouse (*Reithrodontomys raviventris*), both of which are federally and state-endangered and state fully protected species. However, the salt marshes within the study area are small, narrow and scattered, and provide very marginal habitat for these species.

MARINE HABITATS AND COMMUNITIES

INTERTIDAL HABITATS

Intertidal habitats, or the regions of the bay that lie between low and high tides, in the Central Bay basin include sandy beaches; natural and artificial rock (quarried rip-rap); concrete bulkheads; concrete, composite, and wood pier pilings; and mud flats. These intertidal habitats provide highly diverse and varied locations for marine flora and fauna. The Central Bay basin's proximity to the Pacific Ocean has resulted in an intertidal zone inhabited by many coastal as well as estuarine species.

The angular and piled rip-rap rocks that have been placed to protect numerous shoreline locations in the Central Bay basin, including the shoreline of the study area, provide numerous havens in which assorted marine species are able to survive and flourish. Typical invertebrate and algae species inhabiting intertidal zones for the Central Bay basin include sea lettuce (*Ulva* spp.), rockweed (*Fucus gardeneri*), the red algae species (*Polyneura Latisima* and *Gigartina* spp.), and the non-native brown algae species (*Sargossum muticum*).²⁸²

In addition, the shoreline in the study area includes very limited areas of sandy beaches (e.g., Aquatic Park) and mudflats (e.g., Heron's Head), which are mainly composed of sandy substrates and other soft-bottom material.²⁸³ These areas support benthic fauna including amphipods, polychaetes, and flies of the intertidal zone, which provide food for shorebirds. Other common invertebrate taxa within the intertidal environment include balanoid barnacles (Balanidae) in the high and middle intertidal zones; limpets, *Mytilus* mussels, and native Olympia oysters (*Ostrea lurida*) in the lower middle and low intertidal zones. Shorebird species that frequent this habitat during migration or overwinter within the terrestrial study area include sanderling (*Calidris alba*), willet (*Tringa semipalmata*), marbled godwit (*Limosa fedoa*), and whimbrel (*Numenius*

²⁸² AMS, Intertidal Habitat and Biological Community Survey.

²⁸³ SFPUC, Southwest Ocean Outfall Regional Monitoring Program, Sixteen-Year Summary Report, 1997-2012, April 2014.

phaeopus).²⁸⁴ Spotted sandpiper (*Actitis macularius*) and black oystercatcher (*Haematopus bachmani*) may forage along the rocky shoreline during low tide within the intertidal zone of the study area.²⁸⁵

SUBTIDAL HABITATS

Central Bay contains both soft sediment and hard substrate subtidal (below the low tide line) habitat. Soft bottom substrate ranges between soft mud with high silt and clay content and areas of coarser sand. These latter tend to occur in locations subjected to high tidal or current flow. Soft mud locations are typically located in areas of reduced energy that enable deposition of sediments that have been suspended in the water column, such as in protected slips, under wharfs, and behind breakwaters and groins.

Hard substrate areas provide habitat for an assemblage of marine algae, invertebrates and fishes, similar to the hard substrate in the intertidal zone of the Central Bay basin. Submerged hard bottom substrate is typically covered with a mixture of turf organisms that is dominated by hydroids, bryozoans, tunicates, encrusting sponges, encrusting diatoms, and anemones. In the intertidal and near subtidal zones, the barnacles (*Balanus glandula*, *Amphibalanus amphitrite*, and *A. improvisus*) are commonly present along with the Bay mussel, *Mytilus trossulus/galloprovincialis*, the invasive Asian mussel (*Musculista senhousia*), and Olympia oyster. Barnacles can also be found subtidally on pier pilings, exposed rock outcropping and debris.²⁸⁶ At least six species of sponges, seven species of bryozoans, and the hydrozoans (*Ectopleura crocea*) and (*Garveia franciscana*) are found inhabiting both natural and man-made hard substrate.²⁸⁷ Marine isopods and amphipods include the surface deposit feeders, algae grazers, and carnivores.²⁸⁸

In addition, three species of caprellids (i.e., detritivores, carnivores, and deposit feeders) are commonly observed only in the Central Bay basin.²⁸⁹ Pacific rock crab (*Cancer antennarius*) and the red rock crab (*C. productus*) inhabit rocky, intertidal and subtidal areas in the Pacific Ocean, and likely use San Francisco Bay as an extension of their coastal habitats.²⁹⁰ Adult (age 1+) Pacific rock crabs are most commonly found in the Central Bay basin in both the fall and spring months. Juveniles are most common in the Central Bay basin from January to May and in South Bay from July to December.²⁹¹ Pacific rock crabs move seasonally from channels (January to April) to shoals (June to December).²⁹² The Pacific and red rock crabs are frequently the targets of sport anglers from piers and jetties.

The predominant seafloor habitat along the San Francisco waterfront, which includes the study area, is unconsolidated soft sediment composed of combinations of mud/silt/clay; however, in lesser quantities; portions of the substrate also include sand, and pebble/cobble, with varying amounts of intermixed shell fragments.²⁹³ Exposure to wave and current action, temperature, salinity, and light penetration determine the composition and distribution of organisms within these soft sediments.²⁹⁴ Based on many geologic and marine

²⁸⁴ Gulf of the Farallones National Marine Sanctuary (GNFMS) and Farallones Marine Sanctuary Association (FMSA), *Beach Watch 2006 Annual Report*, 2006.

²⁸⁵ Weeden, N., and M. Lynes, *Summary Report of Avian Surveys Conducted in 2008 at Dilapidated Piers and Other structures along the Port of San Francisco's Southern Waterfront Properties*, unpublished report (GGA-2009-01), Golden Gate Audubon Society, 2009.

²⁸⁶ National Oceanic and Atmospheric Administration (NOAA), *Report on the Subtidal Habitats and Associated Biological Taxa in San Francisco Bay*, June 2007.

²⁸⁷ Ibid.

²⁸⁸ Ibid.

²⁸⁹ Ibid.

²⁹⁰ Hieb, K., Cancer Crabs. In: James J. Orsi, *Report on the 1980–1995 Fish, Shrimp, and Crab Sampling in the San Francisco Estuary, California*, 1999, http://www.estuaryarchive.org/archive/orsi_1999, accessed April 28, 2021.

²⁹¹ Ibid.

²⁹² Ibid.

²⁹³ NOAA, *Report on the Subtidal Habitats and Associated Biological Taxa in San Francisco Bay*, June 2007.

²⁹⁴ Ibid.

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4.F. Biological Resources

biological studies conducted within the Bay-Delta, unconsolidated sediments are present throughout the Bay-Delta and are the predominant substrate type.

The muddy-sand benthic community of the Central Bay basin consists of a diverse polychaete community represented by several subsurface deposit-feeding capitellid species, a tube-dwelling filter-feeding species (*Euchone limnicola*), a carnivorous species (*Exogone lourei*), and the maldanid polychaete (*Sabaco elongates*). There are also several surface deposit-feeding *Ameana* spp. persisting throughout the year.²⁹⁵

The harbor and main channel areas of the Central Bay basin are characterized as a mix of the benthic communities from surrounding areas (deep and shallow-water and slough marine communities) and include the obligate amphipod filter-feeder *Ampelisca abdita* and the tube dwelling polychaete *Euchone limnicola*. As a result of increased water flow and sedimentation in the harbor areas of the Central Bay basin, the majority of the species reported inhabiting seafloor sediments in this region of the bay are deposit and filter feeders, including the amphipods *Grandidierella japonica*, *Monocorophium acherusicum*, and *Monocorophium alienense*, and the polychaetes *Streblospio benedicti* and *Pseudopolydora diopatra*. There is also a relatively high number of subsurface deposit-feeding polychaetes and oligochaetes in these areas including *Tubificidae* spp., *Mediomastus* spp., *Heteromastus filiformis*, and *Sabaco elongatus*. There is also sufficient community complexity and abundance to support relatively high abundances of three carnivorous polychaete species: *Exogone lourei*, *Harmothoe imbricata*, and *Glycinde armigera*.

The most common large mobile benthic invertebrate organisms in the Central Bay basin include blackspotted shrimp (*Crangon nigromaculata*), the bay shrimp (*Crangon franciscorum*), Dungeness crab (*Metacarcinus magister*), and the slender rock crab (*Cancer gracilis*). Although other species of shrimp are present in the Central Bay basin, their numbers are substantially lower when compared to the number of bay and blackspotted shrimp present.²⁹⁶ All of these mobile invertebrates are present throughout the Central Bay basin and provide an important food source for carnivorous fishes, marine mammals, and birds in San Francisco Bay's food web. Dungeness crabs use most of the bay as an area for juvenile growth and development prior to returning to the ocean as sexually mature adults.²⁹⁷

Because of the strong ocean influence in the Central Bay basin, additional species of red and brown algae are found attached to submerged intertidal hard substrate, including pier pilings. These include *Cladophora sericea*, *Codium fragile*, *Fucus gardneri*, *Laminaria sinclairii*, *Egregia*, *Halymenia schizymenioides menziesii*, *Sargassum muticum*, *Polyneura latissima*, *Cryptopleura violacea*, and *Gelidium coulteri*.²⁹⁸ In addition, *Codium fragile* ssp. *tomentosoides*, *Bryopsis hypnoides*, *Chondracanthus exaspartatus*, and *Ahnfeltiopsis leptophyllus* can be found inhabiting either hard or soft substrate.²⁹⁹ Based on regional surveys performed in the San Francisco Bay from 2003 to 2014, very few eelgrass (*Zostera marina*) beds are documented or known to occur within the study area.³⁰⁰ Small, isolated beds are known to occur within Lash Lighter Basin and India Basin at the southern extent of the study area. All submerged aquatic vegetation in the Central Bay basin is considered

²⁹⁵ Ibid.

²⁹⁶ Ibid.

²⁹⁷ Tasto, R. N., "San Francisco Bay: Critical to the Dungeness Crab?" In: T. J. Conomos, editor, *San Francisco Bay: The Urbanized Estuary*, 1979, Pacific Div Am Ass Adv Sci, San Francisco, California: 479-490.

²⁹⁸ NOAA, *Report on the Subtidal Habitats and Associated Biological Taxa in San Francisco Bay*, June 2007.

²⁹⁹ Ibid.

³⁰⁰ Merkel & Associates, *San Francisco Bay Eelgrass Inventory: October–November 2014*, prepared for the California Department of Transportation and NOAA National Marine Fisheries Service, November 2014.

critical essential fish spawning habitat for Pacific herring,³⁰¹ which attach their egg masses to eelgrass, seaweed, and hard substrates such as pilings, breakwater rubble, and other hard surfaces.

OPEN WATER (PELAGIC) HABITAT

Because of its close proximity to the Pacific Ocean, the open water (pelagic zone) environment of the Central Bay basin is very similar to the open water coastal environment. Pelagic habitat is the predominant marine habitat in Central Bay and includes the area between the water surface and the seafloor. The water column can be further subdivided into shallow-water/shoal and deepwater/channel areas.³⁰² The pelagic water column habitat is predominantly inhabited by planktonic organisms that either float or swim in the water, fish, marine birds, and marine mammals.

Marine Birds

Typical marine birds regularly inhabiting or using the open waters of the study area include double-crested and Brandt's cormorants (*Phalacrocorax auritus* and *P. penicillatus*), pigeon guillemot (*Cephus columba*), herring gull (*Larus argentatus*), mew gull (*L. canus*), Western gull, California gull (*L. californicus*), ring-billed gull (*L. delawarensis*), eared grebe (*Podiceps nigricollis*), western and Clark's grebe (*Aechmophorus occidentalis* and *A. clarkii*), common loon (*Gavia immer*), Caspian tern (*Hydroprogne caspia*), least tern (*Sternula antillarum*), and California brown pelican (*Pelecanus occidentalis californicus*). Among the diving benthivores guild, canvasback (*Aythya valisineria*), greater scaup (*A. marila*), lesser scaup (*A. affinis*), and surf scoter (*Melanitta perspicillata*) are common.

Marine Mammals

Few species of marine mammals are found within the San Francisco Bay; only Pacific harbor seals (*Phoca vitulina richardsi*), California sea lions (*Zalophus californianus*), and harbor porpoises (*Phocoena phocoena*) are sighted year-round and have potential to occur in the study area. Most cetacean sightings tend to occur in the Central Bay basin. In general, the presence of marine mammals in the San Francisco Bay is related to distribution and presence of prey species and foraging habitat. Additionally, harbor seals and sea lions use various intertidal substrates that are exposed at low to medium tide levels for resting and breeding.³⁰³ California sea lions are noted for using anthropogenic structures such as floating docks, piers, and buoys to haul out of the water to rest, including at locations within the study area.

SENSITIVE NATURAL COMMUNITIES

A sensitive natural community is a biological community that is regionally rare, provides important habitat opportunities for wildlife, is structurally complex, or is in other ways of special concern to local, state, or federal agencies. Most sensitive natural communities are given special consideration because they perform important ecological functions, such as maintaining water quality and providing essential habitat for plants and wildlife, and/or are recognized as declining in extent or distribution. Some plant communities support a unique or diverse assemblage of plant species, and therefore are considered sensitive from a botanical standpoint. The California Department of Fish and Wildlife (CDFW) tracks communities of conservation concern through its

³⁰¹ The Magnuson-Stevens Act defines *essential fish habitat* as those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity.

³⁰² NOAA, *Report on the Subtidal Habitats and Associated Biological Taxa in San Francisco Bay*, June 2007.

³⁰³ *Ibid.*

California Sensitive Natural Community List.³⁰⁴ Natural communities with ranks of S1 to S3 are considered sensitive natural communities that should be addressed for purposes of CEQA.³⁰⁵

One sensitive plant community identified by CDFW on its *California Sensitive Natural Community List* that is documented in the study area is the “pickleweed mat” plant alliance, consisting of pickleweed and alkali heath. This plant community is present at India Basin Shoreline Park, India Basin Open Space,³⁰⁶ and potentially at Heron’s Head Park and the Pier 94 Wetland.

WETLANDS AND OTHER WATERS

A formal delineation of water of the United States, including wetlands, was conducted in 2015 on the Port of San Francisco waterfront between the open water basin north of Pier 40 and Heron’s Head Park at Pier 98; however, the delineation excluded Mission Creek, the Pier 70 Mixed-Use District Project area between Mariposa and 23rd streets, Pier 94 Wetlands, and Heron’s Head Park. Federal potentially jurisdictional wetlands were documented within Warm Water Cove, and on the north and south banks of Islais Creek.³⁰⁷ The Plan area is also adjacent to San Francisco Bay, which the U.S. Army Corps of Engineers (USACE) classifies as navigable “waters of the U.S.” Navigable waters of the U.S. refer to non-wetland aquatic features (other waters), which are regulated by the federal Clean Water Act (CWA) and are defined under the CWA at title 33 Code of Federal Regulations (CFR) Part 328.4. To be considered federally jurisdictional, these features generally must exhibit a defined bed and bank and an ordinary high-water mark, or be subject to the ebb and flow of the tides. Examples of other waters of the U.S. include rivers, creeks, intermittent and ephemeral channels, ponds, lakes, and the ocean. Waters of the State of California are defined as “any surface water or groundwater, including saline waters, within the boundaries of the State” (California Water Code section 13050(e)) and include all federally jurisdictional waters. Waters of the State are broadly construed to include both public and private waters in natural and artificial channels.

As navigable waters of the U.S., San Francisco Bay is regulated by USACE under section 10 of the Rivers and Harbors Act up to mean high water mark, and under CWA section 404 up to the high-tide line. These waters are also regulated by the San Francisco Bay Regional Water Quality Control Board (regional board) as Waters of the State. In addition, the San Francisco Bay Conservation and Development Commission (BCDC) regulates the fill, extraction of materials, and substantial changes in use of land, water, and structures within the bay and within 100 feet of the bay shoreline, which includes terrestrial or landside portions of the Plan area.

WILDLIFE MOVEMENT CORRIDORS

Wildlife movement corridors are considered an important ecological resource by CDFW and the U.S. Fish and Wildlife Service (USFWS). Movement corridors provide favorable locations for wildlife to travel between different habitat areas such as foraging sites, breeding sites, cover areas, and preferred summer and winter range locations. They may also function as dispersal corridors allowing animals to move between various locations within their range. Topography and other natural factors, in combination with urbanization, can fragment or separate large open-space areas. Areas of human disturbance or urban development can fragment wildlife habitats and impede wildlife movement between areas of suitable habitat. This fragmentation can

³⁰⁴ California Department of Fish and Wildlife (CDFW), Natural Communities–Natural Communities List Arranged Alphabetically by Life Form, November 2019, <https://www.wildlife.ca.gov/Data/VegCAMP/Natural-Communities/List>, accessed April 15, 2021.

³⁰⁵ CDFW, Natural Communities–Natural Communities List Arranged Alphabetically by Life Form, November 2019, <https://www.wildlife.ca.gov/Data/VegCAMP/Natural-Communities/List>, accessed April 15, 2021.

³⁰⁶ AECOM, *India Basin Mixed-Use Project EIR*, September 13, 2017.

³⁰⁷ Coast Ridge Ecology, *Port of San Francisco Regional General Permit (RGP) Wetland Delineation Report*, 2015.

create isolated “islands” of vegetation that may not provide sufficient area to accommodate sustainable populations, and can adversely affect genetic and species diversity. Movement corridors mitigate the effects of this fragmentation by allowing animals to move between remaining habitats, which in turn allows depleted populations to be replenished and promotes genetic exchange between separate populations.

The study area is too urbanized to provide a terrestrial connection between two larger core habitat areas. However, the San Francisco Peninsula is an important migratory stopover for birds along the Pacific Flyway, one of the four major avian migratory routes in North America. During fall and spring migrations, raptors, songbirds, shorebirds, and waterbirds stop to forage and rest in suitable habitat along this route such as Golden Gate Park, the Presidio, Mount Sutro, Lake Merced, and coastal or bayside beaches. Migrating birds that can forage in intertidal and marine environments may use San Francisco Bay during migration.

Central Bay also serves as a migration corridor for anadromous fish between the Pacific Ocean and spawning habitat, primarily within the Sacramento and San Joaquin River watersheds, but also in a handful of tributaries to San Francisco Bay. However, the location of the Plan area along the San Francisco waterfront is not within the migration routes normally taken by anadromous fish species, which typically confine themselves to deeper channels during migration. The bay is also an important movement corridor for birds.

SPECIAL-STATUS AND PROTECTED SPECIES

The term special-status species refers to plant and wildlife species that are considered sufficiently rare that they require special consideration and/or protection and should be, or currently are, listed as rare, threatened, or endangered by the federal and/or state governments. Such species are legally protected under the federal and/or state Endangered Species Acts or other regulations, or are species that are considered sufficiently rare by the regulatory and scientific community to qualify for protection. For the purpose of this analysis, the term special-status species includes the following:

- Species listed or proposed for listing as threatened or endangered under the FESA (CFR title 50, section 17.12 [listed plants] and section 17.11 [listed animals] and various notices in the Federal Register [proposed species]);
- Species listed or proposed for listing by the State of California as threatened or endangered under the CESA (California Code of Regulations title 14, section 670.5);
- Plants listed as rare or endangered under the California Native Plant Protection Act (California Fish and Game Code [CFG] section 1900 et seq.);
- Species designated by CDFW as California Species of Special Concern;³⁰⁸
- Animals fully protected under the CFGC (sections 3511 [birds], 4700 [mammals], and 5050 [reptiles and amphibians]);³⁰⁹

³⁰⁸ A California Species of Special Concern is one that: has been extirpated from the state; meets the state definition of threatened or endangered but has not been formally listed; is undergoing or has experienced serious population declines or range restrictions that put it at risk of becoming threatened or endangered; and/or has naturally small populations susceptible to high risk from any factor that could lead to declines that would qualify it for threatened or endangered status.

³⁰⁹ The *fully protected* classification was California’s initial effort in the 1960s to identify and provide additional protection to those animals that were rare or faced possible extinction. The designation can be found in the CFGC.

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- Species that meet the definitions of rare and endangered under CEQA. CEQA section 15380 provides that a plant or animal species may be treated as “rare or endangered” even if not on one of the official lists (CEQA Guidelines section 15380);
- Raptors (birds of prey), which are specifically protected by CFGC section 3503.5, thus prohibiting the take, possession, or killing of raptors, including owls, their nests, and their eggs;³¹⁰
- Plants considered by CDFW and CNPS to be “rare, threatened or endangered in California” (CRPR 1A, 1B, and 2); and
- Anadromous³¹¹ species managed and regulated under the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act).

The potential for the study area to support special-status plant or wildlife species was assessed based on review of data contained in the CDFW California Natural Diversity Database (CNDDDB)³¹² and the CNPS Inventory of Rare and Endangered Plants³¹³ for the San Francisco North, Oakland West, and Point Bonita United States Geological Survey (USGS) 7.5-minute topographical quadrangles. The USFWS *Official List of Federal Endangered and Threatened Species that Occur in or May Be Affected by the Projects*³¹⁴ was queried based on the geographic extent of the Plan area (see Appendix H, Plant and Wildlife Species Lists and Potential to Occur in the Study Area, for database reports). Marine special-status species were compiled from USFWS, National Marine Fisheries Service (NMFS), and CDFW listings, Federal Register notifications, and assorted published and non-published literature relevant to the marine study area. Several additional species were identified based on the findings of technical reports and environmental literature. The results of these queries formed the basis for analysis of special-status species with their general habitat requirements and their potential to occur in the study area (see Appendix H). Species that are not expected to occur because of the absence of suitable habitat, or because the study area is outside of the species’ known range, were excluded from the table.

SPECIAL-STATUS PLANT SPECIES

Special-status plants determined to have a moderate to high potential to occur in the study area include:

- Point Reyes Bird’s-beak (*Chloropyron maritimum* ssp. *palustre*)
- Round-headed Chinese-houses (*Collinsia corymbosa*)
- Blue coast gilia (*Gilia capitata* ssp. *chamissonis*)
- Scouler’s catchfly (*Silene scouleri* ssp. *scouleri*)
- California seablite (*Suaeda californica*)
- Coastal triquetrella (*Triquetrella californica*)

³¹⁰ The inclusion of birds protected by CFGC section 3503.5 is in recognition of the fact that these birds are substantially less common in California than most other birds, having lost much of their habitat to development, and that the populations of these species are therefore substantially more vulnerable to further loss of habitat and to interference with nesting and breeding than most other birds. It is noted that a number of raptors are already specifically listed by federal and state wildlife authorities as threatened or endangered.

³¹¹ Anadromous fish species are born in freshwater, spend most of their lives in the sea, and return to freshwater to spawn.

³¹² CDFW, California Natural Diversity Database (CNDDDB) RareFind version 5 query of the San Francisco North, Oakland West, and Point Bonita USGS 7.5-minute topographic quadrangles, Commercial Version, accessed April 13, 2021.

³¹³ California Native Plant Society (CNPS), Inventory of Rare and Endangered Plants for San Francisco North, Oakland West, and Point Bonita USGS 7.5-minute topographic quadrangles, <http://www.rareplants.cnps.org/result.html?adv=t&quad=3712274:3712264>, accessed May 10, 2021.

³¹⁴ U.S. Fish and Wildlife Service, ECOS Environmental Conservation Online System Critical Habitat Mapper, 2010, <https://ecos.fws.gov/ecp/report/table/critical-habitat.html>, accessed April 13, 2021.

Most of the special-status plant species identified in Appendix H1, Special-Status Species Potential to Occur within the Study Area, Table H1-1, were determined to have no potential or low potential to occur in the terrestrial study area due to the heavily disturbed nature of the Plan area and corresponding absence of suitable habitat. However, coastal saltmarsh, coastal scrub, and coastal dunes may support rare plants.

SPECIAL-STATUS TERRESTRIAL ANIMAL SPECIES

Many of the special-status terrestrial animals identified in Appendix H1, Special-Status Species Potential to Occur within the Study Area, Table H1-1, have no potential to occur in the terrestrial study area or a low potential to occur in the terrestrial study area due to the absence of suitable habitat preferred by the species or necessary for their survival. However, a few special-status bird and bat species have the potential to occur in the terrestrial study area, as do many common birds protected by the Migratory Bird Treaty Act (MBTA). Only those special-status species known to occur within the study area or considered to have at least a moderate potential to occur in the terrestrial study area were considered in the impact analysis; these species are described below. Marine species are considered in the following section.

The following groups of terrestrial special-status animals have at least a moderate potential to occur in the terrestrial study area:

- Special-status bird species
- Birds protected by the MBTA
- Special-status bats

Individual species within each of these groups that have at least a moderate potential to occur in the study area are discussed below.

SPECIAL-STATUS AND MIGRATORY BIRD TREATY ACT-PROTECTED BIRD SPECIES

The following birds, which could occur in the study area, meet the definition of “special-status” for the purposes of CEQA, or are protected by the MBTA.

AMERICAN PEREGRINE FALCON

The American peregrine falcon (*Falco peregrinus anatum*) is a California fully protected species that is regularly observed in the study area.³¹⁵ The American peregrine falcon nests on cliff ledges in natural environments, but it has adapted to nesting on shelves of tall buildings or structures in urban environments.³¹⁶ The Predatory Bird Research Group has documented a successful breeding pair of peregrines that have nested on a ledge of the 33rd floor of the Pacific Gas & Electric building on Beale Street in San Francisco in most years between 2004 and 2021. Peregrine falcons were also documented to attempt nesting on a crane at Pier 80 in 2020, but abandoned the nest early in the season. This raptor commonly hunts rock pigeons, shorebirds, and other bird species while in flight and, therefore, could be found foraging throughout the study area. Although the buildings in the study area are not tall enough to attract nesting peregrines, this species could nest on a crane or other very tall infrastructure on one of the piers within the waterfront area.

³¹⁵ eBird, An online database of bird distribution and abundance [web application]. Agua Vista Park Hotspot. eBird, Ithaca, New York, <http://www.ebird.org>, accessed April 28, 2021.

³¹⁶ Sibley, David A., *The Sibley Guide to Birds*, National Audubon Society, Alfred A. Knopf, New York, 2003.

CASPIAN TERN

Nesting colonies of Caspian tern are included on the CDFW Special Animals List and the species is considered a Bird of Conservation Concern by USFWS. This species is common along the California coast and at scattered locations inland. They nest in colonies from April through early August on sandy estuarine shores, on levees in salt ponds, and on islands in alkali and freshwater lakes. Breeding adults often fly substantial distances to forage in lacustrine,³¹⁷ riverine, and fresh and saline emergent wetland habitats. Caspian terns have successfully nested at Piers 60 and 64.³¹⁸ The Port of San Francisco installed a pile-supported tern nesting platform offshore from Bay Front Park as mitigation for potential impacts to breeding Caspian terns; to date, Caspian terns have not been documented to nest on the platform.

OSPREY

Nesting osprey (*Pandion haliaetus*) are on the CDFW Watch List. Osprey are also protected under CFGC section 3503.5. These large fish-eating raptors can be found around nearly any water body, including salt marshes, rivers, ponds, reservoirs, estuaries, and oceans. Historically, ospreys nested throughout much of California, but by the 1960s much of the osprey population declined in the central and southern California areas. This decline was attributed to human persecution, habitat alteration, and DDT use. The osprey prefers to nest within sight of permanent water and readily builds its nest on human-made structures such as telephone poles, channel markers, duck blinds, and nest platforms designed especially for it. A nesting pair bred successfully on top of a crane located at Pier 80 in 2012, south of the Plan area.³¹⁹ Cranes and other potential nesting sites occur within the study area, and foraging habitat is present within San Francisco Bay.

DOUBLE-CRESTED CORMORANT

Nesting colonies of double-crested cormorant are on the CDFW Watch List. In the late 1800s, only one breeding colony was known in the San Francisco Bay Area, located at the South Farallon Islands. Since the 1970s, the San Francisco Bay population has expanded to include nearly 3,500 pairs at more than 20 colonies.³²⁰ Double-crested cormorants breed in colonies in coastal areas and inland lakes in fresh, saline, and estuarine waters. This species builds nests in trees and on structures, such as the San Francisco–Oakland Bay Bridge and the Dumbarton Bridge, and could nest in mature trees within the study area. Double-crested cormorants are abundant in San Francisco Bay and foraging habitat is present in San Francisco Bay.

MIGRATORY BIRD TREATY ACT–PROTECTED BIRDS

Although many native birds are not considered to be special-status species, their nests are protected by the MBTA and the CFGC. Many resident and migratory birds could nest in non-native grasslands and coyote brush, landscape trees, on or in buildings within the study area, as well as on the dilapidated piers off shore of the Plan area. Western gulls have been documented nesting at Piers 54, 60, and 64,^{321,322} north of the Plan area, and could nest on building roofs or dilapidated piers within the study area. Cliff swallow, barn swallow (*Hirundo rustica*), and black phoebe (*Sayornis nigricans*) could build mud nests on the outside of existing

³¹⁷ Inundated inland depressions or dammed riverine channels containing standing water (i.e., a lake).

³¹⁸ Weeden, N., and M. Lynes, *Summary Report of Avian Surveys Conducted in 2008 at Dilapidated Piers and Other structures along the Port of San Francisco's Southern Waterfront Properties*, unpublished report (GGA-2009-01), Golden Gate Audubon Society, 2009.

³¹⁹ Golden Gate Audubon Society, Press release: Osprey Chick Hatches on Top of Maritime Crane in San Francisco's First Documented Osprey Birth, July 1, 2012.

³²⁰ Rauzon, M., et al., Changes in Abundance and Distribution of Nesting Double-Crested Cormorants (*Phalacrocorax auritus*) in the San Francisco Bay Area, 1975–2017, *Marine Ornithology*, 47:127–138, 2019.

³²¹ Weeden, N., and M. Lynes, *Summary Report of Avian Surveys Conducted in 2008*.

³²² ESA, *Mission Bay Ferry Landing Phase I Pre-construction Nesting Bird Survey Results and Recommendation*, July 6, 2020.

buildings and barn owls may nest inside of existing buildings in the Plan area. Other passerine species, such as house finch and Anna's hummingbird, could build nests in shrubs or trees in the study area, while killdeer and mourning dove build nests on the ground. Great blue heron (*Ardea herodias*) and shorebirds such as sanderling, western sandpiper (*Calidris mauri*) and spotted sandpiper could also frequent the exposed shoreline along the northeastern boundary of the Plan area to forage while migrating or overwintering in the Bay Area.

SPECIAL-STATUS BATS

One special-status bat species has at least a moderate potential to roost within the study area: Pallid bat, considered a California Species of Special Concern by CDFW. Suitable roosting habitat for this bat species includes cracks and crevices in buildings, under bridges, or in tree bark and cavities, all of which occur within the Plan area. Bat surveys conducted in 2009 of San Francisco's parks and natural areas found that the three most commonly encountered species in the area are Mexican free-tailed bat, Yuma myotis (*Myotis yumanensis*), and western red bat (*Lasiurus blossevillii*).³²³ Mexican free-tailed bats, which have no special status, were widespread and abundant throughout the sampled natural areas and were the only species documented in the study sample sites closest to the Plan area, including Buena Vista Park (approximately 2 miles southwest) and Bayview Park (approximately 3 miles south).³²⁴ Yuma myotis and western red bat were much less abundant and generally were restricted to parks with lakes. Suitable roosting habitat for pallid bat, Yuma myotis, and common bat species is present in the Plan area.

SPECIAL-STATUS FISH AND MARINE MAMMAL SPECIES

Specific individuals in the following groups of marine special-status animals have at least a moderate potential to occur in the study area:

- Special-Status Fish
- Special-Status Marine Mammals
- Managed U.S. Fisheries Species
- Other Special-Status Marine Species

SPECIAL-STATUS FISH

CHINOOK SALMON

The Chinook salmon (*Oncorhynchus tshawytscha*) that inhabit the San Francisco Bay are comprised of three distinct races: winter-run, spring-run, and fall/late fall-run.³²⁵ These races are distinguished by the seasonal differences in adult upstream migration, spawning, and juvenile downstream migration. Chinook salmon are anadromous fish, spending three to five years at sea before returning to fresh water to spawn. These fish pass through San Francisco Bay waters to reach their upstream spawning grounds. In addition, juvenile salmon migrate through the bay en route to the Pacific Ocean.

³²³ Krauel, J.K., *Foraging Ecology of Bats in San Francisco*, M.S. thesis, San Francisco State University, San Francisco, California, August 2009.

³²⁴ Ibid.

³²⁵ These races are referred to as Evolutionarily Significant Units.

Sacramento River winter-run Chinook salmon, listed as endangered under the federal and state endangered species acts, migrate through the San Francisco Bay from December through July with a peak in March.³²⁶ Central Valley spring-run Chinook, listed as threatened under the federal and state endangered species acts, migrate to the Sacramento River from March to September with a peak spawning period between late August and October.³²⁷ The Central Valley fall/late fall-run Chinook salmon is a California species of special concern.

While all three chinook salmon races are found in the San Francisco Bay, the Central Valley fall/late fall-run are the only race that spawns in San Francisco Bay tributary streams. However, most stream habitat in the San Francisco Bay lacks the necessary flow regime, habitat availability, and/or water quality to support spawning salmonids. Additionally, individuals are rarely documented within the study area; and any occurrence would only be temporary as the surrounding bay habitat is primarily used as a migration corridor between the Pacific Ocean and spawning habitat in the Central Valley.³²⁸

STEELHEAD

Similar to Chinook salmon, steelhead (*O. mykiss*) within California are subdivided into Distinct Population Segments based on their life history. Within the Central Bay, both the federally threatened Central California Coast and federally threatened California Central Valley steelhead may use the channel habitat adjacent to the study area as a migratory corridor from the Pacific Ocean to spawning habitat.

While Central California Coast steelhead are known to occur within multiple Central Bay streams, none are in proximity to the study area. The nearest watershed that supports Central California Coast steelhead is the San Mateo Creek watershed which empties into San Francisco Bay approximately 10 miles south of the study area.³²⁹ As such, any occurrence of Central California Coast steelhead within the study area would be temporary, and only occur as steelhead move through the open water habitat adjacent to the Plan area during migration between the Pacific Ocean and freshwater spawning grounds.

GREEN STURGEON

The federally threatened, southern Distinct Population Segments of North American green sturgeon (*Acipenser medirostris*) are the most widely distributed member of the sturgeon family and the most marine-oriented of the sturgeon species, entering rivers only to spawn. Within bays and estuaries, sufficient water flow is required to allow adults to successfully orient to the incoming flow and migrate upstream to spawning grounds. Green sturgeon migrating between the Pacific Ocean and spawning habitat in the Sacramento River watershed rarely travel south of the San Francisco Bay Bridge. Typically, adults take a more direct route from San Pablo Bay, passing through Raccoon Strait adjacent to Angel Island, and out the Golden Gate Bridge.³³⁰ So while sturgeon do have the potential to temporarily occur year-round within the study area, their preferred migration routes suggest a limited likelihood for presence. However, green sturgeon have the potential to be present throughout all marine portions of the Plan area at any time of the year.

³²⁶ Moyle, P.B., *Inland Fishes of California*, University of California Press, Berkeley and Los Angeles, CA, 2002.

³²⁷ Ibid.

³²⁸ Interagency Ecological Program for the San Francisco Bay Estuary (IEP), *San Francisco Bay Study, 2010–2014*, Unpublished Raw Mid-water and Otter Trawl Data, 2014.

³²⁹ Leidy, R.A., G.S. Becker, B.N. Harvey, *Historical distribution and current status of steelhead/rainbow trout (Oncorhynchus mykiss) in streams of the San Francisco Estuary, California*, Center for Ecosystem Management and Restoration, Oakland, CA, 2005.

³³⁰ Kelly, J.T., A.P. Klimley, and C.E. Crocker, Movements of green sturgeon, *Acipenser medirostris*, in the San Francisco Bay Estuary, *Environmental Biology of Fishes* 79:281–295, 2007.

LONGFIN SMELT

The longfin smelt (*Spirinchus thaleichthys*) is a small, slender-bodied pelagic fish listed as threatened under the CESA and are a candidate for listing under the FESA. Longfin smelt are most likely to occur within the Central Bay during the late summer months before migrating upstream in fall and winter. During winter months, when fish are moving upstream to spawn, high outflows may push many fish back into the San Francisco Bay.³³¹

PACIFIC HERRING

Pacific herring (*Clupea pallasii*) are a CDFW-managed species and are protected within the San Francisco Bay under the Marine Life Management Act, which provides guidance in the form of Fisheries Management Plans for the sustainable management of California's historic fisheries. The department, in partnership with the fishing industry and conservation groups, recently updated the Pacific Herring Fisheries Management Plan (2019), which formalizes a strategy for the future management of the fishery.³³²

The Pacific herring is a small schooling marine fish that enters estuaries and bays to spawn. This species is known to spawn along the Oakland and San Francisco waterfronts and attach its egg masses to eelgrass, seaweed, and hard substrates such as pilings, breakwater rubble, and other hard surfaces. An individual can spawn only once during the season, and the spent female returns to the ocean immediately after spawning. Spawning usually takes place between October and March with a peak between December and February. After hatching, juvenile herring typically congregate in the San Francisco Bay during the summer and move into deeper waters in the fall. Portions of the San Francisco waterfront has been identified as a herring spawning location. During the 2015–2016 and 2017–2018 season, spawning was observed at multiple locations between the San Francisco Bay Bridge and Islais Creek.³³³ However, no spawning in these locations was observed during the 2016–2017 or during the 2018–2019 spawning season.³³⁴

SPECIAL-STATUS MARINE MAMMALS

PACIFIC HARBOR SEAL

Pacific harbor seal is a permanent resident in the San Francisco Bay and is routinely seen in waters near the Plan area. Harbor seals are protected under the Marine Mammal Protection Act. They have been observed as far upstream in the Delta and Sacramento River as the City of Sacramento, though their use of the habitat north of Suisun Bay is irregular.³³⁵

The closest location to the Plan area where harbor seals are known to haul out year-round, and that support breeding colonies, is on the southeast side of Yerba Buena Island on U.S. Coast Guard property, and at Alcatraz Island.³³⁶ Individual seals may occasionally haul out farther to the west and southwest of the main haul out site, including along the San Francisco waterfront, depending on space availability and conditions at the main

³³¹ Moyle, P.B., *Inland Fishes of California*, University of California Press, Berkeley and Los Angeles, CA, 2002.

³³² CDFW Marin Region, *California Pacific Herring Fishery Management Plan*, October 2019.

³³³ CDFW, *Summary of the 2018–2019 Pacific Herring Spawning Population and Commercial Fisheries in San Francisco Bay*, November 2019.

³³⁴ Ibid.

³³⁵ Goals Project, *Baylands Ecosystem Species and Community Profiles: Life Histories and Environmental Requirements of Key Plants, Fish, and Wildlife*. Prepared by the San Francisco Bay Area Wetlands Ecosystem Goals Project. P.R. Olofson, ed. San Francisco Bay Regional Water Quality Control Board, Oakland, California, 2000.

³³⁶ Codde, S., and Allen, S., Pacific harbor seal monitoring (*Phoca vitulina richardii*) monitoring at Point Reyes National Seashore and Golden Gate National Recreation Area: 2019 Monitoring Season, *Natural Resource Report*, NPS/SFAN/NRR – 2018/1719. NPS, Fort Collins, CO, 2000.

haul out area. Harbor seals feed in the deepest waters of the bay, with the region from the Golden Gate Bridge to Treasure Island and south to the San Mateo Bridge, being the principal feeding sites.³³⁷ Harbor seals feed on a variety of fish, such as perch, gobies, herring, and sculpin.

HARBOR PORPOISE

Harbor porpoise inhabit northern temperate and subarctic coastal and offshore waters. In the North Pacific, they are found from Japan north to the Chukchi Sea and from Monterey Bay, California to the Beaufort Sea. They are most often observed in bays, estuaries, harbors, and fjords less than 650 feet deep, like the Central Bay and the waters within the study area. The primary food for harbor porpoises is fish and squid.

CALIFORNIA SEA LION

Like the harbor seal, the California sea lion lives in the San Francisco Bay-Delta and is protected by the Marine Mammal Protection Act. A common, abundant marine mammal, they are found throughout the West Coast, generally within 10 miles of shore. They breed in Southern California and the Channel Islands, after which they migrate up the Pacific coast to the bay. They haul out on offshore rocks, sandy beaches, and onto floating docks, wharfs, vessels, and other man-made structures in the bay and coastal waters. California sea lions feed on a wide variety of seafood, mainly squid and fish and sometimes even clams. Commonly eaten fish and squid species include salmon, hake, Pacific whiting, anchovies, herring, schooling fish, rockfish, lamprey, dog fish, and market squid.³³⁸ California sea lions may forage in the waters adjacent to the Plan area and commonly utilize Fisherman's Wharf as a haul-out.

MANAGED U.S. FISHERIES SPECIES

Under the Magnuson-Stevens Act (see Regulatory Framework, for a description), as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-297), NMFS, Fishery Management Councils, and federal agencies are required to cooperatively protect essential fish habitat for commercially important fish species such as Pacific coast groundfish, salmon, and coastal pelagic fish and squid. As defined by the U.S. Congress, essential fish habitat includes "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." Fish species present in the Central Bay basin that are included in Fishery Management Plans prepared by regional Fishery Management Councils under the Magnuson-Stevens Act are listed below in **Table 4.F-1**.

³³⁷ Kopec, D. and Harvey, J., *Toxic pollutants, health indices, and population dynamics of harbor seals in San Francisco Bay, 1989-91: A Final Report*, technical publication, Moss Landing, CA: Moss Landing Marine Labs, 1995.

³³⁸ Southwest Fisheries Science Center, Sea Lion Diet, <https://swfsc.noaa.gov/textblock.aspx?Division=PRD&=&id=1252>, accessed April 15, 2021.

Table 4.F-1 Managed Fish Species Common within Central Bay under the Magnuson Stevens Act

Fisheries Management Plan	Common Name	Scientific Name	Life Stage	Abundance
Coastal Pelagic	Northern anchovy	<i>Engraulis mordax</i>	J, A	Abundant
	Jack mackerel	<i>Trachurus symmetricus</i>	E, L	Present
Pacific Groundfish	English sole	<i>Parophrys vetulus</i>	J, A	Abundant
	Pacific sanddab	<i>Citharichthys sordidus</i>	E, L, J, A	Present
	Starry flounder	<i>Platichthys stellatus</i>	J, A	Present
	Lingcod	<i>Ophiodon elongatus</i>	J, A	Present
	Brown rockfish	<i>Sebastes auriculatus</i>	J	Present
	Kelp greenling	<i>Hexagrammos decagrammus</i>	J, A	Present
	Leopard shark	<i>Triakis semifasciata</i>	J, A	Present
	Spiny dogfish	<i>Squalus acanthias</i>	J, A	Present
	Big skate	<i>Raja binoculata</i>	J, A	Present
Pacific Coast Salmonids	Chinook salmon	<i>Oncorhynchus tshawytscha</i>	J, A	Seasonally present

SOURCES: Pacific Fishery Management Council, Coastal Pelagic FMP, Pacific Groundfish FMP, and Pacific Coast Salmonids FMP Species Lists, 2017, <https://www.pcouncil.org/>, accessed April 28, 2021.
California Department of Fish and Wildlife, Interagency Ecological Program – unpublished midwater trawl data 2010–2014, 2014, <https://water.ca.gov/Programs/Environmental-Services/Interagency-Ecological-Program>, accessed April 28, 2021.

NOTES: A = adult; J = juvenile; L = larva; E = egg

OTHER SPECIAL-STATUS MARINE SPECIES

NATIVE OLYMPIA OYSTERS

The Olympia oyster (*Ostrea lurida*), also known as the “native oyster,” is native to most of western North America, and it was a key component of the San Francisco Bay marine ecosystem prior to overharvesting and increased siltation from hydraulic mining in the mid-nineteenth century.³³⁹ Thought to have gone extinct in San Francisco Bay, Olympia oysters have been observed slowly reestablishing their presence in the San Francisco Bay since 2000. Because of its special importance as a keystone species in the bay, the restoration and reestablishment of Olympia oysters in the San Francisco Bay has become an important component of the overall resource management and restoration of the San Francisco Bay by the NMFS and CDFW.³⁴⁰

In their natural state, Olympia oysters form sparse to dense beds in coastal bays and estuaries and in drought conditions will move up into channels and sloughs, dying off when wetter conditions return. Olympia oysters are not reef builders like their East and Gulf Coast cousin, *Crassostrea virginica*. Olympia oysters are known to provide high biodiversity habitat because they provide physical habitat structure sought by juvenile fish and crustaceans, worms, and foraging fish and birds.³⁴¹ They also stabilize sediment, reduce suspended sediment,

³³⁹ NOAA, *Habitat Connections: Restoring the Olympia Oyster* (*Ostrea conchaphila* = *lurida*), Volume 6, Number 2, 2008, <http://www.oyster-restoration.org/wp-content/uploads/2012/06/OlympiaOysterHabitatConnections.pdf>, accessed April 28, 2021.

³⁴⁰ NOAA, *Report on the Subtidal Habitats and Associated Biological Taxa in San Francisco Bay*, August 2007.

³⁴¹ NOAA, *Habitat Connections: Restoring the Olympia Oyster* (*Ostrea conchaphila* = *lurida*), Volume 6, Number 2, 2008, <http://www.oyster-restoration.org/wp-content/uploads/2012/06/OlympiaOysterHabitatConnections.pdf>, accessed April 21, 2021.

and improve light penetrations, thereby improving the physical conditions that encourage the establishment of submerged aquatic vegetation, such as eelgrass beds. Additionally, a robust population of filter feeders can help modulate plankton blooms.³⁴²

Naturally occurring populations of native oysters can be found throughout the San Francisco Bay on natural and artificial hard substrate from Carquinez Strait to the South Bay. Intertidally, they occur between Point Pinole to south of the Dumbarton Bridge, with the highest reported abundances of 80 per 10.8 square feet in the Central Bay basin.³⁴³ Oysters have appeared to do well subtidally in many human-made habitats such as on marina floats and in tidally restricted ponds, lagoons, and saline lakes.³⁴⁴ Olympia oysters are expected in rocky intertidal, subtidal habitats in the marine study area.

HABITAT AREAS OF PARTICULAR CONCERN

EELGRASS

Eelgrass (*Zostera marina*) is a native marine vascular plant found globally within soft-bottom bays and estuaries. It has been afforded special management considerations by CDFW, USFWS, NMFS, United States Environmental Protection Agency (U.S. EPA), and BCDC. The species is found from middle Baja California and the Sea of Cortez to northern Alaska along the west coast of North America, and is common in healthy, shallow bays and estuaries. The depth to which this species can grow is a function of light penetration. At greater depths, light is reduced to a level below which photosynthesis is unable to meet the metabolic demands of the plant to sustain net growth.

In San Francisco and San Pablo Bays, eelgrass beds occur on soft bottom substrate in shallow areas. Eelgrass beds are extremely dynamic, expanding and contracting seasonally and annually depending on the quality of the site. Consequently, they serve as an indicator community for the overall health of an estuary. Eelgrass plays many roles within the estuary system. It clarifies water through sediment trapping and habitat stabilization. It also provides benefits of nutrient transformation and water oxygenation. Eelgrass serves as a primary producer in a detrital based food-web and is further directly grazed upon by invertebrates, fish, and birds. It supports epiphytic plants and animals that, in turn, are grazed upon by other invertebrates, larval and juvenile fish, and birds. Eelgrass is a nursery area for many commercially and recreationally important finfish and shellfish species including those that are resident within bays and estuaries, nearly all of the anadromous fish species found along the Pacific coast, and oceanic species, which enter the estuaries to breed or spawn. Besides providing important habitat for fish, eelgrass habitat also is considered to be an important resource supporting migratory birds during critical life stages, including migratory periods.

Comprehensive eelgrass surveys of the San Francisco Bay-Delta have been conducted in 1987, 2003, 2009, and 2014. The 1987 survey reported a total of 316 acres of eelgrass beds in San Francisco Bay-Delta.³⁴⁵ The 2009 and 2014 surveys, which employed both high-resolution acoustic mapping and helicopter aerial imagery, reported 3,707 and 2,790 acres of eelgrass beds, respectively present in San Francisco Bay-Delta. In all surveys,

³⁴² Ibid.

³⁴³ 10.8 square feet is roughly equivalent to 1 square meter, a standard scientific unit of measurement. *San Francisco Bay Subtidal Habitat Goals Report*, Appendix 7-1: Shellfish Conservation and Restoration in San Francisco Bay: Opportunities and Constraints, September 17, 2010, <http://www.sfbaysubtidal.org/report.html>.

³⁴⁴ *San Francisco Bay Subtidal Habitat Goals Report*, Appendix 7-1: Shellfish Conservation and Restoration in San Francisco Bay: Opportunities and Constraints, September 17, 2010, <http://www.sfbaysubtidal.org/report.html>, accessed April 21, 2021.

³⁴⁵ Merkel & Associates, *San Francisco Bay-Estuary Eelgrass Mapping*, 2014.

small patches of eelgrass were found at the southern end of the study area within Lash Lighter Basin and Indian Basin.

CRITICAL HABITAT

USFWS and NMFS designate critical habitat for species that they have listed as threatened or endangered. “Critical habitat” is defined in FESA section 3(5)(A) as those lands (or waters) within a listed species’ current range that contain the physical or biological features that are considered essential to the species’ conservation, as well as areas outside the species’ current range that are determined to be essential to its conservation. Critical habitat may include an area that is not currently used by an endangered or threatened species but that will be needed for species recovery.

A review of GIS-based habitat data for *USFWS Critical Habitat for Threatened and Endangered Species* shows that the Plan area is not located within designated critical habitat for any listed species.³⁴⁶ Critical habitat for green sturgeon and Central California coast steelhead is designated for the whole of San Francisco Bay and includes the waters adjacent to the Plan area. Critical habitat for Sacramento River winter-run Chinook salmon and California Central Valley steelhead is designated for San Francisco Bay waters north of the San Francisco Bay Bridge and includes the waters adjacent to the Plan area.

4.F.3 Regulatory Framework

Biological resources in the study area may fall under the jurisdiction of various regulatory agencies and be subject to their regulations. In general, the greatest legal protections are provided for plant and wildlife species that are formally listed by the U.S. government. The following regulations are commonly associated with projects that have the potential to affect biological resources.

FEDERAL REGULATIONS

FEDERAL ENDANGERED SPECIES ACT

The FESA protects listed plant and wildlife species from harm or “take,” which is broadly defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct. Take can also include habitat modification or degradation that directly results in death or injury of a listed wildlife species. An activity can be defined as take even if it is unintentional or accidental. Listed plant species are provided less protection than listed wildlife species. Listed plant species are legally protected from take under the FESA only if they occur on federal lands or if the project requires a federal action, such as a section 404 permit from USACE. USFWS has jurisdiction over wildlife species that are federally listed as threatened and endangered under the FESA, while the NMFS has jurisdiction over marine species and anadromous fish that are federally listed as threatened and endangered. Species that are candidates for listing under the FESA are not granted these protections under the FESA.

³⁴⁶ USFWS Critical Habitat Portal available online at <http://ecos.fws.gov/crithab/>.

MAGNUSON-STEVENS FISHERY CONSERVATION AND MANAGEMENT ACT

The Magnuson-Stevens Act (16 United States Code [USC] sections 1801–1884) of 1976, as amended in 1996 and reauthorized in 2007, applies to fisheries resources and fishing activities in federal waters. Federal waters extend to 200 miles offshore. Conservation and management of U.S. fisheries, development of domestic fisheries, and phasing out of foreign fishing activities are the main objectives of the legislation.

The Magnuson-Stevens Act defines *essential fish habitat* as those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity. The act, as amended through 2007, sets forth a number of new mandates for the NMFS, regional Fishery Management Councils, and federal action agencies to identify essential fish habitat and to protect important marine and anadromous fish habitat. The Magnuson-Stevens Act provided the NMFS with legislative authority to regulate fisheries in the United States in the area between 3 miles and 200 miles offshore and established eight regional Fishery Management Councils that manage the harvest of the fish and shellfish resources in these waters. The councils, with assistance from the marine fisheries service, are required to develop and implement fishery management plans, which include the delineation of essential fish habitat for all managed species. A fisheries management plan is a plan to achieve specified management goals for a fishery and is comprised of data, analyses, and management measures. Essential fish habitat that is identified in a management plan applies to all fish species managed by that plan, regardless of whether the species is a protected species or not. Federal agency actions that fund, permit, or carry out activities that may adversely affect essential fish habitat are required under section 305(b), in conjunction with required section 7 consultation under the FESA, to consult with the NMFS regarding potential adverse effects of their actions on essential fish habitat and to respond in writing to the marine fisheries service’s recommendations.

The waters of the Central Bay basin of the San Francisco Bay are designated as essential fish habitat for fish managed under three Fisheries Management Plans. In total, 13 species of commercially important fish and sharks managed in the Pacific Coast Groundfish and Coastal Pelagic Species management plans use this region of San Francisco Bay as either essential fish habitat or a habitat area of particular concern. In addition, the Pacific Coast Salmon management plan, which includes Chinook salmon, identifies all of the San Francisco Bay as essential fish habitat.³⁴⁷

MIGRATORY BIRD TREATY ACT

The MBTA (16 USC section 703 et seq. [1989]) is the domestic law that affirms and implements a commitment by the United States to four international conventions (with Canada, Mexico, Japan, and Russia) for the protection of a shared migratory bird resource. Unless and except as permitted by regulations, the MBTA encompasses whole birds, parts of birds, and bird nests and eggs. The FESA defines take as “...harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect any threatened or endangered species.” Harm may include significant habitat modification where it actually kills or injures a listed species through impairment of essential behavior (e.g., nesting or reproduction). This would include the protection of nests for all species that are on the List of Migratory Birds, most recently updated in the Federal Register (50 CFR 10.13) in 2013.

All native bird species occurring in the study area are protected by the MBTA and could be affected by the subsequent projects that could occur under the Waterfront Plan.

³⁴⁷ U.S. Army Corps of Engineers (USACE), *Programmatic Essential Fish Habitat Assessment for the Long-Term Management Strategy for the Placement of Dredged Material in the San Francisco Bay Region*, July 2009.

MARINE MAMMAL PROTECTION ACT

The Marine Mammal Protection Act of 1972, and as amended, establishes a federal responsibility for the protection and conservation of marine mammal species by prohibiting the harassment, hunting, capture, or killing of any marine mammal. The primary authority for implementing the act belongs to USFWS and NMFS.

LONG TERM MANAGEMENT PLAN FOR DREDGING IN SAN FRANCISCO BAY

Although dredging activities are not proposed under the Waterfront Plan, the Long-Term Management Strategy Management Plan for maintenance dredging of navigation channels in San Francisco Bay (established in 2001) provides for a cooperative approach to sediment management in the San Francisco Bay-Delta. It represents a cooperative program among the U.S. EPA, USACE, Regional Water Quality Control Board, BCDC, and regional stakeholders, including the National Oceanic and Atmospheric Administration (NOAA) (NMFS), CDFW, area environmental organizations, and water-related industries. The Long-Term Management Strategy facilitates the economical and environmentally responsible maintenance of critical and needed navigation channels in the Bay-Delta and the environmentally responsible disposal of dredged material. It maximizes the use of dredged material as a beneficial resource, and establishes a cooperative permitting framework for dredging, dredged material disposal, and development of beneficial reuse sites for dredge material.

A key component of the Long-Term Management Strategy is the establishment of construction work windows that include periods when construction activities that have the potential to affect aquatic and terrestrial wildlife habitat and migration activity are allowed, restricted, or prohibited. Different restrictions and requirements are enforced depending on the affected species and time of year. These restrictions and requirements are frequently applied to in-water work other than dredging, such as pile-driving. If a project proponent wishes to construct during restricted periods, they must formally submit for consultation with the appropriate resource agencies. Through formal consultation, specific measures must be implemented to avoid or reduce potential impacts.

FEDERAL REGULATION OF WETLANDS AND OTHER WATERS

Wetlands are ecologically complex habitats that support a variety of both plant and animal life. The federal government defines and regulates other waters, including wetlands, in CWA section 404. Wetlands are “areas that are inundated or saturated by surface water or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions” (33 CFR section 328.3(c) and 40 CFR 230.3). Under normal circumstances, the federal definition of wetlands requires the presence of three identification parameters: wetland hydrology, hydric soils, and hydrophytic vegetation.

The regulations and policies of various federal agencies (e.g., USACE, the U.S. EPA, and USFWS) mandate that the filling of wetlands be avoided unless it can be demonstrated that there is no practicable alternative to filling. USACE has primary federal responsibility for administering regulations that concern waters and wetlands in the study area under the statutory authority of the Rivers and Harbors Appropriation Act (sections 9 and 10) and the CWA (section 404).

Pursuant to section 10 of the Rivers and Harbors Appropriation Act of 1899 (33 USC section 403), USACE regulates the construction of structures in, over, or under, excavation of material from, or deposition of material into navigable waters. In tidal areas, the limit of navigable water under section 10 is the elevation of the mean high-water mark; in nontidal waters, it is the ordinary high-water mark. Larger streams, rivers, lakes,

Chapter 4. Environmental Setting, Impacts, and Mitigation Measures

4.F. Biological Resources

bays, and oceans are examples of navigable waters regulated under Rivers and Harbors Appropriation Act section 10. The act prohibits the unauthorized obstruction or alteration of any navigable water (33 USC section 403). Navigable waters under the act are those “subject to the ebb and flow of the tide and/or are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce” (33 CFR section 329.4). Typical activities requiring section 10 permits are construction of piers, wharves, bulkheads, marinas, ramps, floats, intake structures, cable or pipeline crossings, and dredging and excavation.

Federal CWA section 404 (33 USC 1251 et seq. [1972]) prohibits the discharge of dredged or fill material into waters of the United States, including wetlands, without a permit from USACE. The agency’s jurisdiction in tidal waters under section 404 extends to the high-tide line or high-tide mark, simply indicating a point on the shore where water reaches a peak height at some point each year.

The CWA prohibits the discharge of any pollutant without a permit. Implicit in the act’s definition of pollutant is the inclusion of dredged or fill material regulated by section 404 (33 USC section 1362). The discharge of dredged or fill material typically means adding into waters of the United States materials such as concrete, dirt, rock, pilings, or side-cast material for the purpose of replacing an aquatic area with dry land or raising the elevation of an aquatic area. Activities typically regulated under section 404 include the use of construction equipment such as bulldozers, and the leveling or grading of sites where jurisdictional waters occur.

STATE REGULATIONS

CALIFORNIA ENDANGERED SPECIES ACT

Under CESA, CDFW has the responsibility for maintaining a list of threatened and endangered species (CFGC section 2070). The department also maintains a list of candidate species, which are species formally under review for addition to either the list of endangered species or the list of threatened species.

The CESA prohibits the take of plant and animal species that the California Fish and Game Commission has designated as either threatened or endangered in California. “Take” in the context of this regulation means to hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill a listed species (CFGC section 86). The take prohibitions also apply to candidates for listing under the CESA. However, section 2081 of the act allows the department to issue permits for the minor and incidental take of species by an individual or permitted activity listed under the act. Unlike the FESA, species that are candidates for state listing are granted the same protections as listed species under the CESA.

In accordance with the requirements of the CESA, an agency reviewing a project within its jurisdiction must determine whether any state-listed endangered or threatened species could be present in the Plan area. The agency also must determine whether the project could have a potentially significant impact on such species. In addition, the department encourages informal consultation on any project that could affect a candidate species.

CALIFORNIA FISH AND GAME CODE

FULLY PROTECTED SPECIES

Certain species are considered fully protected, meaning that the CFGC explicitly prohibits all take of individuals of these species except take permitted for scientific research. Fully protected amphibians and reptiles, fish, birds, and mammals are listed in sections 5050, 5515, 3511, and 4700, respectively.

PROTECTION OF BIRDS AND THEIR NESTS

Under CFGC section 3503, it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by the code or any regulation made pursuant thereto. CFGC section 3503.5 prohibits take, possession, or destruction of any birds in the orders Falconiformes (hawks) or Strigiformes (owls), or of their nests and eggs. Migratory non-game birds are protected under section 3800, whereas other specified birds are protected under section 3505. CFGC section 3513 adopts the federal definition of migratory bird take, which is defined by the DOI under provisions of the MBTA. Section 3513 does not prohibit the incidental take of birds if the underlying purpose of the activity is not to take birds. In addition, CDFW has issued an advisory that affirms that California law prohibits incidental take of migratory birds.³⁴⁸

STATE REGULATION OF WETLANDS AND OTHER WATERS

California's authority in regulating activities in wetlands and waters in the Plan area resides primarily with the State Water Resources Control Board (state board). The state board, acting through the regional board, must certify that a USACE permit action meets state water quality objectives (CWA section 401). Any condition of water quality certification is then incorporated into the USACE section 404 permit authorized for the project.

The state board and regional board also have jurisdiction over waters of the state under the Porter-Cologne Water Quality Control Act. They evaluate proposed actions for consistency with the regional board's Basin Plan, and authorize impacts on waters of the state by issuing Waste Discharge Requirements or, in some cases, a waiver of Waste Discharge Requirements.

BCDC has jurisdiction over coastal activities occurring within and around San Francisco Bay and Suisun Marsh. The commission was created by the McAteer-Petris Act (California Government Code sections 66600–66694). The commission regulates fill, extraction of materials, and substantial change in use of land, water, and structures in San Francisco Bay and development within 100 feet of the bay. The commission has jurisdiction over all areas of San Francisco Bay that are subject to tidal action, including subtidal areas, intertidal areas, and tidal marsh areas that are between mean high tide and 5 feet above mean sea level.

NATIVE PLANT PROTECTION ACT

State listing of plant species began in 1977 with the passage of the California Native Plant Protection Act (CFGC sections 1900–1913), which directed CDFW to carry out the legislature's intent to "preserve, protect, and enhance endangered plants in this State." The act gave the California Fish and Game Commission the power to designate native plants as endangered or rare and to require permits for collecting, transporting, or selling such plants. The California Endangered Species Act expanded on the original native plant protection act and enhanced legal protection for plants. The California Endangered Species Act established threatened and

³⁴⁸ CDFW, *CDFW and California Attorney General Xavier Becerra Advisory Affirming California's Protections for Migratory Birds*, November 29, 2018. Available at file: <https://nrm.dfg.ca.gov>.

endangered species categories and grandfathered all rare animals—but not rare plants—into the act as threatened species. Thus, three listing categories for plants are employed in California: rare, threatened, and endangered.

LOCAL

SAN FRANCISCO GENERAL PLAN

The Environmental Protection Element of the San Francisco General Plan contains the following objectives and policies related to biological resources protection that are relevant to the Waterfront Plan:

GENERAL

Objective 1: Achieve a proper balance among the conservation, utilization, and development of San Francisco's natural resources.

Policy 1.1: Conserve and protect the natural resources of San Francisco.

Policy 1.2: Improve the quality of natural resources.

Policy 1.3: Restore and replenish the supply of natural resources.

Policy 1.4: Assure that all new development meets strict environmental quality standards and recognizes human needs.

BAY, OCEAN, AND SHORELINES

Objective 3: Maintain and improve the quality of the bay, ocean, and shoreline areas.

Policy 3.1: Cooperate with and otherwise support regulatory programs of existing regional, state, and federal agencies dealing with the bay.

Policy 3.2: Promote the use and development of shoreline areas consistent with the General Plan and the best interest of San Francisco.

LAND

Objective 7: Assure that the land resources in San Francisco are used in ways that both respect and preserve the natural values of the land and serve the best interests of all the city's citizens.

FLORA AND FAUNA

Objective 8: Ensure the protection of plant and animal life in the city.

Policy 8.1: Cooperate with and otherwise support the California Department of Fish and Game and its animal protection programs.

Policy 8.2: Protect the habitats of known plant and animal species that require a relatively natural environment.

Policy 8.3: Protect rare and endangered species

SAN FRANCISCO PUBLIC WORKS CODE

The San Francisco's Urban Forestry Ordinance (article 16 of the public works code) protects street trees, significant trees, and landmark trees under San Francisco Public Works (Public Works) jurisdiction, regardless of species. The ordinance protects the following three categories of trees:

- A *street tree* is “any tree growing within the public right-of-way, including unimproved public streets and sidewalks, and any tree growing on land under the jurisdiction of the Department [of Public Works],” as defined in section 802 of the ordinance. Section 806b requires entities (other than Public Works) to obtain a permit from the department before removing any street trees.
- A *significant tree* is defined in section 810A of the ordinance as any tree (1) located on property under the jurisdiction of the Public Works or on privately owned property with any portion of its trunk within 10 feet of the public right-of-way; and (2) any tree that satisfies at least one of the following criteria: a diameter at breast height in excess of 12 inches, a height in excess of 20 feet, or a canopy in excess of 15 feet. Any entity other than the Public Works must obtain a permit to remove significant trees according to the process described in section 806b.
- A *landmark tree* is any tree that (1) has been nominated as such by a member of the public, a landowner, the San Francisco Planning Commission, the San Francisco Board of Supervisors, or the San Francisco Historic Preservation Commission; (2) the Urban Forestry Council (within the San Francisco Department of the Environment) has subsequently recommended as a landmark tree; and (3) is designated a landmark tree by ordinance approved by the Board of Supervisors. According to section 810 of the ordinance, nominated trees undergoing review are protected according to the same standards as designated landmark trees until the review process is completed.

Permits are required for planting or removing street trees and significant trees, and protection measures are required for these trees if construction work would occur within the trees' drip lines.³⁴⁹

SAN FRANCISCO PLANNING CODE SECTION 139 (STANDARDS FOR BIRD-SAFE BUILDINGS)

The San Francisco Planning Department adopted Standards for Bird-Safe Buildings in 2011, adding San Francisco Planning Code section 139.³⁵⁰ These standards guide the use and types of glass and façade treatments, wind generators and grates, and lighting treatments. The standards impose requirements for bird-safe glazing and lighting in structures or at sites that represent a hazard to birds and provide information on educational and voluntary programs related to bird hazards. The standards define two types of bird hazards: location-related hazards and feature-related hazards.

Location-related hazards are buildings located inside of, or within a clear flight path of less than 300 feet from, an urban bird refuge.³⁵¹ In such locations, bird-safe treatments are required for new buildings, for additions to existing buildings, or for existing buildings in which 50 percent or more of the glazing within the bird collision

³⁴⁹ The area defined by the outermost circumference of a tree canopy where water drips from and onto the ground.

³⁵⁰ San Francisco Planning Department, Standards for Bird-Safe Buildings, 2011, https://sfplanning.org/sites/default/files/documents/reports/bird_safe_bldgs/Standards%20for%20Bird%20Safe%20Buildings%20-%202011-30-11.pdf, accessed April 28, 2021.

³⁵¹ An *urban bird refuge* is defined in the Standards for Bird-Safe Buildings as any area of open space 2 acres or larger that is dominated by vegetation, including vegetated landscaping, forest, meadows, grassland, water features, or wetlands; open water; and some green rooftops.

zone is to be replaced.³⁵² The standards require implementation of the following treatments for façades facing, or located within, an urban bird refuge:

- No more than 10 percent untreated glazing is allowed on building façades within the bird collision zone.
- Lighting must be shielded, and no uplighting is permitted. No event searchlights are permitted.
- Sites are not permitted to use horizontal access windmills or vertical access wind generators that do not appear solid.

Feature-related hazards include building- or structure-related features that are considered potential “bird traps” regardless of location (e.g., glass courtyards, transparent building corners, or clear glass walls on rooftops or balconies). These features must be fully treated (100 percent) with bird-safe glazing.

SAN FRANCISCO BAY PLAN

The San Francisco Bay Plan specifies goals, objectives, and policies for existing and proposed waterfront land use and other areas under the jurisdiction of BCDC. Major policies of the San Francisco Bay Plan applicable to wildlife include but are not limited to the following:

4. **Justifiable Filling.** Some bay filling may be justified for purposes of providing substantial public benefits if these same benefits could not be achieved equally well without filling. Substantial public benefits are provided by:
 - a. Developing adequate port terminals, on a regional basis, to keep San Francisco Bay in the forefront of the world’s great harbors during a period of rapid change in shipping technology.
 - b. Developing adequate land for industries that require access to shipping channels for transportation of raw materials or manufactured products.
 - c. Developing new recreational opportunities—shoreline parks, marinas, fishing piers, beaches, hiking and bicycling paths, and scenic drives.
 - d. Developing expanded airport terminals and runways if regional studies demonstrate that there are no feasible sites for major airport development away from the bay.
 - e. Developing new freeway routes (with construction on pilings, not solid fill) if thorough study determines that no feasible alternatives are available.
 - f. Developing new public access to the bay and enhancing shoreline appearance over and above that provided by other Bay Plan policies—through filling limited to Bay-related commercial recreation and public assembly.
5. **Effects of Bay Filling.** Bay filling should be limited to the purposes listed above [see no. 4] because any filling is harmful to the bay, and thus to present and future generations of Bay Area residents. All Bay filling has one or more of the following harmful effects:
 - a. Filling destroys the habitat of fish and wildlife. Future filling can disrupt the ecological balance in the bay, which has already been damaged by past fills, and can endanger the very existence of some species of birds and fish. The Bay, including open water, mudflats, and marshlands, is a complex biological system in which microorganisms, plants, fish, waterfowl, and shorebirds live in a delicate

³⁵² The bird collision zone is that portion of the building that begins at grade and extends upward for 60 feet.

balance created by nature, and in which seemingly minor changes, such as a new fill or dredging project, may have far-reaching and sometimes highly destructive effects.

SAN FRANCISCO BAY SUBTIDAL HABITAT GOALS PROJECT

In 2010, BCDC, the California Ocean Protection Council/California State Coastal Conservancy, NOAA, and the San Francisco Estuary Partnership, in collaboration with the broader scientific community, managers, restoration practitioners, and stakeholders, published a set of restoration planning goals and guidelines for the subtidal areas and habitats of San Francisco Bay.³⁵³ Though currently neither a policy nor regulatory document, this report offers guidance on opportunities for subtidal restoration and protection. Implementation will occur through a number of avenues; for example, local governments may incorporate these recommendations into their planning processes and documents, and regulatory agencies may use this report to evaluate, revise, or implement their policies.

Subtidal habitat consists of all the submerged area beneath San Francisco Bay water surface and includes mud, shell, sand, rocks, artificial structures, shellfish beds, submerged aquatic vegetation, macroalgal beds, and the water column above the bay bottom. Submerged habitats are important for threatened species such as green sturgeon and Chinook salmon, commercial species like Dungeness crab and Pacific herring, and a host of other fish, shrimp, crabs, migratory waterfowl, and marine mammals.

The San Francisco Bay Subtidal Habitat Goals Project takes a Bay-wide approach in setting science-based goals for maintaining a healthy, productive, and resilient ecosystem. Where possible, these subtidal goals are designed to connect with intertidal habitats and with goals developed by other projects, including goals for San Francisco Bay submerged and upland habitats. The goals and recommendations contained within the Subtidal Habitat Goals Project are not binding by regulation but are intended to serve as guidance to local, state, and federal agencies when evaluating projects and their potential ecological effects, and when issuing permits.

The principal habitat conservation goals included in the Subtidal Habitat Goals Report that apply to Waterfront Plan include the following:

- **Soft Substrate:**
 - Promote no net increase to disturbance to San Francisco Bay soft bottom habitat.
 - Promote no net loss to San Francisco Bay subtidal and intertidal sand habitats.
- **Rock Habitats:**
 - Promote no net loss of natural intertidal and subtidal rock habitats in San Francisco Bay.
- **Artificial Structures:**
 - Enhance and protect habitat function and the historical value of artificial structures in San Francisco Bay.
 - Improve San Francisco Bay subtidal habitats by minimizing placement of artificial structures that are detrimental to subtidal habitat function.

³⁵³ San Francisco Bay Subtidal Habitat Goals Project, <http://www.sfbaysubtidal.org/report.html>, accessed April 21, 2021.

- Shellfish Beds:
 - Protect San Francisco Bay native shellfish habitats (particularly native Olympia oyster) through no net loss to existing habitats.
- Submerged Aquatic Vegetation:
 - Protect existing eelgrass habitat in San Francisco Bay through no net loss to existing beds.
- Macroalgal Beds:
 - Protect San Francisco Bay Fucus beds through no net loss to existing beds.
 - Protect San Francisco Bay Gracilaria beds through no net loss to existing beds.

4.F.4 Impacts and Mitigation Measures

SIGNIFICANCE THRESHOLDS

For the purpose of this analysis, the following applicable thresholds were used to determine whether subsequent projects that could occur with adoption and implementation of the Waterfront Plan would result in a significant impact on biological resources. Implementation of the Waterfront Plan would have a significant effect on biological resources if a subsequent project would:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or USFWS;
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by CDFW or USFWS;
- Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or
- Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan.

APPROACH TO ANALYSIS

Impacts on biological resources are identified and evaluated based on relevant CEQA and local standards, policies, and guidelines on the likelihood that special-status species, sensitive habitats, wetlands and waters, and wildlife corridors are present within the Plan area; and on the likely effects that subsequent project construction, operation, and maintenance might have on these resources. Special-status resources that were determined to have a low or no potential to occur in the study area (individual plant and animal species as presented in Appendix H1, Special-Status Species Potential to Occur within the Study Area, Table H1-1) are not considered in the impact analysis.

This section analyzes potential impacts to biological resources during the construction and operation of subsequent projects that could occur with adoption and implementation of the Waterfront Plan. The analysis addresses potential direct and indirect impacts from construction or operation of the subsequent projects, defined as follows:

- *Direct impacts* are those that could occur at the same time and place as project implementation, such as the removal of habitat as a result of ground disturbance.
- *Indirect impacts* are those that could occur either at a later time or at a distance from the Plan area, but that are reasonably foreseeable, such as the loss of an aquatic species as a result of upstream effects on water quality or quantity.

Direct and indirect impacts on biological resources may vary in duration; they may be temporary, short term, or long term.

The analysis considers the potential impacts of subsequent projects that could occur with adoption and implementation of the Waterfront Plan on suitable habitat, special-status species, sensitive natural communities, wetlands, and wildlife corridors, using the significance criteria listed above. Mitigation measures are identified, as necessary, to reduce impacts to less-than-significant levels.

Since no adopted habitat conservation plan, natural community conservation plan, or approved local, regional, or state conservation plan protecting biological resources covers the terrestrial study area or marine study area, subsequent projects that could occur with implementation of the Waterfront Plan would not conflict with the provisions of an adopted plan. Therefore, topic 15.f in the CEQA checklist is not applicable and is not discussed further.

IMPACT ANALYSIS

Impact BI-1: The Waterfront Plan could have a substantial adverse effect, either directly, indirectly, or through habitat modifications, on a plant species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or USFWS. (*Less than Significant with Mitigation*)

Subsequent projects that could occur under the Waterfront Plan that could have a direct or indirect impacts on biological resources includes, but may not be limited to: new construction on seawall lots, including maritime industrial, general industrial, warehouses, residential, and office buildings; development of new maritime uses and open space; tree removal or trimming associated with access, demolition, and construction; and pile removal and pile installation (i.e., pile driving) in the bay.

SPECIAL-STATUS PLANT SPECIES

Special-status plant species could occur in coastal saltmarsh, coastal scrub, and coastal dunes present in the Southern Waterfront subarea. Subsequent projects that could occur under the Waterfront Plan could result in direct impacts to special-status plant species if construction or access were required within or directly adjacent to coastal saltmarsh, coastal scrub, or coastal dune habitat containing special-status plant species, and those species were damaged by project-related equipment, vehicles, the deposition of spoils or equipment. If present, the loss of individual plants during construction would be a significant impact. Implementation of **Mitigation Measures M-BI-1a, Worker Environmental Awareness Program Training, and M-BI-1b, Special-Status Plant Species Surveys**, would be required.

Mitigation Measure M-BI-1a: Worker Environmental Awareness Program Training. Project-specific Worker Environmental Awareness Program (WEAP) training shall be developed and implemented by a qualified biologist and attended by all project personnel performing demolition or ground-disturbing work where buildings, bridges, landscaping/street trees, natural vegetation or shoreline habitats are present prior to the start of work. The WEAP training shall generally include, but not be limited to, education about the following:

- Applicable state and federal laws, environmental regulations, project permit conditions, and penalties for non-compliance.
- Special-status plant and animal species with the potential to be encountered on or in the vicinity of the project area during construction.
- Avoidance measures and a protocol for encountering special-status species including a communication chain.
- Preconstruction surveys and biological monitoring requirements associated with each phase of work and at specific locations within the project area (e.g., shoreline work) as biological resources and protection measures will vary depending on where work is occurring within the site, time of year, and construction activity.
- Known sensitive resource areas in the project vicinity that are to be avoided and/or protected as well as approved project work areas, access roads, and staging areas.

Mitigation Measure M-BI-1b: Special-Status Plant Species Surveys. Botanical surveys shall be conducted where construction, demolition, site access, materials staging, or spoils piles are planned within coastal saltmarsh, coastal scrub, or coastal dunes, or within 50 feet of these habitats. Surveys will follow CDFW's *Protocols for Surveying and Evaluating Impacts to Special-Status Native Plant Populations and Natural Communities* (CDFG 2009). Surveys shall maximize the likelihood of locating special-status species, be floristic in nature, include areas of potential indirect impacts, be conducted in the field at the time of year when species are both evident and identifiable, and be replicated and spaced throughout the growing season to accurately determine what plants exist on the site. If no special-status plants are identified, no further action is required to avoid or minimize impacts to these species.

If special-status plants are encountered in the work area, they should be avoided. If they cannot be avoided, the Port shall, in coordination with USFWS and/or CDFW (as applicable based on plant status), avoid plants through project design, protect plants from construction activities through the use of exclusion fencing and signage, or minimize impacts to plant populations, relocate plants to other suitable habitat nearby, or harvest seed, as appropriate to the particular species.

Prior to construction, staging areas shall be identified that avoid impacts to special-status plants identified, and construction exclusion fencing shall be used to define the work area and minimize disturbance to these areas. The fencing shall be maintained through the construction phase and monitored on a weekly basis during construction to ensure protection of special-status plants and their habitat.

If avoidance is not feasible, rare plants and their seeds shall be salvaged and relocated, and habitat restoration shall be provided to replace any destroyed special-status plant occurrences at a minimum 1:1 ratio (i.e., no net loss) or as specified by resource agencies based on area of lost habitat.

Compensation for loss of special-status plant populations shall include the restoration or enhancement of temporarily impacted areas, and management of restored areas. Restoration or reintroduction shall be located on-site where feasible. At a minimum, the restoration areas shall meet the following performance standards by the fifth year:

- a. The compensation area shall be at least the same size as the impact area.
- b. Vegetation cover and composition in special-status plant restoration areas shall emulate existing reference populations.
- c. Monitoring shall demonstrate the continued presence of rare plants in the restoration area.
- d. Invasive species cover shall be less than or equal to the invasive species cover in the impact area.

Additionally, restored populations shall have greater than the number of individuals of the impacted population, in an area greater than or equal to the size of the impacted population, for at least 3 consecutive years without irrigation, weeding, or other manipulation of the restoration site. The Habitat Monitoring Plan to be prepared in accordance with Mitigation Measure M-BI-4, Avoidance of Pickleweed Mat Sensitive Natural Community, shall include the above monitoring requirements and success criteria.

Operation of a subsequent project that could occur under the Waterfront Plant is not expected to result in direct or indirect impacts on special-status plants, which, if present, would be restricted to coastal saltmarsh, coastal scrub, or coastal dunes. Subsequent projects under the Waterfront Plan are not expected to operate within or adjacent to these habitats.

Significance after Mitigation: Implementation of Mitigation Measures M-BI-1a and M-BI-1b would reduce potential impacts to special-status plants because they require providing environmental training for construction personnel; conducting a rare plant survey and avoiding special-status species where feasible; and, if avoidance is not feasible, implementing salvage and relocation of the plants. Implementation of these mitigation measures would reduce potential impacts on special-status plants to ***less than significant with mitigation***.

Impact BI-2: The Waterfront Plan could have a substantial adverse effect, either directly, indirectly, or through habitat modifications, on nesting bird or bat species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or USFWS. (*Less than Significant with Mitigation*)

NESTING BIRDS

Subsequent projects that could occur under the Waterfront Plan could result in impacts to nesting birds. Construction-related direct impacts on special-status birds or nesting birds protected by the MBTA could result from the removal of trees and vegetation and/or demolition of buildings while an active bird nest is present. In addition, earth moving, operation of heavy equipment, and increased human presence could result in noise, vibration, and visual disturbance. These conditions could indirectly result in nest failure (disturbance, avoidance, or abandonment that leads to unsuccessful reproduction), or could cause flight behavior that would expose an adult or its young to predators. These activities could cause birds that have established a

nest before the start of construction to change their behavior or even abandon an active nest, putting their eggs and nestlings at risk for mortality.

Generally, nest failure would be a violation of CFGC sections 3503–3513. Impacts during the non-breeding season generally are not considered significant, primarily because of the birds' mobility and ability to access other comparable foraging habitat in the region. Therefore, implementation of Mitigation Measure MBI1a and **Mitigation Measure M-BI-2a, Nesting Bird Protection Measures**, would be required for subsequent new development projects that could occur under the Waterfront Plan during the breeding season.

Operational activities from subsequent projects that could occur under the Waterfront Plan are unlikely to indirectly impact nesting birds due to the baseline level of human disturbance already occurring along the waterfront and in public parks. Birds nesting in these areas are assumed to be habituated to such disturbance, and therefore, human disturbance would be **less than significant**.

Mitigation Measure M-BI-2a: Nesting Bird Protection Measures. Mitigation Measure M-BI-2a applies to new development projects that include removal of trees or vegetation, major tree trimming, demolition of buildings, or use of heavy equipment (e.g., earthwork, demolition) that could disturb nests or nesting birds. Nesting birds and their nests shall be protected during construction by use of the following measures:

1. A qualified wildlife biologist shall conduct pre-construction nesting surveys during the avian nesting breeding season (approximately February 15 to September 15) within 7 days prior to construction. Surveys shall be performed for the project area, vehicle and equipment staging areas, and suitable habitat within 250 feet to locate any active passerine (perching bird) nests and within 500 feet to locate any active raptor (bird of prey) nests.
2. If active nests are located during the pre-construction nesting bird surveys, the qualified wildlife biologist shall evaluate if the schedule of construction activities could affect the active nests and the following measures shall be implemented based on their determination:
 - a. If construction is not likely to affect the active nest, construction may proceed without restriction.
 - b. If it is determined that construction may affect the active nest, the qualified biologist shall establish a no-disturbance buffer around the nest(s) and all project work would halt within the buffer until a qualified biologist determines the nest is no longer in use. Typically, these buffer distances are up to 250 feet for passerines and 500 feet for raptors; however, the buffers may be adjusted downward for some species, or if an obstruction, such as a building, is within line-of-sight between the nest and construction activities.
 - c. Modifying nest buffer distances, allowing certain construction activities within the buffer, and/or modifying construction methods in proximity to active nests shall be done at the discretion of the qualified biologist and in coordination with the Port. Necessary actions to remove or relocate an active nest(s) shall be coordinated with the Port.
 - d. Any work that must occur within established no-disturbance buffers around active nests shall be monitored by a qualified biologist. If adverse effects in response to project work within the buffer are observed and could compromise the nest, work within the no-disturbance buffer(s) shall halt until the nest occupants have fledged.

- e. Any birds that begin nesting within the project area and survey buffers amid construction activities shall be assumed to be habituated to construction-related or similar noise and disturbance levels and no work exclusion zones shall be established around active nests in these cases; however, should birds nesting nearby begin to show disturbance associated with construction activities, no-disturbance buffers shall be established as determined by the qualified wildlife biologist.

Significance after Mitigation: Implementation of Mitigation Measures M-BI-1a and M-BI-2a would reduce potential impacts to nesting birds because they require providing environmental training for construction personnel; limiting construction to the non-nesting season when feasible or, if avoiding the nesting season is not feasible, conducting pre-construction surveys for nesting birds and establishing no-disturbance buffers around any active nests to ensure they are not disturbed by construction; and repeating the pre-construction surveys when work resumes after being suspended for seven days. Therefore, implementation of these mitigation measures would reduce potential impacts on nesting birds to ***less than significant with mitigation***.

SPECIAL-STATUS ROOSTING BATS

Bats, including special-status species pallid bat and Yuma myotis, have the potential to roost in trees in or on buildings, under bridges, and in tree foliage or bark in parks within or adjacent to the study area during daytime construction hours. Construction activities could result in direct impacts to roosting bats if they were disturbed, killed, or injured by demolition of a structure, or construction-related removal or trimming of a tree, in which they were roosting. If roosting bats are present, construction noise could result in disturbance, avoidance, or abandonment of roosts resulting in unsuccessful reproduction. If tree removal or building demolition were to occur during periods of winter torpor or maternity roosting, any bats present would likely not survive the disturbance.³⁵⁴ Therefore, **Mitigation Measure M-BI-2b, Avoidance and Minimization Measures for Bats**, would be required for subsequent projects that could occur under the Waterfront Plan.

Operational activities from subsequent projects that could occur under the Waterfront Plan are unlikely to indirectly impact roosting bats due to the baseline level of human disturbance already occurring along the waterfront and in public parks. Bats roosting in these areas are assumed to be habituated to such disturbance, and therefore, human disturbance would be ***less than significant***.

Mitigation Measure M-BI-2b: Avoidance and Minimization Measures for Bats. A qualified biologist (as defined by CDFW³⁵⁵) who is experienced with bat surveying techniques (including auditory sampling methods), behavior, roosting habitat, and identification of local bat species shall be consulted prior to demolition or building relocation activities or tree work to conduct a pre-construction habitat assessment of the project area (focusing on buildings to be demolished or relocated) to characterize potential bat habitat and identify potentially active roost sites. No further action is required should the pre-construction habitat assessment not identify bat habitat or signs of potentially active bat roosts within the project area (e.g., guano, urine staining, dead bats, etc.).

The following measures shall be implemented should potential roosting habitat or potentially active bat roosts be identified during the habitat assessment in buildings to be demolished or relocated for

³⁵⁴ Tuttle, M., How North America Bats Are at Their Most Vulnerable during Hibernation and Migration, *BATS Magazine* 9(3), fall 1991, http://www.batcon.org/resources/media-education/bats-magazine/bat_article/492, accessed April 28, 2021.

³⁵⁵ CDFW defines credentials of a *qualified biologist* within permits or authorizations issued for a project. Typical qualifications include a minimum of four years of academic training leading to a degree and a minimum of 2 years of experience conducting surveys for each species that may be present within the project area.

subsequent projects under the Waterfront Plan or in trees adjacent to construction activities that could be trimmed or removed for subsequent projects under the Waterfront Plan:

1. In areas identified as potential roosting habitat during the habitat assessment, initial building demolition, relocation, and any tree work (trimming or removal) shall occur when bats are active, approximately between the periods of March 1 to April 15 and August 15 to October 15, to the extent feasible. These dates avoid the bat maternity roosting season and period of winter torpor.³⁵⁶
2. Depending on temporal guidance as defined below, the qualified biologist shall conduct pre-construction surveys of potential bat roost sites identified during the initial habitat assessment no more than 14 days prior to building demolition or relocation, or any tree trimming or removal.
3. If active bat roosts or evidence of roosting is identified during pre-construction surveys for building demolition and relocation or tree work, the qualified biologist shall determine, if possible, the type of roost and species. A no-disturbance buffer shall be established around roost sites until the qualified biologist determines they are no longer active. The size of the no-disturbance buffer would be determined by the qualified biologist and would depend on the species present, roost type, existing screening around the roost site (such as dense vegetation or a building), as well as the type of construction activity that would occur around the roost site.
4. If special-status bat species or maternity or hibernation roosts are detected during these surveys, appropriate species- and roost-specific avoidance and protection measures shall be developed by the qualified biologist in coordination with CDFW. Such measures may include postponing the removal of buildings or structures, establishing exclusionary work buffers while the roost is active (e.g., 100-foot no-disturbance buffer), or other compensatory mitigation.
5. The qualified biologist shall be present during building demolition, relocation, or tree work if potential bat roosting habitat or active bat roosts are present. Buildings and trees with active roosts shall be disturbed only under clear weather conditions when precipitation is not forecast for three days and when daytime temperatures are at least 50 degrees Fahrenheit.
6. The demolition or relocation of buildings containing or suspected to contain bat roosting habitat or active bat roosts shall be done under the supervision of the qualified biologist. When appropriate, buildings shall be partially dismantled to significantly change the roost conditions, causing bats to abandon and not return to the roost, likely in the evening and after bats have emerged from the roost to forage. Under no circumstances shall active maternity roosts be disturbed until the roost disbands at the completion of the maternity roosting season or otherwise becomes inactive, as determined by the qualified biologist.
7. Trimming or removal of existing trees with potential bat roosting habitat or active (non-maternity or hibernation) bat roost sites shall follow a two-step removal process (which shall occur during the time of year when bats are active, according to a) above and, depending on the type of roost and species present, according to c) above).
 - a. On the first day and under supervision of the qualified biologist, tree branches and limbs not containing cavities or fissures in which bats could roost shall be cut using chainsaws.

³⁵⁶ *Torpor* refers to a state of decreased physiological activity with reduced body temperature and metabolic rate.

- b. On the following day and under the supervision of the qualified biologist, the remainder of the tree may be trimmed or removed, either using chainsaws or other equipment (e.g., excavator or backhoe).
- c. All felled trees shall remain on the ground for at least 24 hours prior to chipping, off-site removal, or other processing to allow any bats to escape, or be inspected once felled by the qualified biologist to ensure no bats remain within the tree and/or branches.

Implementation of Mitigation Measures M-BI-1a and M-BI-2b would reduce construction-related impacts by requiring worker environmental awareness training; pre-construction surveys to identify active bat roosts; establishment of protective buffers until roosts are no longer in use; and, limiting the removal of trees or structures with potential bat roosting habitat to the time of year when bats are active to avoid disturbing bats during the maternity roosting season or months of winter torpor. Therefore, implementation of these mitigation measures would reduce potential impacts on special-status roosting bats to ***less than significant with mitigation***.

Impact BI-3: The Waterfront Plan could have a substantial adverse effect, either directly, indirectly, or through habitat modifications, on steelhead, chinook salmon, green sturgeon, or marine mammal species, which are identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW, NMFS, or USFWS. (*Less than Significant with Mitigation*)

SPECIAL-STATUS MARINE SPECIES

The waters of the Central Bay are home to a number of state and federally protected marine species and habitats; and for a few of these species, the bay is considered their critical habitat. These species include multiple runs of steelhead and chinook salmon, green sturgeon, longfin smelt, and Pacific herring. Additionally, portions of the study area fall within waters designated as Essential Fish Habitat for approximately 20 species of fish, managed under three federal fisheries management plans. While no endangered or threatened marine mammals occur within the San Francisco Bay, multiple species protected under the Marine Mammal Protection Act are either permanent inhabitants or frequent visitors to bay waters. Those most likely to occur within the study area are harbor seals and California sea lions. As such, there is the potential for significant impacts to a range of protected marine resources to occur during construction of subsequent projects that could occur with implementation of the Waterfront Plan in and adjacent to the San Francisco Bay.

WATER QUALITY IMPACTS

Commensurate with any construction activity adjacent to, or within, an aquatic environment is the potential for the accidental discharge of hydrocarbon containing materials (e.g., fuel, lubricating oils, construction materials), construction debris, or other harmful materials. Such construction activities could pose a temporary risk of exposing resident marine taxa to toxic contaminants and non-edible forage. However, with implementation of Mitigation Measure M-HY-1, Water Quality Best Management Practices for In-Water Work, as discussed under topic E.17 in the initial study (see Appendix B), water quality impacts on special-status marine species due to pile installation or removal would be ***less than significant***.

TEMPORARY UNDERWATER NOISES

Of primary concern with the in-water installation or removal of piles is the potential for the generation of underwater noise at a level that is harmful to marine species. Pile driving can produce high-intensity noise

resulting in damage to the soft tissues of fish, such as gas bladders or eyes (barotraumas) and/or result in harassment of fish and marine mammals such that they alter swimming, sleeping, or foraging behavior or temporarily abandon forage habitat.

The striking of a pile by a pile-driving hammer creates a pulse of sound that propagates through the pile, radiating out through the water column, seafloor, and air. Sound pressure pulses, as a function of time are referred to as a waveform. Peak waveform pressure underwater is typically expressed in decibels (dB) referenced to 1 micropascal (μPa).³⁵⁷ Sound levels are generally reported as peak levels, root-mean-square pressure, and sound exposure levels. The peak pressure is the highest absolute value of the measured waveform. For pile driving pulses, the root-mean-square pressure level is determined by analyzing the waveform and computing the average of the squared pressures over time that comprise the portion of the waveform containing the vast majority of sound energy. Sound exposure level is a metric that provides an indication of the amount of acoustical energy contained in a sound event. For pile driving, sound exposure level can be used to describe a single pile driving pulse or many cumulative pulses when required to drive multiple piles. In addition to the pressure pulse of the waveform, the frequency of the sound, expressed in hertz is also important to evaluating the potential for sound impacts. Low frequency sounds are typically capable of traveling over greater distances with less reduction in the pressure waveform than high-frequency sounds.

Vibratory pile drivers work on a different principle than pile-driving hammers and therein produce a different sound profile. A vibratory driver works by inducing particle motion to the substrate immediately below and around the pile causing liquefaction of the immediately adjacent soft substrate, allowing the pile to sink downward. Sound levels are typically 10 to 20 dB lower in intensity relative to the higher, pulse-type noise produced by an impact hammer.³⁵⁸

Impacts to Fish

Scientific investigations on the potential effects of noise on fish indicate that sound levels below the 183 dB sound exposure level do not appear to result in any acute physical damage or mortality to fish of any size.³⁵⁹

Table 4.F-2 provides a summary of known acute and sub-lethal effects of noise on fish. Noise levels that result in startle responses in steelhead trout and salmon have been documented to occur at sound levels as low as 150 dB root-mean-square pressure level.³⁶⁰ Any disturbance to federal or state-listed fish species that results in altered swimming, foraging, movement along a migration corridor, or any other altered normal behavior is considered harassment, a potentially significant impact.³⁶¹

³⁵⁷ Therefore, 0 dB on the decibel scale would be a measure of sound pressure of 1 μPa .

³⁵⁸ Caltrans, *Technical Guidance for Assessment and Mitigation of the Hydroacoustic Effects of Pile Driving on Fish, Final Report*, prepared for California Department of Transportation by ICF Jones & Stokes and Illingworth & Rodkin, Inc., 2015.

³⁵⁹ Dalen, J. and G.M. Knutsen, Scaring effects of fish and harmful effects on eggs, larvae and fry from offshore seismic explorations, ICA Associated Symposium on Underwater Acoustics, 16–18 July 1986, Halifax, Canada.

³⁶⁰ Halvorsen MB, Casper BM, Woodley CM, Carlson TJ, Popper AN., Threshold for onset of injury in Chinook salmon from exposure to impulsive pile driving sounds, PLOS ONE 7(6): e38968. OI: 10.1371/journal.pone.0038968, 2012.

³⁶¹ It should be noted that the acoustic thresholds shown in Table 4.F-2, p. 4.F-36, regard sound levels generated for impact pile driving; no criteria for vibratory pile driving exist at this time.

Table 4.F-2 Potential Effects to Fish at Varying Noise Levels

Taxa	Sound Level (dB)	Effect	Reference
FISH			
All fish > 2 grams in size	206 peak 187 (SEL)	Acute Barotraumas	Fisheries Hydroacoustic Working Group, 2008
All fish < 2grams	186 (SEL)	Acute Barotraumas	Fisheries Hydroacoustic Working Group, 2008
Salmon, steelhead	150 (RMS)	Avoidance behavior	Halvorsen et al. 2012

NOTES: SEL = sound exposure level; RMS = root-mean-square pressure level

Impacts to Marine Mammals

Pursuant to the Marine Mammal Protection Act, the NMFS has established two levels of harassment related to marine mammals:

- **Level A:** Any act of pursuit, torment, or annoyance that has the potential to injure a marine mammal or marine mammal stock in the wild.
- **Level B:** Any act of pursuit, torment, or annoyance that has the potential to disturb a marine mammal or marine mammal stock in the wild by causing the disruption of behavioral patterns, including but not limited to migration, breathing, nursing, breeding, feeding, or sheltering.

The NMFS has applied sound thresholds to each of these harassment categories depending on the species of marine mammal. To be considered Level A harassment, cetaceans and pinnipeds must be exposed to sound levels of 180 and 190 dB root-mean-square pressure level or greater, respectively. Level B behavioral harassment is considered to occur when any marine mammal is exposed to 160 dB root-mean-square pressure level from impact pile driving, and 120 dB root-mean-square pressure level from vibratory pile driving (**Table 4.F-3**). It should be noted that ambient underwater noise for the San Francisco Bay and the Oakland Inner Harbor was measured at between 120 and 150 dB as part of sound monitoring conducted for the San Francisco/Oakland Bay Bridge Project.³⁶²

Table 4.F-3 Adopted Underwater Acoustic Criteria for Marine Mammals

Family	Underwater Noise Thresholds (dB)				
	Vibratory Pile Driving Disturbance Threshold	Impact Pile Driving Disturbance Threshold	Species	SEL Threshold (dB)	
				Impact	Vibratory
Cetacean	120 dB RMS	160 dB RMS	Harbor porpoise	155	173
Pinniped	120 dB RMS	160 dB RMS	Harbor seal	185	201
			California sea lion	203	219

SOURCE: U.S. Department of Commerce, NOAA, NOAA Technical Memorandum NMFS-OPR-55, Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing: Underwater Acoustic Thresholds for Onset of Permanent and Temporary Threshold Shifts, 2016.

NOTES: dB = decibel; RMS = root-mean-square pressure level

³⁶² Caltrans, *Technical Guidance for Assessment and Mitigation of the Hydroacoustic Effects of Pile Driving on Fish, Final Report*, prepared for California Department of Transportation by ICF Jones & Stokes and Illingworth & Rodkin, Inc., 2015.

To prevent impacts on marine species, **Mitigation Measure M-BI-3, Fish and Marine Mammal Protection during Pile Driving**, would be required for subsequent projects that could occur under the Waterfront Plan. This mitigation measure outlines best practices to reduce impacts on marine species from pile installation and removal. These practices would include the observance of the NMFS approved in-water work windows, which were developed for San Francisco Bay as part of section 7 consultations with resource agencies (NMFS and USFWS) for the Long Term Management Strategy Management Program for managing sediment within San Francisco Bay.³⁶³ These regionally specific windows are designed based on the life history of special-status fish species to reduce the likelihood that these fish species might occur within the area in which in-water work is proposed.

Prior to the start of any in-water construction that would require pile driving, the Port shall coordinate with the National Marine Fisheries Service (NMFS) to determine the need for fish and marine mammal protection measures. Typical measures required by NMFS include an approved sound attenuation monitoring plan to protect fish and marine mammals to be implemented during construction. Such plans provide details on the sound attenuation system, detail methods used to monitor and verify sound levels during pile driving activities (if required based on projected in-water noise levels), and describe best management practices to reduce impact pile-driving in the aquatic environment to an intensity level less than 183 dB (sound exposure level, SEL) impulse noise level for fish at a distance of 33 feet, and 160 dB (root mean square pressure level, RMS) impulse noise level or 120 dB (RMS) continuous noise level for marine mammals at a distance of 1,640 feet. Typical requirements of a sound attenuation monitoring plan are described in Mitigation Measure M-BI-3.

Mitigation Measure M-BI-3: Fish and Marine Mammal Protection during Pile Driving. If required by the National Marine Fisheries Service (NMFS), a sound attenuation monitoring plan shall be prepared to reduce impacts to fish and marine mammals. The plan shall incorporate the following best management practices subject to modification in the NMFS-approved plan:

- In-water pile driving shall be conducted within the established environmental work window between June 1 and November 30, designed to avoid potential impacts to fish species.
- To the extent feasible vibratory pile drivers shall be used for the installation of all support piles. Vibratory pile driving shall be conducted following the U.S. Army Corps of Engineers “Proposed Procedures for Permitting Projects that will Not Adversely Affect Selected Listed Species in California.” U.S. Fish and Wildlife Service and NMFS completed section 7 consultation on this document, which establishes general procedures for minimizing impacts to natural resources associated with projects in or adjacent to jurisdictional waters.
- A soft start technique to impact hammer pile driving shall be implemented, at the start of each work day or after a break in impact hammer driving of 30 minutes or more, to give fish and marine mammals an opportunity to vacate the area.
- If during the use of an impact hammer, established NMFS pile driving thresholds are exceeded, a bubble curtain or other sound attenuation method as described in the NMFS-approved sound attenuation monitoring plan shall be utilized to reduce sound levels below the criteria described above. If NMFS sound level criteria are still exceeded with the use of attenuation methods, a NMFS-approved biological monitor shall be available to conduct surveys before and during pile driving

³⁶³ USACE, *Framework for Assessment of Potential Effects of Dredging on Sensitive Fish Species in San Francisco Bay, Final Report*, prepared for the U.S. Army Corps of Engineers by Levine Fricke, 2004.

to inspect the work zone and adjacent waters for marine mammals. The monitor shall be present as specified by the NMFS during impact pile driving and ensure that:

- The safety zones established in the sound monitoring plan for the protection of marine mammals are maintained.
 - Work activities are halted when a marine mammal enters a safety zone and resumed only after the animal has been gone from the area for a minimum of 15 minutes.
- Alternatively, the project sponsors may consult with NOAA directly and submit evidence to their satisfaction of the Environmental Review Officer of NOAA consultation. In such case, the project shall comply with NOAA recommendations and/or requirements.

Additional best management practices related specifically to the in-water installation of piles include, when feasible, the use of vibratory hammers in place of impact hammers, the use of cushion blocks, and the implementation of a “soft start” technique. Vibratory hammers have been demonstrated to produce sound levels of a lower intensity relative to higher, pulse-type noise produce by impact hammers, thus reducing the potential impact on fish and marine mammals.³⁶⁴ A cushion block is often placed between the impact hammer and pile and can potentially substantially reduce the amount of energy delivered to the pile, thereby reducing the sound pressure levels generated.³⁶⁵ During a “soft start” a pile is initially driven with low hammer energy. This movement of the pile through the water column and initial contact with the bay floor gives any fish or marine mammals present a chance to leave the immediate area.

Significance after Mitigation: Given the uncertainties regarding the exact pile configuration and installation methods to be used for proposed in-water construction, there remains a potential that construction of subsequent projects that could occur under the Plan could have an adverse effect on protected fish or marine mammals. However, implementation of in-water construction best management practices together with Mitigation Measure M-BI-3 would ensure that potential impacts from pile installation are less than significant. Therefore, construction-related impacts from subsequent projects that could occur under the Waterfront Plan on special-status marine species would be ***less than significant with mitigation***.

Impact BI-4: The Waterfront Plan could have a substantial adverse effect on the pickleweed mat sensitive natural community. (*Less than Significant with Mitigation*)

TERRESTRIAL BIOLOGICAL RESOURCES

There is no riparian habitat present in the study area; however, as described above, a sensitive natural community of the “pickleweed mat” plant alliance, was documented in coastal saltmarsh habitat during surveys at India Basin Shoreline Park and India Basin Open Space.³⁶⁶ This sensitive natural community is also potentially present in the coastal saltmarsh habitat present at the Pier 94 Wetland, Islais Creek, Warm Water Cove,³⁶⁷ and Heron’s Head Park.³⁶⁸ Subsequent projects that could occur under the Waterfront Plan could

³⁶⁴ Caltrans, *Technical Guidance for Assessment and Mitigation of the Hydroacoustic Effects of Pile Driving on Fish, Final Report*, prepared for California Department of Transportation by ICF Jones & Stokes and Illingworth & Rodkin, Inc., 2015

³⁶⁵ Ibid.

³⁶⁶ AECOM, *India Basin Mixed-Use Project EIR*, September 13, 2017.

³⁶⁷ Coast Ridge Ecology, *Port of San Francisco Regional General Permit (RGP) Wetland Delineation Report*, 2015.

³⁶⁸ Note that Islais Creek is a tidal channel and not a “riparian corridor” in the classic sense. Hence, pickleweed mats in this creek, and perhaps other tidal channels in the Plan area, are not identified as “riparian habitat” in this EIR, but are otherwise protected as a sensitive natural community.

result in direct impacts to this sensitive natural community if construction or access were required within or directly adjacent to the sensitive natural community, resulting in temporary impacts due to disturbance by project-related equipment, vehicles, the deposition of spoils or equipment in the sensitive natural community. Therefore, **Mitigation Measure M-BI-4, Avoidance of Pickleweed Mat Sensitive Natural Community**, would be required for subsequent projects that could occur under the Waterfront Plan.

Mitigation Measure M-BI-4: Avoidance of Pickleweed Mat Sensitive Natural Community. Prior to the start of construction in any area where a pickleweed mat community exists, the Port shall consult with the Planning Department to determine whether this mitigation measure shall be implemented as presented, or modified based on site and construction details of the subsequent project. The Port shall retain a qualified biologist (i.e., a biologist experienced at identifying coastal saltmarsh vegetation) to clearly delineate the extent of pickleweed mat community within 20 feet of the project work area. Pickleweed mat shall be protected from the work area by environmentally sensitive area fencing, which shall be maintained throughout the construction period. A qualified biologist shall oversee the delineation and installation of fencing. Excavation, vehicular traffic, staging of materials, and all other project-related activity shall be located outside of the environmentally sensitive area.

If the pickleweed mat community cannot be avoided, any temporarily affected areas shall be restored to pre-construction conditions or better at the conclusion of construction activities that occur within 20 feet of the retained pickleweed mat in accordance with CDFW and regional board permits. Compensation for permanent impacts on the sensitive natural community shall be provided at a 1:1 or greater ratio, or as specified by USACE, regional board, and/or CDFW. If impacts to prior mitigation sites occur, resource agencies may require a greater ratio (e.g., 2:1 or higher). Compensation for loss of pickleweed mat may be in the form of permanent on-site or off-site creation, restoration, enhancement, or preservation of habitat. To that end, the restoration sites shall, at a minimum, meet the following performance standards by the fifth year after restoration:

1. Native vegetation cover shall be at least 70 percent of the baseline native vegetation cover in the impact area.
2. No more cover by invasive species shall be present than in the baseline/impact area.

Restoration shall be detailed in a Habitat Mitigation and Monitoring Plan, which shall be developed before the start of construction and in coordination with permit applications and/or conditions. At a minimum, the Plan shall include:

1. Name and contact information for the property owner of the land on which the mitigation will take place;
2. Identification of the water source for supplemental irrigation, if needed;
3. Identification of depth to groundwater;
4. Topsoil salvage and storage methods for areas that support special-status plants;
5. Site preparation guidelines to prepare for planting, including coarse and fine grading;
6. Plant material procurement, including assessment of the risk of introduction of plant pathogens through the use of nursery-grown container stock vs. collection and propagation of site-specific plant materials, or use of seeds;

7. A planting plan outlining species selection, planting locations, and spacing for each vegetation type to be restored;
8. Planting methods, including containers, hydroseed or hydromulch, weed barriers, and cages, as needed;
9. Soil amendment recommendations, if needed;
10. An irrigation plan, with proposed rates (in gallons per minute), schedule (i.e., recurrence interval), and seasonal guidelines for watering;
11. A site protection plan to prevent unauthorized access, accidental damage, and vandalism;
12. Weeding and other vegetation maintenance tasks and schedule, with specific thresholds for acceptance of invasive species;
13. Performance standards by which successful completion of mitigation can be assessed relative to a relevant baseline or reference site, and by which remedial actions will be triggered;
14. Success criteria that shall include the minimum performance standards described above;
15. Monitoring methods and schedule;
16. Reporting requirements and schedule (e.g., annual reporting);
17. Adaptive management and corrective actions to achieve the established success criteria; and
18. An educational outreach program to inform operations and maintenance departments of local land management and utility agencies of the mitigation purpose of restored areas to prevent accidental damages.

The Habitat Mitigation and Monitoring Plan and all field documentation, prepared in coordination with the appropriate regulatory agencies, shall be submitted to a designee from the Port for review and approval prior to the issuance of any demolition, grading, or building permit for construction that would occur within 20 feet of the pickleweed mat sensitive natural community.

Significance after Mitigation: Mitigation Measures M-BI-1a and M-BI-4 would reduce construction-related impacts to ***less than significant with mitigation*** by requiring worker environmental awareness training; the avoidance and minimization of impacts to pickleweed mats; restoration of temporary impacts to pickleweed mats; and compensation for permanent impacts to pickleweed mats.

Impact BI-5: The Waterfront Plan would not have a substantial adverse effect on the eelgrass bed sensitive natural community. (*Less than Significant*)

Within the San Francisco-Bay Delta region, the NMFS has identified eelgrass beds (*Zostera marina*) as a habitat area of particular concern. These habitat areas of particular concern are considered high priority areas for conservation, management, or research because they are rare, sensitive, stressed by development, or important to ecosystem function. Very limited beds exist within the study area and are confined to Lash Lighter Basin and India Basin at the southern extent of the study area.³⁶⁹ Since no in-water work is proposed in either

³⁶⁹ Merkel & Associates, *San Francisco Bay Eelgrass Inventory: October–November 2014*, prepared for the California Department of Transportation and NOAA National Marine Fisheries Service, November 2014.

of these locations, no impact on eelgrass are expected to occur as a result of implementation of the Waterfront Plan. Therefore, subsequent projects that could occur under the Waterfront Plan would have a **less-than-significant** impact on riparian habitat or other sensitive natural communities.

Impact BI-6: The Waterfront Plan could have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal) through direct removal, filling, hydrological interruption, or other means. (Less than Significant with Mitigation)

As described above, potentially jurisdictional wetlands and waters have been documented in the study area as part of multiple projects along the waterfront. Subsequent projects that could occur under the Waterfront Plan could result in direct and indirect and temporary and permanent impacts to jurisdictional wetlands and waters if construction or access were required within or directly adjacent to these aquatic features. Temporary indirect impacts could result from pile replacement causing sediment suspension, or the inadvertent entry of deleterious construction-related materials into the bay during over- or in-water work. Permanent direct impacts could occur if jurisdictional tidal wetland habitat is impacted purposely (e.g., fill) or inadvertently (e.g., crushing by equipment, vehicles, staging or spoils piles).

Subsequent projects that could occur under the Waterfront Plan include several components that could result in placement of fill within jurisdictional waters of the San Francisco Bay. Subsequent projects could include physical shoreline improvements potentially consisting of rock slope revetments, berms and bulkheads, and grading elevation inland, some of which could require work below the high tide line and mean high water line. Additionally, the subsequent projects may require the installation of in-water piles in support of novel or renovated overwater structures. Subsequent project activities resulting in the placement of bay fill³⁷⁰ or other disturbance to jurisdictional waters (i.e., below the high tide line) would require permit approval from USACE, and a water quality certification and/or waste discharge requirements from the regional board. Subsequent projects within the San Francisco Bay or within the shoreline band require a permit from BCDC. Collectively, these regulatory agencies and the permits and authorizations they issue for subsequent projects that could occur under the Waterfront Plan would require that placement of new fill in jurisdictional waters be avoided or minimized to the maximum extent practicable while still accomplishing the subsequent project's purpose, and they would specify an array of measures and performance standards as conditions of project approval to ensure natural resource protection. These permits would require water quality protection measures to avoid and/or minimize temporary impacts from in-water and above-water construction activities that would be implemented in conjunction with water quality protection mitigation measures.

In addition, permanent placement of new fill that could occur with subsequent project's (i.e., shoreline improvements) resulting in the loss of jurisdictional waters in excess of that necessary for normal maintenance may trigger a requirement for compensatory mitigation that would be aimed at restoring or enhancing similar ecological functions and services as those displaced. The types, amounts, and methods of compensatory measures required would differ among the permitting agencies, depending on the specific resources they regulate and the policies and guidelines they implement. Implementation of **Mitigation Measure M-BI-6,**

³⁷⁰ Under CWA section 404, a permit is required for the 'discharge of dredged or fill material' into waters of the United States. Fill material is any substance placed (also described as discharged) in waters of the United States where the material has the effect of either replacing any portion of a water of the United States with dry land or changing the bottom elevation of any portion of a water. Examples of fill material include rock, sand, soil, clay, plastics, construction debris, wood chips, overburden from mining or other excavation activities, and materials used to create any structure or infrastructure (such as outfall pipes and/or bulkheads) in waters of the United States. [USACE SPN-2003-01 and 33 Code of Federal Regulations section 323.2(5)(e)(1)]

Avoidance of Impacts on Wetlands and Waters, would reduce potential impacts for subsequent projects that could occur under the Waterfront Plan on jurisdictional waters to a less-than-significant level through avoidance of jurisdictional waters and, where avoidance is not possible, restoration of temporary impacts on jurisdictional waters. Mitigation Measure M-BI-6 would reduce potential permanent impacts for subsequent projects that could occur under the Waterfront Plan on jurisdictional waters to a less-than-significant level through enhancement of the San Francisco Bay shoreline or intertidal/subtidal habitat along the waterfront as compensation for the permanent fill³⁷¹ of San Francisco Bay. Non-permanent, temporary impacts to jurisdictional waters or, if present, permanent loss of wetlands during construction would be a significant impact. Therefore, implementation of Mitigation Measures M-BI-1a and **M-BI-6, Avoidance of Impacts on Wetlands and Waters**, would be required for subsequent projects under the Waterfront Plan that would result in permanent placement of new fill.

Mitigation Measure M-BI-6: Avoidance of Impacts on Wetlands and Waters. The Port and its contractors for the specific construction activity to be undertaken shall minimize impacts on waters of the United States and waters of the state, including wetlands, by implementing the following measures:

- The proposed project shall be designed to avoid, to the extent practical, work within wetlands and/or waters under the jurisdiction of USACE, regional board, and CDFW. If applicable, permits or approvals shall be sought from the above agencies, as required. Where wetlands or other water features must be disturbed, the minimum area of disturbance necessary for construction shall be identified and the area outside avoided.
- Before the start of construction within 50 feet of any wetlands and drainages, appropriate measures shall be taken to ensure protection of the wetland from construction runoff or direct impact from equipment or materials, such as the installation of a silt fence, and signs indicating the required avoidance shall be installed. No equipment mobilization, grading, clearing, or storage of equipment or machinery, or similar activity, shall occur until a qualified biologist has inspected and approved the fencing installed around these features. The construction contractor for the specific construction activity to be undertaken shall ensure that the temporary fencing is maintained until construction activities are complete. No construction activities, including equipment movement, storage of materials, or temporary spoils stockpiling, shall be allowed within the fenced areas protecting wetlands.
- Where disturbance to jurisdictional wetlands or waters cannot be avoided, any temporarily affected jurisdictional wetlands or waters shall be restored to pre-construction conditions or better at the end of construction, in accordance with the requirements of USACE, regional board, and CDFW permits. Compensation for permanent impacts on wetlands or waters shall be provided at a 1:1 ratio, or as agreed upon by CDFW, USACE, and regional board. Compensation for loss of wetlands may be in the form of permanent on-site or off-site creation, restoration, enhancement, or preservation of habitat. To that end, the restoration or compensation sites shall, at a minimum, meet the following performance standards by the fifth year after restoration:
 - 1) Wetlands restored or constructed as federal wetlands meet the applicable federal criteria for jurisdictional wetlands, and wetlands restored or constructed as state wetlands meet the state criteria for jurisdictional wetlands.

³⁷¹ The quantity of permanent fill in the San Francisco Bay attributable to the project and resulting in the loss of waters (e.g., from placement of new fill or fill in exceedance of the minimum threshold for repair and replacement of existing infrastructure), if any, would be determined during the permitting process and through project review by regulatory agencies with authority over the San Francisco Bay.

- 2) No more cover by invasive species shall be present than in the baseline/impact area pre-project.

Restoration and compensatory mitigation activities shall be described in the habitat mitigation and monitoring plan prescribed by Mitigation Measure M-BI-4, Avoidance of Impacts on Pickleweed Mat Sensitive Natural Community.

Significance after Mitigation: Mitigation Measures M-BI-1a and M-BI-6 would reduce construction-related impacts on state or federally protected wetlands to ***less than significant with mitigation*** by requiring worker environmental awareness training; identification and avoidance of wetlands and waters; restoration of temporarily impacted wetlands and waters; and compensation for permanent impacts to wetlands and waters.

Impact BI-7: The Waterfront Plan could interfere substantially with the movement of a native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites. (*Less than Significant with Mitigation*)

TERRESTRIAL BIOLOGICAL RESOURCES

Nursery sites used by nesting birds and bat maternity colonies could be impacted by construction of subsequent projects that could occur under the Waterfront Plan. These potential impacts are discussed under Impact BI-2.

The subsequent projects that could occur under the Waterfront Plan could impact resident and migrating birds, as the resulting infill development would increase levels of lighting and areas of glazing. Through City-required bird-safe building design standards, operation of subsequent projects that could occur under the Waterfront Plan would not adversely impact resident or migratory birds through an increased risk of collision with new buildings or structures presenting location-related or feature-related hazards. Compliance with Mitigation Measure M-BI-2a and compliance with the San Francisco Planning Code section 139 (*Standards for Bird-Safe Buildings*) would reduce potential construction-related impacts on birds nesting within the Plan area and surrounding vicinity and operational impacts regarding the potential collision hazards for migrating birds to ***less than significant with mitigation***.

MARINE BIOLOGICAL RESOURCES

Central Bay serves as a migration corridor for special-status anadromous fish between the Pacific Ocean and spawning habitat, primarily within the Sacramento and San Joaquin River watersheds, but also in a handful of tributaries to San Francisco Bay. Those that use the San Francisco Bay as a migration corridor to the Central Valley watersheds rarely stray south of the San Francisco-Bay Bridge. And while Central California Coast steelhead spawn in a few southern San Francisco Bay tributaries, no spawning streams occur within close proximity to the Plan area. If special-status anadromous fish species were to occur within the Plan area, their presence would only be temporary, as they move between spawning habitat and the Pacific Ocean, and would likely occur outside the window in which pile driving or other in-water work would occur.

Pacific herring are known to breed on in-water structures and utilize this habitat along the San Francisco waterfront. A lack of observed spawning in recent years suggests that spawning along the waterfront has become less frequent. Of all the special-status fish species, longfin smelt have the greatest potential to occur

within the waterfront adjacent to the Plan area. However, because longfin smelt distribution within the San Francisco Bay-Delta is driven by fluctuations in salinity, they are unlikely to occur in large numbers near the study area outside of late summer.

In general, the presence of marine mammals in San Francisco Bay is related to distribution and presence of prey species and foraging habitat. Harbor seals and sea lions use various intertidal substrates that are exposed at low to medium tide levels for resting and breeding. California sea lions are noted for using anthropogenic structures such as floating docks, piers, and buoys to haul out of the water to rest, including Fisherman’s Wharf within the study area. Additionally, other waterfront locations may be used by marine mammals as temporary haul outs.

Significance after Mitigation: In addition to the low likelihood of occurrence of special-status marine species, the limited scope of in-water work anticipated under the Waterfront Plan makes a significant impact to marine movement corridors unlikely. However, the implementation of Mitigation Measure M-BI-3 would ensure that any construction-related impacts to marine movement corridors and established native wildlife nursery sites for subsequent projects that could occur under the Waterfront Plan would be ***less than significant with mitigation***.

Impact BI-8: The Waterfront Plan would not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance. (*Less than Significant*)

The Waterfront Plan establishes 9 goals – each supported by specific policies - for subsequent projects that could occur under the Waterfront Plan along the 7.5-mile waterfront and upland properties managed by the Port. Some of the goals include maintaining and enhancing the historic function and character of the waterfront, providing a diverse range of activities to engage residents, providing a safe and accessible waterfront for all users, and ensuring the Port remains financially viable through collaborative partnerships; however, one of the goals, “An Environmentally Sustainable Port,” relates to the biological resources within the Plan area. This goal aims to “improve the ecology of the bay and its environs” and meet “the highest standards for environmental sustainability, stewardship, and justice.” Specific policies that benefit biological resources include greenhouse gas emissions, water quality and conservation, and biodiversity. The vast majority of sensitive terrestrial resources in the study area are located in the Southern Waterfront subarea (Crane Cove Park to India Basin). Within this subarea, the Waterfront Plan aims to improve and enhance open space and public access areas that do not compromise sensitive environmental habitat areas, as well as to protect wildlife habitat and shoreline areas. Subsequent projects that could occur under the Waterfront Plan would conform to the goals and policies in the Waterfront Plan, which would benefit biological resources.

Should a street tree, “landmark tree,” or “significant tree” be proposed for removal under a subsequent project that could occur under the Waterfront Plan, the Port would be required to comply with article 16 of the San Francisco Public Works Code. Therefore, subsequent projects that could occur with implementation of the Waterfront Plan would not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance, and this impact would be ***less than significant***. No mitigation measures are necessary.

CUMULATIVE IMPACTS

The geographic context for potential cumulative impacts on biological resources encompasses the species occurrences, habitats, and sensitive natural communities within the Waterfront Plan terrestrial and marine study areas, as well as biologically linked areas sharing the San Francisco coastline or occurring in the eastern portion of San Francisco where the Waterfront Plan is located. The Waterfront Plan cumulative biological resources impact analysis is based on consideration of the cumulative projects identified and described in Chapter 4, Environmental Setting, Impacts, and Mitigation Measures, p. 4-8. All of the cumulative projects that would involve physical environmental effects are subject to CEQA review and, consistent with CEQA requirements, would be required to implement mitigation measures or project modifications to avoid or mitigate significant environmental effects, as feasible.

Impact C-BI-1: The Waterfront Plan, in combination with cumulative projects, would not result in significant construction-related or operational cumulative impacts on biological resources. (*Less than Significant*)

CONSTRUCTION

TERRESTRIAL

Subsequent projects that could occur under the Waterfront Plan would have a limited effect on terrestrial biological resources that inhabit the study area primarily because the existing urban environment of the study area offers marginal habitat value to resident plant and animal species. As discussed above, construction and operational impacts discussed above under Impacts BI-1, BI-2, BI-4, BI-6, and BI-7 include potential disturbance to special-status plants, nesting birds, special-status roosting bats, CDFW sensitive natural communities (pickleweed mat), jurisdictional wetlands, and wildlife movement and nursery sites. Implementation of the identified mitigation measures would reduce the impact of subsequent projects that could occur under the Waterfront Plan on these sensitive biological resources to a less-than-significant level. None of the cumulative projects are located in or near habitats that support special-status plants or CDFW sensitive natural communities; therefore, subsequent projects under the Waterfront Plan would not combine with cumulative projects to result in a significant cumulative impact on these biological resources. However, the cumulative projects could have effects on nesting birds and special-status roosting bats due to the similarity in proximity to urban vegetation, buildings, cranes, and bridges, which provide similar habitats for nesting birds and roosting bats, as subsequent projects that could occur under the Waterfront Plan. The cumulative projects could also affect jurisdictional waters and wildlife movement and wildlife nursery sites due to their locations along the waterfront and within the Pacific Flyway, similar to subsequent projects that could occur under the Waterfront Plan. Lastly, cumulative projects could conflict with the local tree policy since they may require removal of trees.

Nesting Birds and Special-Status Roosting Bats

As discussed under Impact BI-2, potential direct impacts to nesting birds or roosting bats could occur during construction-related tree removal or building demolition. Potential indirect impacts could occur due to novel or increased construction-related noise and vibration, and levels of vehicular equipment and human activity. Several of the cumulative projects are located adjacent to mature trees and landscaping in parks, or are adjacent to bridges where nesting birds and roosting bats could occur. These projects would generate noise, vibration, and/or visual disturbance during construction, which could affect nesting birds and roosting bats. Furthermore, some of these projects may require tree and/or vegetation removal that could cause nest failure

or abandonment if active bird nests are present. While subsequent projects under the Plan and cumulative projects could affect nesting birds, the combined cumulative impact would not be significant because most of the cumulative projects are within already developed areas in the eastern portion of the city with little habitat for nesting birds to occupy. Furthermore, nesting birds and roosting bats within San Francisco are accustomed to a baseline level of noise and visual disturbance and thus have a higher tolerance for some construction activities, making it less likely that indirect disturbances would contribute to nest/roost failure. Therefore, the Waterfront Plan, in combination with cumulative projects, would result in a **less-than-significant** cumulative impact on nesting birds and special-status roosting bats.

State- or Federally Protected Wetland and Waters

As discussed under Impact BI-6, potential temporary and permanent impacts to jurisdictional waters associated with subsequent projects under the Waterfront Plan could occur during pile replacement or shoreline improvements requiring grading below the high tide line. With regard to the cumulative projects, only the Port of San Francisco's Waterfront Resilience Program and the Potrero Power Station Mixed-Use Development Project would require work in or adjacent to intertidal and subtidal habitats, which are jurisdictional waters. Construction of these cumulative projects could result in temporary impacts from sediment suspension or the inadvertent entry of deleterious construction materials into jurisdictional waters. Permanent impacts also could occur due to the placement of fill into the bay associated with shoreline improvements. However, like subsequent projects under the Waterfront Plan, cumulative projects would be required to comply with water quality regulations and regulatory permits that specify measures to avoid and minimize potential direct and indirect impacts, and to compensate for any unavoidable impacts on jurisdictional waters. Therefore, the Waterfront Plan, in combination with cumulative projects, would result in a **less-than-significant** cumulative impact on jurisdictional waters.

Wildlife Corridors and Native Nursery Sites

As discussed under Impact BI-7, construction of subsequent projects under the Waterfront Plan could result in impacts on migratory birds due to night lighting associated with the operation of new buildings and the increase in building glazing associated with new buildings. In addition, native bird nursery sites (i.e., bird nests and nesting colonies) could be impacted by construction of subsequent projects, as described under Impact BI-2. These impacts would be less than significant with compliance with the San Francisco Planning Code section 139, Standards for Bird-Safe Buildings. Several cumulative projects also would result in new construction of buildings that would increase night lighting and glazing along the waterfront. Cumulative projects would be required to comply with the planning code regulations and mitigation measures similar to those for subsequent projects that could occur under the Waterfront Plan. Therefore, the Waterfront Plan, in combination with cumulative projects, would result in a **less-than-significant** cumulative impact on wildlife corridors and nursery sites.

LOCAL ORDINANCES

As discussed under Impact BI-8, subsequent projects that could occur under the Waterfront Plan could require trimming or removal of trees and vegetation. Should a street tree, "landmark tree," or "significant tree" be proposed for removal under a subsequent project, the Port would be required to comply with article 16 of the San Francisco Public Works Code, which would reduce the impact of conflicting with a local ordinance or policy to a less-than-significant level. Any tree removal proposed for cumulative projects also would need to comply with San Francisco Public Works Code article 16. Therefore, cumulative impacts regarding conflicts

with local policies or ordinances from subsequent projects that could occur under the Waterfront Plan, in combination with cumulative projects, would be ***less than significant***.

MARINE

As described under Impact BI-3 and Impact BI-7, potential impacts to special-status marine species include accidental discharge of hydrocarbon containing materials, construction debris, or other harmful materials, generation of underwater noise at a level harmful to marine species, and migration corridors for fisheries. No operational impacts on marine resources are anticipated in association with subsequent projects that could occur under the Waterfront Plan, and any impact that may occur would have very limited impacts on marine resources due to the localized and limited scale at which they would occur. Cumulative projects, such as the Mission Bay Ferry Landing and the Potrero Power Station Mixed-Use Development Project, which involve in-water construction would have the potential to result in a significant impact, as in-water construction activities would include the remediation of harmful chemicals within bay sediment, construction of docking facilities for vessel traffic, and the enhancement and restoration of dilapidated shoreline habitat for public use. However, cumulative projects would be required to comply with water quality regulations and regulatory permits similar to those for subsequent projects that could occur under the Waterfront Plan. Therefore, the Waterfront Plan, in combination with cumulative projects, would result in a ***less-than-significant*** cumulative impact on special-status marine species.

CHAPTER 5

OTHER CEQA CONSIDERATIONS

This chapter discusses the following topics in relation to the Waterfront Plan: growth-inducing impacts, significant unavoidable impacts, significant irreversible impacts, and areas of known controversy and issues to be resolved.

5.A Growth Inducement

The California Environmental Quality Act (CEQA) Guidelines require that an environmental impact report (EIR) evaluate the growth-inducing impacts of a proposed action (section 15126.2(e)). A growth-inducing impact is defined in CEQA Guidelines section 15126.2(e) as:

[T]he ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are projects which would remove obstacles to population growth ... It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment.

A project can have direct and/or indirect growth-inducement potential. Direct growth inducement would result if a project involved construction of new housing that would result in new residents moving to the area. A project can have indirect growth-inducement potential if it would establish substantial new permanent employment opportunities (e.g., commercial, industrial, governmental enterprises) or if it would involve a substantial construction effort with substantial short-term employment opportunities and indirectly stimulate the need for additional housing and services to support the new employment demand. Similarly, under CEQA, a project would indirectly induce growth if it would remove an obstacle to additional growth and development, such as removing a constraint on a required public service (e.g., a wastewater treatment facility). Increases in population could strain existing community service facilities, requiring construction of new facilities that could cause significant environmental effects. The CEQA Guidelines also require analysis of the characteristics of projects that may encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively.

As described in the Chapter 4, Environmental Setting, Impacts, and Mitigation Measures, the Waterfront Plan is a long-term planning document. The Waterfront Plan includes amendments to the City's general plan, planning code, and associated zoning maps, which require approval by the City to align planning policies, and reflect creation of the Waterfront Special Use District (SUD) 4 in the Mission Bay and Southern Waterfront subareas, as amended by the Plan; however, the underlying zoning of allowable uses for the piers and seawall lots within the SUDs would remain the same.

The updated and amended policies associated with the Waterfront Plan would apply to subsequent lease, development, and improvement projects (subsequent projects) that could occur under the Plan, which could result in housing for approximately 540 new residents, assuming an occupancy rate of 2.08 persons per household for the approximately 260 additional housing units that could occur with implementation of the Plan (see Section E.2, Population and Housing, Appendix B). According to the planning department and Association

Chapter 5. Other CEQA Considerations

5.A. Growth Inducement

of Bay Area Governments (ABAG), San Francisco is expected to gain approximately 280,000 residents between 2010 and 2040 and have a population of more than 1 million, a 35 percent increase in residential population. Employment is forecast to increase by 34 percent (191,000 jobs) during this period to a total of approximately 760,000.³⁷² The potential population growth under the Waterfront Plan represents less than 0.2 percent of the city's population growth. These people would be residing in the 92,480 new residential units that are anticipated citywide by 2040.³⁷³ The Waterfront Plan could also result in an overall net increase of approximately 14,800 jobs, representing an approximately 8 percent of the city's total projected employment growth.

Although implementation of the Waterfront Plan would increase development capacity, the Waterfront Plan's policies would be within an area of the city (i.e., Downtown/Van Ness/Northeast Neighborhoods, Transbay/Rincon Hill, Eastern Neighborhoods, and Mission Bay) that have been designated Priority Development Areas by ABAG in Plan Bay Area.³⁷⁴ In addition, Plan Bay Area identifies the Port's Southern Waterfront subarea as within a designated Priority Production Area. Plan Bay Area is a regional long-range (i.e., through 2050), integrated transportation and land use/housing strategy for the San Francisco Bay Area. Plan Bay Area provides a strategy to meet most of the region's growth in in Priority Development Areas. Priority Development Areas are areas where new compact development is promoted, particularly near existing and future transit connections, to support the needs of residents and employees. Plan Bay Area grew out of the California Sustainable Communities and Climate Protection Act of 2008 (Senate Bill 375), which requires each of the state's 18 metropolitan areas, including the bay area, to reduce GHG emissions from vehicles, including light trucks. Thus, the Waterfront Plan seeks to accommodate future housing growth, as well as uses that accommodate residential and employment uses, in a part of San Francisco that is accessible to regional transit (Bay Area Rapid Transit, San Francisco Municipal Railway, Golden Gate Transit, San Francisco Bay and Golden Gate Water ferries, and the Water Emergency Transportation Authority) and adjacent to existing commercial and maritime job centers along the waterfront.

Population and employment growth in San Francisco has been anticipated by the City, based on projections contained within and consistent with Plan Bay Area. The Waterfront Plan implements the growth that is already anticipated in the ABAG projections. Subsequent projects that could occur under the Waterfront Plan would add housing and employment in the area.

The overarching goals of the Waterfront Plan are to preserve and enhance the waterfront's function as a maritime port, enhance public access and open space along the waterfront, ensure high-quality new development while preserving the waterfront's historic character, ensure accessible and safe transportation and mobility for people and goods, and strengthen the Port's resilience to climate change impacts. The Waterfront Plan would achieve this through policies that would encourage increased mixed use and industrial development, maritime activity, an expansion of transportation infrastructure, and increased local and visitor foot traffic to open space and recreational activity. The creation of Waterfront SUD 4 would require waterfront design review process and procedures for future non-maritime development on Port piers and seawall lots located south of China Basin/Mission Creek that are not included in the Mission Rock, Pier 70, or Potrero SUDs. The Waterfront Plan also would allow for faster approval of qualified projects. Although adoption and

³⁷² Association of Bay Area Governments and Metropolitan Transportation Commission, *Jobs-Housing Connection Strategy*, May 16, 2012, https://www.planbayarea.org/sites/default/files/pdf/JHCS/May_2012_Jobs_Housing_Connection_Strategy_Main_Report.pdf, accessed: February 6, 2018.

³⁷³ Association of Bay Area Governments, *Plan Bay Area 2050*, October 21, https://www.planbayarea.org/sites/default/files/documents/Plan_Bay_Area_2050_October_2021.pdf, accessed November 10, 2021.

³⁷⁴ Association of Bay Area Governments, *Priority Development Areas*, 2020, https://www.arcgis.com/home/webmap/viewer.html?panel=gallery&suggestField=true&url=https%3A%2F%2Fservices3.arcgis.com%2Fi2dkYWmb4wHvYPda%2Farcgis%2Frest%2Fservices%2Fpriority_development_areas_current%2FFeatureServer%2F0, accessed January 25, 2021.

implementation of the Waterfront Plan could remove some impediments to the future population and employment growth forecast for San Francisco, the City has already planned for this growth. Furthermore, the Waterfront Plan would accommodate this growth in a more sustainable way (i.e., near transit) compared with the possibility of diverting housing and employment growth to outlying portions of the Bay Area with lower density and less access to local and regional transit.

Plan Bay Area declares that in order to meet the Bay Area's GHG emissions reduction and housing targets and make progress toward meeting other adopted performance targets, future job and population growth should occur in established communities with access to existing or planned transportation investments. The Waterfront Plan would encourage increased mixed use and industrial development, maritime activity, an expansion of transportation infrastructure, and increased local and visitor foot traffic to open space and recreational activity. Therefore, the Waterfront Plan is consistent with Plan Bay Area objectives to direct growth in Priority Development Areas, which will reduce GHG emissions from otherwise expected growth.

The physical environmental effects from implementing the Waterfront Plan, are described in the initial study (see Appendix B) and Chapter 4, Environmental Setting, Impacts, and Mitigation Measures, of this Draft EIR.

5.B Significant Unavoidable Environmental Effects of the Waterfront Plan

CEQA Guidelines sections 15126(b) and 15126.2(c) requires that an EIR describe any significant impacts that cannot be avoided, even with the implementation of feasible mitigation measures. Development of the Plan would result in the significant and unavoidable impacts discussed below and further discussed in Sections 4.C, Transportation and Circulation, and 4.E, Air Quality.

TRANSPORTATION AND CIRCULATION

- The Waterfront Plan could result in commercial vehicle and/or passenger loading deficit, and the secondary effects could create potentially hazardous conditions for people walking, bicycling, or driving; or substantially delay public transit. (Impact TR-6)
- The Waterfront Plan, in combination with cumulative projects, could contribute considerably to significant cumulative construction-related transportation impacts. (Impact C-TR-1)
- The Waterfront Plan, in combination with cumulative projects, could contribute considerably to significant cumulative public transit delay impacts. (Impact C-TR-4)
- The Waterfront Plan, in combination with cumulative projects, could contribute considerably to significant cumulative loading impacts. (Impact C-TR-6)

AIR QUALITY

- Construction under the Waterfront Plan could involve activities that could result in a cumulatively considerable net increase in any criteria air pollutant for which the project region is in nonattainment status under an applicable federal, state, or regional ambient air quality standard. (Impact AQ-3)
- The Waterfront Plan would involve operational activities that could result in a cumulatively considerable net increase in any criteria air pollutant for which the project region is in nonattainment status under an applicable federal, state, or regional ambient air quality standard. (Impact AQ-4)

- The Waterfront Plan would result in emissions of fine particulate matter (PM_{2.5}) and toxic air contaminants that could result in exposure of sensitive receptors to substantial pollutant concentrations. (Impact AQ-5)
- The Waterfront Plan, in combination with cumulative projects, could result in exposure of sensitive receptors to substantial levels of fine particulate matter (PM_{2.5}) and toxic air contaminants under cumulative conditions. (Impact C-AQ-1)

5.C Significant Irreversible Changes

In accordance with CEQA section 21100(b)(2)(B) and CEQA Guidelines section 15126.2(c), an EIR must identify any significant irreversible environmental changes that could result from implementation of a proposed project. This may include current or future uses of non-renewable resources, secondary or growth-inducing impacts that commit future uses of non-renewable resources, and secondary or growth-inducing impacts that commit future generations to similar uses. According to the CEQA Guidelines, irretrievable commitments of resources should be evaluated to ensure that such consumption is justified.

In general, irreversible commitments include energy consumed and materials used during construction of a proposed project as well as the energy and natural resources (notably, water) required to sustain the project and its inhabitants or occupants over the usable life of the project.

The consumption of nonrenewable resources includes conversion of agricultural lands and lost access to mining reserves. As discussed in the initial study (see Appendix B), the Waterfront Plan area does not contain any prime farmland, unique farmland, farmland of statewide importance. Therefore, no existing agricultural lands would be converted to non-agricultural uses. In addition, the Plan area does not contain known mineral resources and does not serve as a mining reserve; therefore, the Waterfront Plan would not result in the loss of access to mining reserves.

No significant environmental damage, such as accidental spills or explosions of hazardous materials, is anticipated with implementation of the Waterfront Plan. Compliance with federal, state, and local regulations would ensure that this potential impact would be reduced to a less-than-significant level.

Subsequent projects that could occur under the Waterfront Plan would be required to demonstrate compliance with the performance standards outlined in the Maher Ordinance, including the preparation of a site-specific mitigation plan, subject to review and approval by the San Francisco Department of Public Health. As such, no irreversible changes related to hazardous substances would result from implementation of the Waterfront Plan.

The Waterfront Plan is a policy document and would not result in changes to use districts or building height limits for Port property. However, the Waterfront Plan would amend the planning code by adding section 240.4 to create Waterfront Special Use District 4 (SUD 4). Waterfront SUD 4 would require waterfront design review process and procedures for future non-maritime development on Port piers and seawall lots located south of China Basin/Mission Creek that are not included in the Mission Rock, Pier 70, or Potrero SUDs. The Waterfront Plan also would amend the San Francisco Planning Code Sectional Map SU08 of the City and County's Zoning Map to reflect the creation of Waterfront SUD 4. The Waterfront Plan would allow for faster approval of qualified projects within the Plan area.

The Waterfront Plan would not result in immediate physical changes to the environment and, thus, would not immediately result in physical impacts related to a commitment of nonrenewable resources. However, implementation of subsequent projects under the Plan would commit future generations to an irreversible commitment of energy during construction and operation, including energy produced from nonrenewable resources. Such resources would include energy for lighting, heating and cooling buildings, operating automobiles and trucks, and operating computers, appliances, and other equipment in the Plan area buildings. Implementation of the Plan also would require an ongoing commitment of potable water for building occupants and landscaping. The Plan includes goals and policies to promote sustainable transportation modes and would incentivize increased intensity of use. This would promote transit use, walking, and bicycling, thereby reducing transportation-related energy consumption in the Plan area. Subsequent projects would be required to incorporate green building features, consistent with the Green Building Ordinance, to reduce greenhouse gas (GHG) emissions. As discussed in the initial study, the Plan would not result in any significant impacts associated with an increase in GHG emissions or conflict with measures adopted for the purpose of reducing such emissions because it would be compliant with the City and County of San Francisco's (City's) Greenhouse Gas Reduction Strategy. In addition, the Plan would not require the construction of major utility lines to deliver energy or natural gas because these services are already provided in the area.

Demolition and construction of subsequent projects in the Plan area also would require the consumption of other nonrenewable or slowly renewable resources such as steel, aluminum, other metals, concrete, masonry materials, lumber, sand and gravel, asphalt, other building materials, and water. Projects under the Plan would irreversibly use water and solid waste landfill resources. Because subsequent projects under the Plan would be required to comply with the California Code of Regulations title 24, the California Green Building Standards Code, and the City's Green Building Ordinance, future buildings would use less energy and water over their lifetimes than comparable buildings that were not built to those standards. Therefore, subsequent projects under the Plan would not use non-renewable resources in an inefficient manner.

5.D Areas of Known Controversy and Issues to Be Resolved

The public and agencies have expressed some concerns about the Waterfront Plan that are related to the environmental topics reviewed in this Draft EIR and initial study. The public comments are in response to the notice of preparation (NOP) for the Waterfront Plan that the planning department published on August 26, 2020. Notices were mailed to other City departments, neighborhood groups, public agencies, and interested parties to announce a meeting where the public could comment on the scope of the Draft EIR's environmental analysis. A scoping meeting was held on September 9, 2020, to explain the environmental review process for the Waterfront Plan and to provide opportunity to take public comment and concerns related to the Plan's environmental issues. Written comments on the NOP were accepted during a 30-day period from August 26, 2020, until September 25, 2020. The NOP and comments received on the NOP are included in Appendix A.

To the extent the comments received on the NOP relate to environmental issues, they are addressed in the Draft EIR and initial study. Any comments related to the Plan's merits that cannot be addressed through the CEQA process will be provided to decision-makers as part of the entitlement process. Potential areas of

Chapter 5. Other CEQA Considerations

5.D. Areas of Known Controversy and Issues to Be Resolved

controversy and unresolved issues for the Waterfront Plan, as expressed by agencies and community members, include the following:

- Sea-level rise and flooding
- Cumulative impacts of the Waterfront Plan
- Consistency of the Waterfront Plan with the San Francisco Bay Plan (Bay Plan) related to aesthetics, land use and planning, transportation, biological resources, public access and recreation, water quality, and climate change
- Impacts of the Waterfront Plan on historic features of existing Port facilities
- Impacts to modes of transportation
- Potential for the Waterfront Plan to negatively affect community health including contributions to cumulative effects
- Impacts related to increases in artificial lighting, impacts on nesting bird species and habitat, and underwater noise and vibration impacts
- Impacts to public access areas
- Address previous hazards and hazardous materials and land use covenants in the Mission Rock neighborhood

CHAPTER 6 ALTERNATIVES

6.A Introduction

This chapter presents the alternatives analysis as required by CEQA for the 2019 Draft Waterfront Plan (Waterfront Plan). The discussion includes the methodology used to select alternatives to the Waterfront Plan for detailed CEQA analysis, with the intent of developing potentially feasible alternatives that could avoid or substantially lessen the significant impacts identified while still meeting most of the project's basic objectives. This chapter identifies a reasonable range of alternatives that meet these criteria and evaluates them for their comparative merits with respect to minimizing adverse environmental effects.

This chapter is divided into four main sections. The first section, "Introduction," is an introductory section that describes the project objectives, the CEQA requirements for an alternatives analysis, and summarizes the Waterfront Plan's significant impacts. The next section, "Alternatives Screening and Selection," provides a detailed description of each of the selected alternatives. The next section, "Alternatives Analysis," presents a detailed analysis and evaluation of the environmental impacts of each of the alternatives. The section is organized by resource topic. The last section, "Comparison of Alternatives and Environmentally Superior Alternative," identifies the environmentally superior alternative, based on the described analysis, and discusses alternative concepts that were considered but rejected from further study and the reasons for elimination.

6.B CEQA Requirements for Alternatives Analysis

CEQA Guidelines section 15126.6(a) states that an environmental impact report (EIR) must describe and evaluate a reasonable range of alternatives to a project that would feasibly attain most of the project's basic objectives but avoid or substantially lessen any identified significant adverse environmental effects of the project. An EIR is not required to consider every conceivable alternative to a project or alternatives that are infeasible. Rather, it must consider a reasonable range of potentially feasible alternatives that will foster informed decision-making and public participation.

The EIR must evaluate the comparative merits of the alternatives and include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the project. Specifically, the CEQA Guidelines set forth the following criteria for selecting and evaluating alternatives:

- "An EIR shall describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives. An EIR need not consider every conceivable alternative to a project. Rather it must consider a reasonable range of potentially feasible alternatives that will foster informed decision making and public participation. An EIR is not required to consider alternatives which are infeasible." (CEQA Guidelines section 15126.6(a))

- “[T]he discussion of alternatives shall focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly.” (CEQA Guidelines section 15126.6(b))
- “The range of potential alternatives shall include those that could feasibly accomplish most of the basic objectives of the project and could avoid or substantially lessen one or more of the significant effects.” (CEQA Guidelines section 15126.6(c))
- “The specific alternative of ‘no project’ shall also be evaluated along with its impact.” (CEQA Guidelines section 15126.6(e)(1))
- “The alternatives shall be limited to ones that would avoid or substantially lessen any of the significant effects of the project. Of those alternatives, the EIR need examine in detail only the ones that the lead agency determines could feasibly attain most of the basic objectives of the project. The range of feasible alternatives shall be selected and discussed in a manner to foster meaningful public participation and informed decision-making.” (CEQA Guidelines section 15126.6(f))

6.C Project Objectives

As presented in Chapter 2, Project Description, the Port identified ten objectives for the Waterfront Plan, which are presented below for use in the identification, selection, and evaluation of alternatives. The Waterfront Plan’s ten objectives are:

1. Approve amendments to the Waterfront Plan to incorporate updated information, goals, policies, and objectives developed through a public process that describe public and Port Commission values, to provide policy direction for projects, investments, and stewardship programs that protect and improve properties and resources owned and managed by the Port of San Francisco.
2. Preserve and enhance diverse maritime uses and operations by providing for the current and future needs of cargo shipping, cruise, ferry and water taxis, excursion boats, fishing, ship repair, berthing, harbor services, recreational boating, and other water-dependent activities, consistent with Proposition H approved by San Francisco voters in 1990.
3. Complete, enhance, and activate the Port’s network of parks, public access, and natural areas along the 7.5-mile Bay shoreline to provide recreational, social, and open space benefits for residents and visitors of all races, ages, and abilities, including historically marginalized communities.
4. Support a vibrant urban waterfront with commercial and industrial businesses, and public-oriented entertainment, civic, cultural, and recreational activities that respect maritime needs, activate waterfront parks, and equitably serve and attract visitors of all races, ages, and economic means.
5. Ensure that new public and private investments stimulate waterfront revitalization and resilience improvements and support a financially secure Port enterprise, equitably providing new jobs and economic opportunities, revenues, public amenities, and other public trust benefits for the diverse residents of San Francisco and California.
6. Design waterfront projects that highlight visual and physical connections to the city and San Francisco Bay, promote rehabilitation of Port maritime historic and cultural resources, and respect the character of adjacent neighborhoods.

7. Ensure that the waterfront is accessible and safe for all users through sustainable transportation that serves the needs of workers, neighbors, visitors, and Port maritime and tenant operations.
8. Limit the impacts of climate change, improve the ecology of the Bay and its environs, and ensure healthy waterfront neighborhoods by meeting the highest standards for environmental sustainability, stewardship, and justice.
9. Strengthen Port resilience to hazards and promote adaptation to climate change and rising tides through equitable investments to protect community, ecological, historic, and economic assets and services along its 7.5-mile waterfront.
10. Strengthen Port public engagement to increase understanding of Port and community needs, including the needs of historically marginalized communities of color, in lease and project approval processes, and to promote public agency partnerships to align policies and regulations to achieve waterfront projects and programs for the benefit of San Francisco and California.

6.D Summary of Significant Impacts

The Draft EIR identifies significant and unavoidable impacts after implementation of mitigation measures associated with transportation and circulation and air quality (see Chapter 4, Environmental Setting, Impacts, and Mitigation Measures).

TRANSPORTATION AND CIRCULATION

- The Waterfront Plan could result in commercial vehicle and/or passenger loading deficit, and the secondary effects could create potentially hazardous conditions for people walking, bicycling, or driving; or substantially delay public transit. (Impact TR-6)
- The Waterfront Plan, in combination with cumulative projects, could contribute considerably to significant cumulative construction-related transportation impacts. (Impact C-TR-1)
- The Waterfront Plan, in combination with cumulative projects, could contribute considerably to significant cumulative public transit delay impacts. (Impact C-TR-4)
- The Waterfront Plan, in combination with cumulative projects, could contribute considerably to significant cumulative loading impacts. (Impact C-TR-6)

AIR QUALITY

- The Waterfront Plan could involve construction activities that could result in a cumulatively considerable net increase in any criteria air pollutant for which the project region is in nonattainment status under an applicable federal, state, or regional ambient air quality standard. (Impact AQ-3)
- The Waterfront Plan could result in operational activities that could result in a cumulatively considerable net increase in any criteria air pollutant for which the project region is in nonattainment status under an applicable federal, state, or regional ambient air quality standard. (Impact AQ-4)
- The Waterfront Plan could result in emissions of fine particulate matter (PM_{2.5}) and toxic air contaminants that could result in exposure of sensitive receptors to substantial pollutant concentrations. (Impact AQ-5)

- The Waterfront Plan, in combination with cumulative projects, could result in exposure of sensitive receptors to substantial levels of fine particulate matter (PM_{2.5}) and toxic air contaminants under cumulative conditions. (Impact C-AQ-1)

6.E Alternatives Screening and Selection

In accordance with CEQA Guidelines section 15126.6(a), this EIR examines a reasonable range of alternatives to the Waterfront Plan or to the location of the Plan. An alternative selected for analysis must meet three criteria: (1) the alternative would attain most of the project's basic objectives, (2) the alternative would avoid or substantially lessen the significant environmental impacts of the project, and (3) the alternative would be potentially feasible. An EIR need not consider an alternative whose impact cannot be reasonably ascertained and whose implementation is remote and speculative. Furthermore, an EIR need not consider every conceivable alternative but must consider a reasonable range of alternatives to foster informed decision-making and public participation.

The planning department based the alternatives selection process on first identifying alternative concepts that would avoid or lessen the significant and unavoidable impacts identified above. Strategies to avoid or lessen significant environmental impacts primarily involve reducing the extent of development that could occur with implementation of the Waterfront Plan, thereby reducing significant transportation and air quality impacts. The planning department then screened the potential alternatives for their feasibility and ability to meet most of the project objectives. This process resulted in the selection of one alternative to be carried forward for detailed evaluation. The planning department determined that this alternative, along with the No Project Alternative, represents a reasonable range of alternatives described and analyzed in this Draft EIR.

6.E.1 Description of Alternatives Selected

Based on the screening process described above, the following alternatives were selected for detailed analysis in this Draft EIR:

- Alternative A: No Project Alternative
- Alternative B: Lower Growth Alternative

Table 6-1 presents the growth assumptions for the Waterfront Plan and Alternatives A and B. Detailed descriptions of Alternatives A and B are presented below, including the assumptions used in analyzing their environmental impacts.

Table 6-1 Growth Projections for the Waterfront Plan and Alternatives

	(a) Waterfront Plan Growth ^a	(b) Background Growth: 2020 to 2050 Growth Without Waterfront Plan ^b	(c) Background Growth: 2020 to 2050 Growth with Waterfront Plan (a + b)	(d) 2050 Condition and Alternative A: No Project Alternative	(e) Alternative B: Lower Growth Alternative	2050 Condition and Alternative B: Lower Growth Alternative Plus Background Growth (b + e)
Housing Units	260	6,280	6,540	6,280	260	6,540
Population ^c	540	13,060	13,600	13,060	540	13,600
Employment (Jobs)	14,800	15,490	30,290	15,490	2,060	17,550

SOURCES: San Francisco Planning Department and Port of San Francisco, 2020

NOTES:

- ^a The Waterfront Plan growth includes a maximum development program for the subsequent project sites. The maximum development program for the sites assumes no changes to the underlying zoning and height and bulk districts.
- ^b The 2020 to 2050 Growth Without Waterfront Plan includes larger, long-term development projects within the Waterfront Plan area (Mission Rock and Pier 70 SUDs), which have completed CEQA documentation and have been approved.
- ^c Assumes 2.08 persons per household based on an average of the persons per household for the census tracts located within Port-owned property (Census Tracts 101, 105, 226, 231.03, 607, 615, and 9809), Selected Housing Characteristics, ACS 2015-2019, 5-Year, Table DP04, California & San Francisco.

6.E.2 Alternative A: No Project Alternative

CEQA Guidelines section 15126.6(e)(3)(A) indicates that, generally, when a project being analyzed is a revision to an existing land use or regulatory or policy plan, the No Project Alternative should be considered to be a continuation of the existing plan into the future. CEQA Guidelines section 15126.6(e)(3)(A) states that, “Typically, this is a situation where other projects initiated under the existing plan will continue while the new plan is developed. Thus, the projected impacts of the proposed plan or alternative plans would be compared to the impacts that would occur under the existing plan.” Consistent with this guidance, the No Project Alternative considered in this Draft EIR represents what would reasonably be expected to occur in the foreseeable future if the updated policies in the Waterfront Plan, including the creation of Waterfront Special Use District (SUD) 4 and the associated amendments to the general plan, planning code, zoning map, or San Francisco Bay Conservation and Development Commission (BCDC) San Francisco Waterfront Special Area Plan, are not implemented.

The No Project Alternative (Alternative A) assumes that without implementation of the updates to the Waterfront Plan there would be no additional increase in housing units or employment in the Plan area beyond the background growth projected to occur.³⁷⁵ As shown in Table 6-1, p. 6-5, the growth projections for Alternative A with the background growth include the addition by 2050 of approximately 6,280 housing units and 13,060 residents (about 4 percent less than with implementation of the updated Waterfront Plan) and approximately 15,490 jobs (about 49 percent less than with implementation of the updated Waterfront Plan). These assumptions reflect development allowed under existing zoning.

6.E.3 Alternative B: Lower Growth Alternative

Alternative B, the Lower Growth Alternative, assumes the Waterfront Plan results in a lower amount of infill development for various piers and Port properties than the amount of development assumed and analyzed in Chapter 4, Environmental Setting, Impacts, and Mitigation Measures, of this Draft EIR. The growth projections for the Waterfront Plan reflect a maximum estimate of land use assumptions to provide a conservative analysis in this Draft EIR. However, there are many variables that influence the type and magnitude of development and investments that occur on Port properties, including real estate market cycles, construction costs, structural condition and repair requirements, regulatory requirements, and community engagement. Alternative B assumes a lower amount of development than under the Waterfront Plan as a result of excluding Diverse Use Policies 24, 25, 27, and 29 from the Waterfront Plan. These are policies targeted to increase certainty and financial feasibility of structural repair and rehabilitation of Embarcadero Historic District bulkheads and piers. This would result in lower growth projections that assume fewer properties are developed or rehabilitated than what could occur with implementation of Diverse Use Policies 24, 25, 27, and 29 in the Waterfront Plan. Alternative B assumes that some Embarcadero Historic District pier structures would be financially infeasible to repair or rehabilitate and would be vacated due to structural deterioration and closed pursuant to Port Building Code requirements, and that fewer piers in the Embarcadero Historic District would be rehabilitated and seismically improved to allow public use of facilities and so would be occupied by less-intensive land uses. Piers 26 and 28 are assumed to remain in light industrial use and would not be rehabilitated. Piers 30–32, 33, 35, 38 and 54 are assumed to be vacated due to structural deterioration and closed pursuant to Port Building Code requirements. Alternative B also assumes that Waterfront Plan Diverse

³⁷⁵ Background growth between 2020 to 2050 without the updated Waterfront Plan includes larger, long-term development projects within the Waterfront Plan area (Mission Rock and Pier 70 SUDs) that have completed CEQA documentation and have been approved. The background growth includes approximately 6,280 residential units and 15,490 jobs.

Use Policy 36 is excluded from the Waterfront Plan, which would result in a lower amount of development on seawall lots within the Plan area west of The Embarcadero. Alternative B assumes that Seawall Lot 314 (located at Bay Street and The Embarcadero) and Seawall Lot 321 (located at Green Street and The Embarcadero) would remain as surface parking lots. Alternative B assumes that Seawall Lot 330 (located at Bryant Street and The Embarcadero) is developed as a residential building constructed to full building height and bulk limits, which is a less-intensive use than the combination of residential, hotel, and retail uses assumed in the analysis of the project. Cruise ships currently docking at Pier 35, which does not have shoreside power, would continue to do so under Alternative B. As shown in Table 6-1, p. 6-5, Alternative B would include the addition by 2050 of approximately 260 housing units and 540 residents (similar to the Waterfront Plan) and approximately 17,550 jobs (about 42 percent less than with the Waterfront Plan). Details about the growth projections for Alternative B are included in Appendix C of this Draft EIR.

6.F Alternatives Analysis

Table 6-2 compares each alternative to the Waterfront Plan and its respective impacts in a summary manner. Table 6-2 is followed by a comparative discussion of each alternative to the Waterfront Plan and its respective impacts. A detailed alternatives analysis is provided for environmental topics addressed in the technical sections of this Draft EIR (aesthetics, historic resources, transportation and circulation, noise, air quality, and biological resources), followed by a more concise alternatives analysis for environmental topics addressed in the initial study (land use and planning, population and housing, archeological resources and human remains, tribal cultural resources, greenhouse gas emissions, wind, shadow, recreation, utilities and service systems, public services, geology and soils, hydrology and water quality, hazards and hazardous materials, and energy), which is included as Appendix B to this Draft EIR.

6.F.1 Aesthetics

WATERFRONT PLAN

As discussed in Section 4.A, Aesthetics, development that could occur with adoption and implementation of the Waterfront Plan would be subject to compliance with zoning and height and bulk requirements applicable to the locations of subsequent project sites, as well as applicable area-specific and citywide polices and development standards that govern scenic quality to ensure that the new development is visually compatible with the site and its surroundings. Regarding impacts related to light and glare, subsequent projects within the Plan area could generate additional lighting during hours of darkness in the future, but this change would not be substantial nor adverse in the context of existing lighting in the Plan area. The new lighting would not exceed existing lighting at nearby buildings and could be lower in comparison based on San Francisco Building Code and Green Building Code that require energy conservation. In addition, compliance with the planning code would require the use of non-reflective glass; downward-directed, shielded outdoor lighting; and limitations on the illumination of outdoor signs. In addition, Planning Commission Resolution 9212 generally prohibits the use of mirrored or reflective glass in new buildings. Therefore, impacts related to glare from new buildings would not be substantial. In addition, new development that could occur with adoption and implementation of the Waterfront Plan would undergo project-level CEQA review, as applicable, to determine whether it would result in significant environmental effects related to aesthetics that were not disclosed in this Draft EIR. Therefore, aesthetic impacts related to implementation of the Waterfront Plan would be less than significant and no mitigation measures are necessary.

Table 6-2 Comparison of Environmental Impacts of the Waterfront Plan to Impacts of the Alternatives

Impacts	Waterfront Plan	Alternative A: No Project Alternative	Alternative B: Lower Growth Alternative
LAND USE AND PLANNING			
Impact LU-1: The Waterfront Plan would not physically divide an established community.	Less than significant (LTS)	Similar to the Waterfront Plan (LTS)	Similar to the Waterfront Plan (LTS)
Impact LU-2: The Waterfront Plan would not cause a significant physical environmental impact due to a conflict with any applicable land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
Impact C-LU-1: The Waterfront Plan, in combination with cumulative projects, would not result in a significant cumulative impact related to land use and planning.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
AESTHETICS			
Impact AE-1: The Waterfront Plan would not have a substantial adverse effect on a scenic vista, damage scenic resources, degrade the existing visual character or quality of public views of the site or its surroundings, or conflict with applicable zoning and other regulations governing scenic quality.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
Impact AE-2: The Waterfront Plan would not create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
Impact C-AE-1: The Waterfront Plan, in combination with cumulative projects, would not result in a significant cumulative impact on aesthetics.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
POPULATION AND HOUSING			
Impact PH-1: The Waterfront Plan would not induce substantial unplanned population growth beyond that projected by regional forecasts, either directly or indirectly.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than Waterfront Plan (LTS)
Impact PH-2: The Waterfront Plan would not displace substantial numbers of existing people or housing units, necessitating the construction of replacement housing outside of the Plan area.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)

Impacts	Waterfront Plan	Alternative A: No Project Alternative	Alternative B: Lower Growth Alternative
Impact C-PH-1: The Waterfront Plan, in combination with cumulative projects, would not result in a significant cumulative impact related to population and housing.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
CULTURAL RESOURCES			
Impact CR-1: The Waterfront Plan could cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines section 15064.5.	Less than significant with mitigation (LTSM)	Similar to the Waterfront Plan (LTSM)	Similar to the Waterfront Plan (LTSM)
Impact CR-2: The Waterfront Plan could cause a substantial adverse change in the significance of an archeological resource.	Less than significant with mitigation (LTSM)	Less than the Waterfront Plan (LTSM)	Less than the Waterfront Plan (LTSM)
Impact CR-3: The Waterfront Plan could disturb human remains, including those interred outside of formal cemeteries.	Less than significant with mitigation (LTSM)	Less than the Waterfront Plan (LTSM)	Less than the Waterfront Plan (LTSM)
Impact C-CR-1: The Waterfront Plan, in combination with cumulative projects, could result in a significant cumulative impact on historic resources, as defined in CEQA Guidelines section 15064.5.	Less than significant (LTS)	Less than the Waterfront Plan (LTSM)	Less than the Waterfront Plan (LTSM)
Impact C-CR-2: The Waterfront Plan, in combination with cumulative projects, could result in significant cumulative impacts on archeological resources and human remains.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
TRIBAL CULTURAL RESOURCES			
Impact TCR-1: The Waterfront Plan could result in a substantial adverse change in the significance of a tribal cultural resource, as defined in Public Resource Code section 21074.	Less than significant with mitigation (LTSM)	Less than the Waterfront Plan (LTSM)	Less than the Waterfront Plan (LTSM)
Impact C-TCR-1: The Waterfront Plan, in combination with cumulative projects, could result in a significant cumulative impact on tribal cultural resources.	Less than significant with mitigation (LTSM)	Less than the Waterfront Plan (LTSM)	Less than the Waterfront Plan (LTSM)

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6.F. Alternatives Analysis

Impacts	Waterfront Plan	Alternative A: No Project Alternative	Alternative B: Lower Growth Alternative
TRANSPORTATION AND CIRCULATION			
Impact TR-1: Construction under the Waterfront Plan would not require a substantially extended duration or intense activity, and the secondary effects would not create potentially hazardous conditions for people walking, bicycling, driving, or riding transit; or interfere with emergency access or accessibility for people walking or bicycling; or substantially delay public transit.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
Impact TR-2: The Waterfront Plan would not create potentially hazardous conditions for people walking, bicycling, or driving or for public transit operations.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
Impact TR-3: The Waterfront Plan would not interfere with accessibility of people walking or bicycling to and from the project area and adjoining areas, or result in inadequate emergency access.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
Impact TR-4: The Waterfront Plan would not substantially delay public transit.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
Impact TR-5: The Waterfront Plan would not cause substantial additional vehicle miles traveled or substantially induce automobile travel.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
Impact TR-6: The Waterfront Plan could result in commercial vehicle and/or passenger loading deficit, and the secondary effects could create potentially hazardous conditions for people walking, bicycling, or driving; or substantially delay public transit.	Significant and unavoidable with mitigation (SUM)	Less than the Waterfront Plan (SUM)	Less than the Waterfront Plan (SUM)
Impact TR-7: The Waterfront Plan would not result in a substantial parking deficit.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
Impact C-TR-1: The Waterfront Plan, in combination with cumulative projects, could contribute considerably to significant cumulative construction-related transportation impacts.	Significant and unavoidable (SU)	Less than the Waterfront Plan (SU)	Less than the Waterfront Plan (SU)
Impact C-TR-2: The Waterfront Plan, in combination with cumulative projects, would not create potentially hazardous conditions for people walking, bicycling, or driving or for public transit operations.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)

Impacts	Waterfront Plan	Alternative A: No Project Alternative	Alternative B: Lower Growth Alternative
Impact C-TR-3: The Waterfront Plan, in combination with cumulative projects, would not interfere with accessibility of people walking or bicycling to and from the project area and adjoining areas, or result in inadequate emergency access.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
Impact C-TR-4: The Waterfront Plan, in combination with cumulative projects, could contribute considerably to significant cumulative public transit delay impacts.	Significant and unavoidable with mitigation (SUM)	Less than the Waterfront Plan (SUM)	Less than the Waterfront Plan (SUM)
Impact C-TR-5: The Waterfront Plan, in combination with cumulative projects, would not cause substantial additional vehicle miles traveled or substantially induce automobile travel.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
Impact C-TR-6: The Waterfront Plan, in combination with cumulative projects, could contribute considerably to significant cumulative loading impacts.	Significant and unavoidable with mitigation (SUM)	Less than the Waterfront Plan (SUM)	Less than the Waterfront Plan (SUM)
Impact C-TR-7: The Waterfront Plan, in combination with cumulative projects, would not result in significant cumulative parking impacts.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
NOISE			
Impact NO-1: Construction under the Waterfront Plan could generate a substantial temporary or increase in ambient noise levels in the Plan area in excess of standards.	Less than significant with mitigation (LTSM)	Less than the Waterfront Plan (LTSM)	Less than the Waterfront Plan (LTSM)
Impact NO-2: Construction under the Waterfront Plan could generate excessive groundborne vibration or groundborne noise levels.	Less than significant with mitigation (LTSM)	Less than the Waterfront Plan (LTSM)	Less than the Waterfront Plan (LTSM)
Impact NO-3: Operation of the Waterfront Plan could result in the generation of a substantial temporary or permanent increase in ambient noise levels in the Plan area in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.	Less than significant with mitigation (LTSM)	Less than the Waterfront Plan (LTSM)	Less than the Waterfront Plan (LTSM)
Impact C-NO-1: Construction under the Waterfront Plan, in combination with cumulative projects, could result in the generation of a substantial temporary or permanent increase in ambient noise levels in excess of standards.	Less than significant with mitigation (LTSM)	Less than the Waterfront Plan (LTSM)	Less than the Waterfront Plan (LTSM)

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Impacts	Waterfront Plan	Alternative A: No Project Alternative	Alternative B: Lower Growth Alternative
Impact C-NO-2: Construction under the Waterfront Plan, in combination with cumulative projects, would not result in the generation of excessive groundborne vibration or groundborne noise levels during construction.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
Impact C-NO-3: Operation of the Waterfront Plan, in combination with cumulative projects, could result in the generation of a substantial temporary or permanent increase in ambient noise levels in excess of standards.	Less than significant with mitigation (LTSM)	Less than the Waterfront Plan (LTSM)	Less than the Waterfront Plan (LTSM)
AIR QUALITY			
Impact AQ-1: The Waterfront Plan would not conflict with or obstruct implementation of the 2017 Clean Air Plan.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
Impact AQ-2: The Waterfront Plan would not result in a cumulatively considerable net increase of any criteria air pollutant for which the project region is in nonattainment under an applicable federal or state ambient air quality standard.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
Impact AQ-3: The Waterfront Plan could involve construction activities that could result in a cumulatively considerable net increase in any criteria air pollutant for which the project region is in nonattainment status under an applicable federal, state, or regional ambient air quality standard.	Significant and unavoidable with mitigation (SUM)	Less than the Waterfront Plan (SUM)	Less than the Waterfront Plan (SUM)
Impact AQ-4: The Waterfront Plan could result in operational activities that could result in a cumulatively considerable net increase in any criteria air pollutant for which the project region is in nonattainment status under an applicable federal, state, or regional ambient air quality standard.	Significant and unavoidable with mitigation (SUM)	Less than the Waterfront Plan (SUM)	Less than the Waterfront Plan (SUM)
Impact AQ-5: The Waterfront Plan could result in emissions of fine particulate matter (PM _{2.5}) and toxic air contaminants that could result in exposure of sensitive receptors to substantial pollutant concentrations.	Significant and unavoidable with mitigation (SUM)	Less than the Waterfront Plan (SUM)	Less than the Waterfront Plan (SUM)
Impact AQ-6: The Waterfront Plan would not result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
Impact C-AQ-1: The Waterfront Plan, in combination with cumulative projects, could result in exposure of sensitive receptors to substantial levels of fine particulate matter (PM _{2.5}) and toxic air contaminants under cumulative conditions.	Significant and unavoidable with mitigation (SUM)	Less than the Waterfront Plan (SUM)	Less than the Waterfront Plan (SUM)

Impacts	Waterfront Plan	Alternative A: No Project Alternative	Alternative B: Lower Growth Alternative
Impact C-AQ-2: The Waterfront Plan, in combination with cumulative projects, would not combine with other sources of odors that would adversely affect a substantial number of people.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
GREENHOUSE GAS EMISSIONS			
Impact C-GG-1: The Waterfront Plan would generate GHG emissions, but not at levels that would result in a significant impact on the environment or conflict with any policy, plan, or regulation adopted for the purpose of reducing GHG emissions.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
WIND			
Impact WI-1: The Waterfront Plan could create wind hazards in publicly accessible areas of substantial pedestrian use.	Less than significant with mitigation (LTSM)	Less than the Waterfront Plan (LTSM)	Less than the Waterfront Plan (LTSM)
Impact C-WI-1: The Waterfront Plan, combined with cumulative projects, would not result in significant cumulative impacts related to wind.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
SHADOW			
Impact SH-1: The Waterfront Plan would not create new shadow that substantially and adversely affects the use and enjoyment of publicly accessible open spaces.	Less than significant (LTS)	Similar to the Waterfront Plan (LTS)	Similar to the Waterfront Plan (LTS)
Impact C-SH-1: The Waterfront Plan, in combination with cumulative projects, would not result in significant cumulative impacts related to shadow.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
RECREATION			
Impact RE-1: The Waterfront Plan would increase the use of existing neighborhood and regional parks and other recreational facilities, but not to such an extent that substantial physical deterioration of the facilities would occur or be accelerated, or that the construction of new or expanded recreational facilities would be required.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)

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Impacts	Waterfront Plan	Alternative A: No Project Alternative	Alternative B: Lower Growth Alternative
<p>Impact C-RE-1: The Waterfront Plan, in combination with cumulative projects, would increase the use of existing neighborhood and regional parks and other recreational facilities, but not to such an extent that substantial physical deterioration of the facilities would occur or be accelerated, or that the construction of new or expanded recreational facilities would be required.</p>	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
UTILITIES AND SERVICE SYSTEMS			
<p>Impact UT-1: Sufficient water supplies are available to serve the Waterfront Plan and reasonably foreseeable future development in normal, dry, and multiple dry years unless the Bay Delta Plan Amendment is implemented; in that event the SFPUC may develop new or expanded water supply facilities to address shortfalls in single and multiple dry years, but this would occur with or without implementation of the Waterfront Plan. Impacts related to new or expanded water supply facilities cannot be identified at this time or implemented in the near term; instead, the SFPUC would address supply shortfalls through increased rationing, which could result in significant cumulative effects, but the implementation of the Waterfront Plan would not make a considerable contribution to impacts from increased rationing.</p>	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
<p>Impact UT-2: The Waterfront Plan would not require or result in the relocation or construction of new or expanded, water, wastewater treatment, or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects.</p>	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
<p>Impact UT-3: The Waterfront Plan would not generate solid waste in excess of state or local standards or in excess of the capacity of local infrastructure, and would comply with federal, state, and local management and reduction statutes and regulations related to solid waste.</p>	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
<p>Impact C-UT-1: The Waterfront Plan, in combination with cumulative projects, would not result in significant cumulative impacts on utilities and service systems.</p>	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
PUBLIC SERVICES			
<p>Impact PS-1: The Waterfront Plan would increase the demand for police service or fire protection service but not to such an extent that construction of new or physically altered facilities would be required.</p>	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
<p>Impact PS-2: The Waterfront Plan would not directly or indirectly generate school students and increase enrollment in public schools such that new or physically altered facilities would be required.</p>	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)

Impacts	Waterfront Plan	Alternative A: No Project Alternative	Alternative B: Lower Growth Alternative
Impact C-PS-1: The Waterfront Plan, in combination with cumulative projects, would not result in significant cumulative impacts on police, fire, and school district services such that new or physically altered facilities, the construction of which could cause significant environmental impacts, would be required in order to maintain acceptable levels of service.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
BIOLOGICAL RESOURCES			
Impact BI-1: The Waterfront Plan could have a substantial adverse effect, either directly, indirectly, or through habitat modifications, on a plant species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or USFWS.	Less than significant with mitigation (LTSM)	Less than the Waterfront Plan (LTSM)	Less than the Waterfront Plan (LTSM)
Impact BI-2: The Waterfront Plan could have a substantial adverse effect, either directly, indirectly, or through habitat modifications, on nesting bird or bat species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or USFWS.	Less than significant with mitigation (LTSM)	Less than the Waterfront Plan (LTSM)	Less than the Waterfront Plan (LTSM)
Impact BI-3: The Waterfront Plan could have a substantial adverse effect, either directly, indirectly, or through habitat modifications, on steelhead, chinook salmon, green sturgeon, or marine mammal species, which are identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW, NMFS, or USFWS.	Less than significant with mitigation (LTSM)	Less than the Waterfront Plan (LTSM)	Less than the Waterfront Plan (LTSM)
Impact BI-4: The Waterfront Plan could have a substantial adverse effect on the pickleweed mat sensitive natural community.	Less than significant with mitigation (LTSM)	Less than the Waterfront Plan (LTSM)	Less than the Waterfront Plan (LTSM)
Impact BI-5: The Waterfront Plan would not have a substantial adverse effect the eelgrass bed sensitive natural community.	No impact (NI)	No Impact	No Impact
Impact BI-6: The Waterfront Plan could have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal) through direct removal, filling, hydrological interruption, or other means.	Less than significant with mitigation (LTSM)	Less than the Waterfront Plan (LTSM)	Less than the Waterfront Plan (LTSM)
Impact BI-7: The Waterfront Plan could interfere substantially with the movement of a native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.	Less than significant with mitigation (LTSM)	Less than the Waterfront Plan (LTSM)	Less than the Waterfront Plan (LTSM)
Impact BI-8: The Waterfront Plan would not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)

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Impacts	Waterfront Plan	Alternative A: No Project Alternative	Alternative B: Lower Growth Alternative
Impact C-BI-1: The Waterfront Plan, in combination with cumulative projects, would not result in significant construction-related or operational cumulative impacts on biological resources.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
GEOLOGY AND SOILS			
Impact GE-1: The Waterfront Plan would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving fault rupture, strong seismic ground shaking, or seismically induced ground failure.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
Impact GE-2: The Waterfront Plan would not result in substantial erosion or loss of topsoil.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
Impact GE-3: The Waterfront Plan would not be located on a geologic unit or soil that is unstable, or that could become unstable as a result of implementation of the Plan.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
Impact GE-4: The Waterfront Plan would not create substantial risks to life or property as a result of locating buildings or other features on expansive soils.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
Impact GE-5: The Waterfront Plan could directly or indirectly destroy a unique paleontological resource or site.	Less than significant with mitigation (LTSM)	Less than the Waterfront Plan (LTSM)	Less than the Waterfront Plan (LTSM)
Impact C-GE-1: The Waterfront Plan, in combination with cumulative projects, would not result in significant cumulative impacts on geology, soils, or paleontological resources.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
HYDROLOGY AND WATER QUALITY			
Impact HY-1: The Waterfront Plan could violate water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality, and could conflict with or obstruct implementation of a water quality control plan.	Less than significant with mitigation (LTSM)	Less than the Waterfront Plan (LTSM)	Less than the Waterfront Plan (LTSM)
Impact HY-2: The Waterfront Plan would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Plan may impede sustainable groundwater management of the basin or conflict with a sustainable groundwater management plan.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)

Impacts	Waterfront Plan	Alternative A: No Project Alternative	Alternative B: Lower Growth Alternative
Impact HY-3: The Waterfront Plan would not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner that would result in substantial erosion, siltation, or flooding on or off site.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
Impact HY-4: The Waterfront Plan would not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner that would create or contribute runoff water, which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
Impact HY-5: The Waterfront Plan would not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner that would impede or redirect flood flows.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
Impact HY-6: The Waterfront Plan would not risk release of pollutants due to project inundation.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
Impact C-HY-1: The Waterfront Plan, in combination with cumulative projects, would not result in a significant cumulative impact on hydrology and water quality.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
HAZARDS AND HAZARDOUS MATERIALS			
Impact HZ-1: The Waterfront Plan would not create a significant hazard through the routine transport, use, or disposal of hazardous materials.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
Impact HZ-2: The Waterfront Plan would not create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. In addition, subsequent projects could occur on sites identified on the list of hazardous materials sites compiled pursuant to Government Code section 65962.5, but compliance with regulations would ensure that impacts remain less than significant.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
Impact HZ-3: The Waterfront Plan would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)

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Impacts	Waterfront Plan	Alternative A: No Project Alternative	Alternative B: Lower Growth Alternative
Impact HZ-4: The Waterfront Plan would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
Impact C-HZ-1: The Waterfront Plan, in combination with cumulative projects, would not result in a significant cumulative impact related to hazards and hazardous materials.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
MINERAL RESOURCES			
None applicable			
ENERGY			
Impact EN-1: The Waterfront Plan would not result in wasteful, inefficient, or unnecessary consumption of energy resources during construction or operation; or conflict with or obstruct a state or local plan for renewable energy or energy efficiency.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
Impact C-EN-1: The Waterfront Plan, in combination with cumulative projects, would not result in significant cumulative impacts related to the wasteful, inefficient, or unnecessary consumption of energy resources or conflict with or obstruct a state or local plan for renewable energy or energy efficiency.	Less than significant (LTS)	Less than the Waterfront Plan (LTS)	Less than the Waterfront Plan (LTS)
AGRICULTURE AND FORESTRY RESOURCES			
None applicable			
WILDFIRE			
None applicable			

ALTERNATIVE A: NO PROJECT ALTERNATIVE

The No Project Alternative assumes that without implementation of the updates to the Waterfront Plan, there would be no additional increase in housing units or employment in the Plan area beyond the background growth projected to occur under existing zoning and the currently adopted 1997 Waterfront Land Use Plan (largely attributable to long-term development projects that have completed CEQA documentation and have been approved). The growth projections for the No Project Alternative with the background growth include the addition by 2050 of approximately 6,280 housing units and 13,060 residents (about 4 percent less than with implementation of the updated Waterfront Plan) and approximately 15,490 jobs (about 49 percent less than with implementation of the updated Waterfront Plan). These assumptions reflect development allowed under existing zoning.

Under the No Project Alternative, the currently adopted 1997 Waterfront Land Use Plan would not be updated to reflect revised or new goals, policies, and procedures identified in the Waterfront Plan. The San Francisco Planning Code (planning code) would not be amended to create SUD 4, which would require waterfront design review process and procedures for future development on Port piers and seawall lots in the Mission Bay and Southern Waterfront subareas that are not included in the Mission Rock, Pier 70, or Potrero Power Station projects. Updated or new policies in the Waterfront Plan related to aesthetics and visual quality would not be adopted or implemented.

As is the case with the Waterfront Plan, under the No Project Alternative, physical development in the Plan area³⁷⁶ would be subject to required compliance with applicable zoning and height and bulk requirements, and required adherence to applicable area-specific and citywide polices and development standards that govern scenic quality, to ensure the new development would not have a substantial adverse effect on a scenic vista, damage scenic resources, degrade the existing visual character or quality of public views of the site or its surroundings, conflict with applicable zoning and other regulations governing scenic quality, or result in obtrusive light or glare. In addition, new development would undergo project-level CEQA review, as applicable, to determine whether it would result in significant environmental effects related to aesthetics. While the aforementioned background growth under the No Project Alternative could result in effects related to aesthetics, none of the less-than-significant impacts related to aesthetics associated with the Waterfront Plan would occur; therefore, impacts would be reduced as compared to the Waterfront Plan.

ALTERNATIVE B: LOWER GROWTH ALTERNATIVE

Alternative B, Lower Growth Alternative, assumes the Waterfront Plan would result in a lower amount of infill development for various piers and Port properties than the amount of development assumed and analyzed in Chapter 4, Environmental Setting, Impacts, and Mitigation Measures, of this Draft EIR, as described above and shown in Table 6-1, p. 6-5.

The reduction of development under Alternative B would result in a corresponding reduction in visual change relative to existing conditions within the Northeast Waterfront and South Beach waterfront subareas as compared to the visual change that could occur with implementation of the Waterfront Plan. Reduced or less-intensive development under this alternative would result from reduction of three new development sites,

³⁷⁶ As discussed in Section 4.A, Aesthetics, the visual study area for the Waterfront Plan includes all public areas from which Waterfront Plan components would come into view. The Port of San Francisco's waterfront extends along 7.5-miles of San Francisco Bay. The Plan area is generally bounded to the north by Hyde Street Pier and Jefferson Street in Fisherman's Wharf and includes piers and upland properties adjacent to The Embarcadero, including Oracle Park; piers and waterfront properties adjacent to Terry Francois Boulevard in Mission Bay; and properties generally east of Illinois Street south of Mission Bay to Cargo Way in India Basin.

including Seawall Lots 314 and 321 and Piers 30–32, which would remain as surface parking lots (Seawall Lots 314 and 321) or vacant (Piers 30–32). Seawall Lot 330 would be developed with a new residential structure consistent with the allowed building height and bulk limits for the site. Fewer piers and seawall lots would be rehabilitated or developed for new commercial, maritime, or public-oriented uses than would occur under the Waterfront Plan. The reduction of historic pier rehabilitation developments would not generate a notable visual change. The lack of new development on Piers 30–32 and Seawall Lots 314 and 321 under Alternative B would lessen the extent to which existing views of scenic resources (e.g., views of San Francisco Bay, visually important buildings, maritime structures) are altered as compared to the Waterfront Plan. Reduced development under Alternative B also would reduce the extent of new sources of nighttime light within the aforementioned subareas as compared to the Waterfront Plan. With regard to aesthetic impacts on the visual character of the Plan area, reduced or less-intensive development under Alternative B would result in a lesser degree of physical change to existing conditions within the aforementioned subareas, and therefore changes to existing visual character would be accordingly reduced.

As with the Waterfront Plan, physical development under Alternative B would be subject to required compliance with applicable zoning and height and bulk requirements, and required adherence to applicable area-specific and citywide polices and development standards that govern scenic quality to ensure the new development would not have a substantial adverse effect a scenic vista, damage scenic resources, degrade the existing visual character or quality of public views of the site or its surroundings, conflict with applicable zoning and other regulations governing scenic quality, or result in obtrusive light or glare. In addition, new development would undergo project-level CEQA review, as applicable, to determine whether it would result in significant environmental effects related to aesthetics. Consequently, the Lower Growth Alternative would result in similar, albeit somewhat reduced, less-than-significant impacts as compared to the Waterfront Plan due to the reduced extent of physical development that would occur.

6.F.2 Historic Resources

WATERFRONT PLAN

Section 4.B, Historic Resources, analyzes potential impacts related to historic resources that could occur with implementation of the Waterfront Plan. As discussed in the analysis, the Waterfront Plan includes a number of policies and goals related to historic preservation. No changes to the underlying zoning or height and bulk districts are proposed as part of the Waterfront Plan. However, subsequent projects that could occur with implementation of policies outlined in the Waterfront Plan include infill development, waterfront and open space improvements along the shoreline, enhancement of recreational uses in the bay, rehabilitation of existing piers, improvements to existing maritime uses, and development of a resilience program for Port facilities. These subsequent projects could occur within a historic district, which could result in a significant adverse impact on the historic district with regard to a substantial alteration of a contributing resource so that it no longer conveys its historic significance. These subsequent projects also could involve a historic resource or occur adjacent to a historic resource. However, the Waterfront Plan includes historic preservation policies for subsequent projects that include historic resources (Urban Design and Historic Preservation Policies 4a through 4i), and subsequent projects involving rehabilitation or renovation of historic resources would be reviewed by a qualified historic preservation professional in coordination with department preservation staff for consistency with the *Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings* (Secretary's Standards). Subsequent projects in a historic district also would be required to undergo design review to

ensure compatibility with the historic district. For these reasons, it is not anticipated that these projects would result in a significant adverse impact on a historic resource. In addition, implementation of Mitigation Measure M-CR-1a would reduce any impacts resulting from subsequent projects that could modify or relocate Auxiliary Water Supply System (AWSS) features to a less-than-significant level. However, upon further review of a subsequent project at such time that it is proposed, should it be determined that it could result in a significant adverse impact on a historic resource or district, the project may be subject to further environmental review. With regard to construction-related impacts, implementation of Mitigation Measure M-NO-2a and Mitigation Measure M-CR-1b would ensure that impacts to historic resources due to construction-related activities would be less than significant with mitigation. Adjacent new construction also has the potential to degrade a historic district's setting. Implementation of Mitigation Measure M-NO-2a and Mitigation Measure M-CR-1b would ensure that impacts to historic resources adjacent to historic districts would be less than significant with mitigation.

ALTERNATIVE A: NO PROJECT ALTERNATIVE

The No Project Alternative assumes that without implementation of the updates to the Waterfront Plan, there would be no additional increase in housing units or employment in the Plan area beyond the background growth projected to occur under existing zoning and the currently adopted 1997 Waterfront Land Use Plan (largely attributable to long-term development projects that have completed CEQA documentation and have been approved). Under the No Project Alternative, the currently adopted 1997 Waterfront Land Use Plan would not be updated to reflect revised or new goals, policies, and procedures identified in the Waterfront Plan. Updated or new policies in the Waterfront Plan related to urban design and historic preservation would not be adopted or implemented.

The aforementioned background growth that would occur under the No Project Alternative would be subject to required compliance with existing zoning and height and bulk regulations and adherence to relevant federal, state, regional, and local regulations and policies designed to avoid or reduce adverse impacts related to historic resources identified in Section 4.B.2, Regulatory Framework, p. 4.B-1. Any projects involving a historic resource or located in a historic district would be reviewed for consistency with the Secretary's Standards. In addition, implementation of Mitigation Measure M-CR-1a would reduce any project impacts related to the AWSS, and Mitigation Measure M-NO-2a and Mitigation Measure M-CR-1b would ensure that impacts to historic resources due to construction-related activities from projects would be less than significant with mitigation. Furthermore, new development would be reviewed to determine whether it would result in significant environmental effects related to historic resources. If impacts on a historic resource were to occur, the project would be required to undergo additional environmental review. Therefore, background growth under Alternative A would result in similar, albeit somewhat reduced, less-than-significant-with-mitigation impacts as compared to the Waterfront Plan.

ALTERNATIVE B: LOWER GROWTH ALTERNATIVE

The Lower Growth Alternative assumes the Waterfront Plan would result in a lower amount of infill development for various piers and Port properties than the amount of development assumed and analyzed in Chapter 4, Environmental Setting, Impacts, and Mitigation Measures, of this Draft EIR, as described above and shown in Table 6-1, p. 6-5. A detailed description of development anticipated under the Alternative B is included in Appendix C of this Draft EIR.

The Embarcadero Historic District encompasses three miles of waterfront, including the seawall, bulkhead wharf, pier, and bulkhead buildings from Pier 45 to the north to Pier 48 in China Basin to the south. The Embarcadero Historic District extends through the Fisherman's Wharf, Northeast Waterfront, South Beach, and Mission Bay waterfront subareas. As discussed in Section 4.B, Historic Resources, the district includes the Ferry Building, the Agriculture Building, and the Fire Station at Pier 22½, all of which contribute to the overall character of the district. Portions of Pier 39 and Piers 30–32 are non-contributing features of the Embarcadero Historic District because they lack integrity. The Embarcadero Historic District was listed in the National Register of Historic Places and the California Register of Historical Resources in 2006. Red's Java House and Pier 48½ were determined to be contributors to the Embarcadero Historic District through environmental review conducted in 2011 and 2015, respectively.

As discussed in Section 4.B, Historic Resources, potential impacts related to historic resources that could occur with implementation of the Waterfront Plan are associated with infill development, waterfront and open space improvements along the shoreline, enhancement of recreational uses in the bay, rehabilitation of existing piers, improvements to existing maritime uses. As discussed above, Alternative B would result in a lower amount of infill development for various piers and Port properties within the Embarcadero Historic District than the amount of development assumed and analyzed for the Waterfront Plan. Alternative B assumes that some Embarcadero Historic District pier structures would be financially infeasible to repair or rehabilitate and would be vacated due to structural deterioration and closed pursuant to Port Building Code requirements. Alternative B also assumes fewer piers in the Embarcadero Historic District would be rehabilitated and seismically improved to allow public use of facilities and so would be occupied by less-intensive land uses. The reduced extent of physical development under Alternative B would result in a corresponding reduction in potential adverse effects to historic resources within the Embarcadero Historic District and within the aforementioned subareas.

The reduced extent of development under Alternative B would result in a corresponding reduction in potential new land uses and new development introduced in the Plan area than could occur under the Waterfront Plan. As with the Waterfront Plan, subsequent projects under Alternative B involving rehabilitation or renovation of historic resources would be reviewed by a qualified historic preservation professional for consistency with the Secretary's Standards, and new subsequent projects in the historic district would be required to undergo design review to ensure its compatibility with the historic district. In addition, Mitigation Measure M-CR-1a would be implemented under Alternative B to reduce any impacts resulting from subsequent projects that could modify or relocate AWSS features to a less-than-significant level. In addition, implementation of Mitigation Measure M-NO-2a and Mitigation Measure M-CR-1b under Alternative B would ensure that impacts to historic resources due to construction-related activities would be less than significant with mitigation. As such, Alternative B would result in similar, albeit somewhat reduced, less-than-significant impacts as compared to the Waterfront Plan due to the reduced extent of physical development that could occur under this alternative.

6.F.3 Transportation and Circulation

WATERFRONT PLAN

Section 4.C, Transportation and Circulation, analyzes potential impacts related to transportation and circulation that could result from construction and operation of the Waterfront Plan. Transportation and circulation topics consist of walking, bicycling, driving hazards, transit, emergency access, vehicle miles

traveled (VMT), commercial and passenger loading, and vehicle parking. As discussed in Section 4.C, Transportation, transportation impacts related to construction activities, hazardous conditions, accessibility, emergency access, project-level transit delay, VMT, and parking associated with subsequent projects that could occur under the Plan would be less than significant with no mitigation measures. Significant and unavoidable transportation-related impacts identified in this Draft EIR for the Waterfront Plan are summarized below.

As discussed under Impact C-TR-1, the Waterfront Plan, in combination with cumulative projects, could contribute considerably to significant cumulative construction-related transportation impacts. Measures to avoid or minimize effects from construction activities in the public right-of-way are covered by existing San Francisco Municipal Transportation Agency and San Francisco Public Works regulations. However, as noted above, even with compliance with City regulations, it is possible that overlapping projects could disrupt or delay transit, people bicycling, or people walking, or result in potentially hazardous conditions. Imposing sequential (i.e., non-overlapping schedules) for all projects along the waterfront would be infeasible due to potential lengthy delays in project implementation. Because no feasible mitigation measures are available to avoid or minimize this impact, the cumulative construction-related transportation impacts with implementation of the Waterfront Plan could be significant and unavoidable.

As discussed under Impact TR-6 and Impact C-TR-6, to the extent that loading demand associated with subsequent projects under the Waterfront Plan is not accommodated onsite or within existing or planned on-street commercial and passenger loading spaces, potentially hazardous conditions for people walking, bicycling, or driving could occur. Mitigation Measure M-TR-6 would require subsequent projects with more than 100,000 square feet of uses to develop and implement a plan to address project-generated commercial and passenger loading issues and require that offsite loading activity is considered in the design of new buildings. Due to the uncertainty that onsite and on-street loading spaces could be provided to meet demand, a substantial loading deficit may occur even with implementation of the mitigation measure; therefore, this mitigation measure would not reduce potential significant impacts to less-than-significant levels. For these reasons, loading impacts with implementation of the Waterfront Plan could remain significant and unavoidable with mitigation. In addition, as discussed under Impact C-TR-6, the Waterfront Plan could contribute considerably to significant cumulative commercial and passenger loading impacts; therefore, cumulative loading impacts under the Waterfront Plan could be significant and unavoidable with mitigation.

As discussed under Impact C-TR-4, Mitigation Measure M-C-TR-4 aims to reduce the impact of vehicle trips on congestion and transit travel times to the 10 Townsend route in the South Beach subarea by implementing additional Transportation Demand Management (TDM) measures than those required under the department's TDM Program. The expanded measures would provide onsite services to reduce the need to travel offsite, shift travel to higher occupancy vehicles and transit, move vehicle trips to non-peak traffic demand periods, and/or encourage use of other non-auto modes, including bicycling. Shifting a portion of Plan-generated vehicles to other modes would reduce projected increases in congestion and transit travel times at intersections through which the 10 Townsend bus route travels. However, it is not certain that implementation of this mitigation measure would sufficiently reduce Plan-generated vehicles such that the Waterfront Plan's impacts on the 10 Townsend bus route would not be cumulatively considerable. For these reasons, the Waterfront Plan could contribute considerably to significant cumulative transit delay impacts that could be significant and unavoidable with mitigation.

ALTERNATIVE A: NO PROJECT ALTERNATIVE

The No Project Alternative assumes that without implementation of the updates to the Waterfront Plan, there would be no additional increase in housing units or employment in the Plan area beyond the background growth projected to occur (largely attributable to long-term development projects that have completed CEQA documentation and have been approved). The growth projections for the No Project Alternative with the background growth include the addition by 2050 of approximately 6,280 housing units and 13,060 residents (about 4 percent less than with implementation of the updated Waterfront Plan) and approximately 15,490 jobs (about 49 percent less than with implementation of the updated Waterfront Plan). These assumptions reflect development allowed under existing zoning.

As discussed in the analysis of transportation impacts in Section 4.C, Transportation and Circulation, the Waterfront Plan could result in significant-and-unavoidable project impacts related to loading, and significant-and-unavoidable cumulative impacts related to construction, loading, and public transit delay. As discussed in Section 4.C, separate environmental review documents have determined that a large portion of the background growth under the No Project Alternative could result in potentially significant project and cumulative transportation impacts related to construction, loading, and public transit delay. While the background growth under the No Project Alternative could result in some transportation-related impacts that would require mitigation, none of the impacts resulting from implementation of the Waterfront Plan would occur; therefore, impacts would be reduced as compared to the Waterfront Plan.

ALTERNATIVE B: LOWER GROWTH ALTERNATIVE

The Lower Growth Alternative assumes the Waterfront Plan would result in a lower amount of infill development for various piers and Port properties than the amount of development assumed and analyzed in Chapter 4, Environmental Setting, Impacts, and Mitigation Measures, of this Draft EIR, as described above and shown in Table 6-1, p. 6-5. Alternative B also assumes that Seawall Lot 330 (located at Bryant Street and The Embarcadero) would be developed as a residential building constructed to full building height and bulk limits, which is a less-intensive use than the combination of residential, hotel, and retail uses assumed in the analysis of the Waterfront Plan. As shown in Table 6-1, p. 6-5, Alternative B would include the addition by 2050 of approximately 260 housing units and 540 residents (similar to the Waterfront Plan) and approximately 17,550 jobs (about 42 percent less than with the Waterfront Plan). Alternative B would add fewer jobs to the Plan area associated with the following employment categories: cultural, institutional, and educational; office; retail; and industrial. A detailed description of development anticipated under Alternative B is included in Appendix C of this Draft EIR.

Due to the reduced extent of development, transportation impacts related to construction activities, hazardous conditions, accessibility, emergency access, transit delay, VMT, and parking associated with subsequent projects that could occur under the Plan would be reduced under Alternative B in comparison to the already less-than-significant impacts identified for these topics for the Waterfront Plan. As with the Waterfront Plan, no mitigation measures would be required.

With regard to cumulative construction-related transportation impacts, Alternative B would result in a lower amount of infill development for various piers and Port properties within the Northeast Waterfront and South Beach waterfront subareas than the amount of development that could occur in these subareas under the Waterfront Plan. While the construction duration of individual development projects under Alternative B would be less than the larger development projects that could occur under the Waterfront Plan, it is possible that simultaneous construction of cumulative development projects could result in significant construction-

related transportation impacts. Therefore, construction-related transportation impacts would be significant and unavoidable for Alternative B, similar to the Waterfront Plan.

Similar to the Waterfront Plan, loading demand associated with subsequent projects that could occur under Alternative B might not be accommodated onsite or within existing or planned on-street commercial and passenger loading spaces, creating potentially hazardous conditions for people walking, bicycling, or driving. As with the Waterfront Plan, Mitigation Measure M-TR-6 would be implemented under Alternative B to require subsequent projects with more than 100,000 square feet of uses to develop and implement a plan to address Plan-generated commercial and passenger loading issues and require that offsite loading activity is considered in the design of new buildings. However, due to the uncertainty that onsite and on-street loading spaces could be provided to meet demand, a substantial loading deficit may occur even with implementation of the mitigation measure. While the lower amount of infill development for various piers and Port properties could reduce the magnitude of loading impacts, cumulative commercial and passenger loading impacts could be significant and unavoidable even with mitigation under Alternative B, similar to the Waterfront Plan.

With regard to cumulative transit delay impacts, the reduced extent of development under Alternative B would result in a lower amount of infill development for various piers and Port properties within the Fisherman's Wharf, Northeast Waterfront, South Beach, and Mission Bay waterfront subareas as compared to the amount of development that could occur in these subareas in the Waterfront Plan. As discussed under Impact C-TR-4, implementation of The Embarcadero Enhancement Program and the Waterfront Resilience Project would not change the operation of the historic streetcars and light rail within the exclusive median right-of-way along The Embarcadero and neither project is expected to change transit travel times for the historic streetcar and light-rail lines. Therefore, as with the Waterfront Plan, within the Fisherman's Wharf and the Northeast Waterfront subareas, cumulative projects would not result in significant cumulative transit delay impacts. As also discussed under Impact C-TR-4, within the South Beach, Mission Bay, and Southern Waterfront subareas, transit travel times for bus routes and light-rail lines not operating within transit-only lanes or within exclusive medians would increase compared to existing conditions. Cumulative projects such as the Central SoMa Plan, Mission Rock, Pier 70, Potrero Power Station projects, and the San Francisco Housing Element 2022 Update would generate new vehicle trips and transit riders. Mitigation Measure M-C-TR-4, which aims to reduce the impact of Plan-generated vehicle trips on congestion and transit travel times on nearby streets within the South Beach subarea by implementing additional or more intense TDM measures to development projects that would result in cumulatively considerable delay to the 10 Townsend route than those required under the department's TDM Program at the time of Plan approval, would be implemented under Alternative B. However, similar to the Waterfront Plan, it is not certain that implementation of this mitigation measure would sufficiently reduce Plan-generated vehicles such that the impacts on the 10 Townsend bus route under Alternative B would not be cumulatively considerable. For these reasons, similar to the Waterfront Plan, implementation of Alternative B could contribute considerably to significant cumulative transit delay impacts that could be significant and unavoidable with mitigation.

6.F.4 Noise and Vibration

WATERFRONT PLAN

Section 4.D, Noise and Vibration, describes the existing noise and vibration environment in the Waterfront Plan area, evaluates potential construction-related and operational noise and vibration impacts associated with implementation of the Plan, and identifies mitigation measures to avoid or reduce potential adverse

impacts. The impact analysis in Section 4.D identifies construction and/or operational components of subsequent projects that could be implemented under the Waterfront Plan that could result in potentially significant noise and/or vibration impacts, but acknowledges that not all subsequent projects may result in significant noise and/or vibration impacts. Accordingly, and as required in the mitigation measures included in Section 4.D, subsequent projects would be evaluated at such time they are proposed to determine whether significant noise and/or vibration impacts would occur as a result of the project individually or in combination with other subsequent projects. Upon evaluation of each subsequent project, if it is determined that the project could result in a significant noise and/or vibration impact, applicable mitigation measures, as summarized below, would be implemented to reduce the impact to a less-than-significant level.

If it is determined that a subsequent project could result in a significant noise and/or vibration impact, Mitigation Measure M-NO-1 would reduce significant construction noise levels at nearby noise sensitive receptors by requiring that noise-producing equipment be located as far away as possible from noise-sensitive receptors and by requiring the project sponsor and their construction contractors to employ noise attenuation methods, including sound barriers and mufflers on construction equipment. Should it be determined that a subsequent project could result in construction activities that result in vibration at levels that would damage buildings and/or structures, Mitigation Measure M-NO-2a would require the project sponsor to conduct a pre-construction assessment of potentially affected buildings and/or structures, establish vibration limits not to be exceeded based on the condition of the building(s) and/or structure(s), monitor vibration levels during construction, and repair any vibration-related damage to its pre-construction condition. Should it be determined that construction of a subsequent project on Seawall Lot 321 could result in a significant vibration impact, Mitigation Measure M-NO-2b also would be required to ensure that the potential for damage to nearby vibration-sensitive equipment would be properly identified, avoided, or monitored. If it is determined that a subsequent project could result in a significant noise impact, Implementation of Mitigation Measure M-NO-3 would ensure that the building design, enclosure design, and/or changes in operations resulting from implementation of subsequent projects that could occur under the Waterfront Plan would comply with the applicable criteria in the municipal code and would not substantially increase ambient noise levels. As discussed in Section 4.D, Noise and Vibration, potential cumulative impacts related to construction noise, construction vibration, and operational noise would be less than significant with mitigation.

ALTERNATIVE A: NO PROJECT ALTERNATIVE

The No Project Alternative assumes that without implementation of the updates to the Waterfront Plan, there would be no additional increase in housing units or employment in the Plan area beyond the background growth projected to occur (largely attributable to long-term development projects that have completed CEQA documentation and have been approved). While the background growth under the No Project Alternative could result in some impacts related to noise and vibration that would require mitigation, none of the impacts resulting from implementation of the Waterfront Plan would occur, and impacts would be reduced as compared to the Waterfront Plan.

ALTERNATIVE B: LOWER GROWTH ALTERNATIVE

The Lower Growth Alternative assumes the Waterfront Plan would result in a lower amount of infill development for various piers and Port properties than the amount of development assumed and analyzed in Chapter 4, Environmental Setting, Impacts, and Mitigation Measures, of this Draft EIR, as described above and shown in Table 6-1, p. 6-5. A detailed description of development anticipated under Alternative B is included in Appendix C of this Draft EIR.

The reduced extent of development under Alternative B would result in a lower amount of infill development for various piers and Port properties within the Fisherman’s Wharf, Northeast Waterfront, South Beach, and Mission Bay waterfront subareas as compared to the amount of development that could occur for these subareas with implementation of the Waterfront Plan. Despite this reduced amount of development, construction of subsequent projects or multiple projects under Alternative B could result in a substantial temporary or periodic increase in ambient noise levels or vibration levels that could damage buildings and/or structures. Development under Alternative B could include building design, enclosure design, and/or changes in operations resulting from implementation of subsequent projects that could result operational noise impacts. However, no new types of activities or uses not already assumed under the Waterfront Plan would be developed under Alternative B. Alternative B would entail a reduced extent of the same types of urban development within the aforementioned subareas that could occur under the Waterfront Plan, which have been determined to result in impacts related to noise and vibration that would be less than significant with mitigation. As with the Waterfront Plan, operational traffic noise impacts would be less than significant under Alternative B, albeit slightly reduced due to the reduced development program. Similar to the Waterfront Plan, subsequent projects under Alternative B would be evaluated to determine whether a significant construction noise impact would occur. If it is determined that the subsequent project could result in a significant construction noise impact, Mitigation Measure M-NO-1 would be implemented to reduce construction noise levels at nearby noise sensitive receptors. As with the Waterfront Plan, Mitigation Measure M-NO-2a would be required under Alternative B should analysis of a subsequent project determine that construction activities could result in vibration at levels that would damage buildings and/or structures. Under Alternative B, it is assumed that Seawall Lot 321 would remain as a parking lot and would not be developed; therefore, Mitigation Measure M-NO-2b would not be required. With regard to the aforementioned potential operational noise impacts related to building design, enclosure design, and/or changes in operations that could result from implementation of Alternative B, implementation of Mitigation Measure M-NO-3 would ensure that subsequent projects under Alternative B would comply with the applicable criteria in the municipal code and would not substantially increase ambient noise levels. In summary, the reduction of development under Alternative B would reduce the impacts related to noise and vibration when compared to the Waterfront Plan. Nevertheless, subsequent projects under Alternative B that are found to have a significant noise or vibration impact would be required to implement the same mitigation measures as those identified for the Waterfront Plan. As with the Waterfront Plan, potential cumulative impacts related to construction and operational noise would be less than significant with mitigation under Alternative B, albeit slightly reduced due to the reduced development program.

6.F.5 Air Quality

WATERFRONT PLAN

Section 4.E, Air Quality, evaluates air quality impacts that could result from implementation of the Waterfront Plan.

As discussed under Impact AQ-1, the Waterfront Plan would not conflict with or obstruct implementation of the 2017 Clean Air Plan. In determining consistency with the 2017 Clean Air Plan, the analysis considers whether the Waterfront Plan would (1) support the primary goals of the 2017 Clean Air Plan, (2) include applicable control measures from the 2017 Clean Air Plan, and (3) avoid disrupting or hindering implementation of control measures identified in the 2017 Clean Air Plan. As demonstrated in the analysis, the Waterfront Plan would be consistent with the 2017 Clean Air Plan control measures, would not hinder implementation of the 2017 Clean Air Plan, and would support the primary goals of the 2017 Clean Air Plan.

Chapter 6. Alternatives
6.F. Alternatives Analysis

Thus, the Waterfront Plan would not conflict with or obstruct implementation of the 2017 Clean Air Plan and this impact would be less than significant and no mitigation measures are required.

As discussed under Impact AQ-2, the Waterfront Plan would not result in a cumulatively considerable net increase of any criteria air pollutant for which the project region is in nonattainment under an applicable federal or state ambient air quality standard. As discussed in Section 4.E, Air Quality, in order for a plan to result in less-than-significant criteria air pollutant impacts, an analysis must demonstrate that the plan would be consistent with the control measures contained in the current regional air quality plan (the 2017 Clean Air Plan), would support the primary objectives of the 2017 Clean Air Plan, and would not hinder implementation of the 2017 Clean Air Plan. As discussed under Impact AQ-1, the Waterfront Plan would not conflict with or obstruct implementation of the 2017 Clean Air Plan and this impact would be less than significant and no mitigation measures are required. Furthermore, based on the plan-level thresholds identified by the air district in their CEQA Air Quality Guidelines, the analysis must demonstrate that the Plan's growth in VMT would not exceed the Plan's population growth, and the Plan would not cause localized CO impacts. While the analysis under Impact AQ-2 demonstrates that the Waterfront Plan would result in less-than-significant criteria air pollutant impacts at the plan level, the analysis determines that subsequent projects under the Plan could result in significant criteria air pollutant impacts based on the air district's criteria air pollutant thresholds for individual projects. The air district's criteria for project-level criteria pollutant impacts are based on numeric thresholds, where projects that exceed them would have significant impacts. Since information about subsequent developments is not currently known in order to conduct a quantitative analysis of criteria pollutants for comparison to the air district's numeric thresholds, the conclusion for the subsequent, project-level impacts from construction and operations is not the same as that for the Plan. The criteria air pollutant impact of subsequent projects under the Plan are addressed under Impact AQ-3 and Impact AQ-4.

As discussed under Impact AQ-3, construction under the Waterfront Plan could result in a cumulatively considerable net increase in criteria air pollutant emissions. Mitigation Measure M-AQ-3a would reduce criteria air pollutant emissions associated with off-road construction equipment, including in-water equipment, and Mitigation Measure M-AQ-3b would reduce reactive organic gas (ROG) emissions associated with architectural coatings applied during construction. Even with implementation of these mitigation measures, it cannot be stated with certainty that mitigation would reduce construction criteria air pollutant impacts associated with all subsequent projects to less-than-significant levels. However, as discussed in the analysis, only large construction projects with substantial ground disturbance, specialty construction equipment, in-water construction equipment, or compressed and highly intensive construction schedules would be expected to exceed significance thresholds. Nevertheless, construction of subsequent projects that could occur under the Waterfront Plan could be significant and unavoidable with mitigation. The identification of this significant and unavoidable impact does not preclude the finding of a less-than-significant or less-than-significant-with-mitigation impact for subsequent projects that are below the air district's applicable screening criteria or meet the criteria air pollutant thresholds of significance with or without implementation of Mitigation Measures M-AQ-3a and M-AQ-3b.

As discussed under Impact AQ-4, the Waterfront Plan would involve operational activities that could result in a cumulatively considerable net increase in any criteria air pollutant for which the project region is in nonattainment status under an applicable federal, state, or regional ambient air quality standard. Mitigation Measure M-AQ-4a would encourage tenants to reduce ROG emissions associated with area sources. Mitigation Measure M-AQ-4b would reduce criteria air pollutant emissions from a wide variety of operational emissions sources, including on-road trucks, transportation refrigeration units, vehicles, and architectural coatings.

Mitigation Measure M-AQ-4c would reduce criteria air pollutant emissions from generators and fire pumps. Mitigation Measure M-AQ-4d would reduce emissions from mobile sources by encouraging the use of electric vehicles and thereby reducing tailpipe emissions from gasoline and diesel vehicles. However, even with implementation of these mitigation measures, it cannot be stated with certainty that operational criteria air pollutant impacts associated with all subsequent projects would be reduced to less-than-significant levels. It is anticipated that only very large projects with substantial heavy-duty truck activity or considerable marine activity would be expected to exceed the criteria air pollutant significance thresholds. Nevertheless, due to this uncertainty, impacts from subsequent projects in the Plan area would be significant and unavoidable with mitigation. The identification of this significant impact does not preclude the finding of a less-than-significant impact or less-than-significant-with-mitigation impact for subsequent projects that are below the air district's applicable screening criteria or meet the criteria air pollutant thresholds of significance with or without implementation of Mitigation Measures M-AQ-4a through M-AQ-4d.

As discussed under Impact AQ-5 and Impact C-AQ-1, the Waterfront Plan could result in Plan-level and cumulative significant impacts related to emissions of $PM_{2.5}$ and toxic air contaminants (TACs) that could expose sensitive receptors to substantial pollutant concentrations. Mitigation Measure M-AQ-3a would reduce emissions of $PM_{2.5}$ and TACs associated with construction equipment. Mitigation Measures M-AQ-4b, M-AQ-4c, and M-AQ-5b would reduce emissions of $PM_{2.5}$ and other TACs from new operational emission sources such as transportation refrigeration units and emergency generators. Mitigation Measures M-AQ-4d, M-AQ-5a, and M-AQ-5b would reduce emissions of $PM_{2.5}$ and TACs from operational mobile sources and reduce exposure of sensitive receptors to new project TAC emissions. Mitigation Measures M-AQ-5a, M-AQ-5b, and M-AQ-5c also would protect sensitive land uses from emissions associated with truck activity, thereby reducing exposure of sensitive land uses from Plan-generated traffic emissions. However, because the size and location of subsequent projects relative to the location of sensitive receptors is not currently known and therefore the effectiveness of mitigation measures to reduce the impact to less than significant is unknown, it cannot be stated with certainty that these mitigation measures would reduce exposure of sensitive receptors to less-than-significant levels. Therefore, this impact is considered significant and unavoidable with mitigation. The identification of this significant impact does not preclude the finding of a less-than-significant impact or less-than-significant-with-mitigation impact for subsequent projects that meet the applicable health risk thresholds of significance with or without application of these mitigation measures.

ALTERNATIVE A: NO PROJECT ALTERNATIVE

The No Project Alternative assumes that without implementation of the updates to the Waterfront Plan, there would be no additional increase in housing units or employment in the Plan area beyond the background growth projected to occur (largely attributable to long-term development projects that have completed CEQA documentation and have been approved), as described above and shown in Table 6-1, p. 6-5. While the background growth under the No Project Alternative could result in some impacts related to air quality that would require mitigation, none of the impacts resulting from implementation of the Waterfront Plan would occur; therefore, impacts would be reduced as compared to the Waterfront Plan. However, it is noted that, as part of implementation of the Waterfront Plan, the Port would allow cruise ships to dock at Pier 50, which has shoreside power that can be upgraded to support cruise vessels, as an alternate location to Pier 35, which does not have shoreside power. Cruise ships currently docking at Pier 35 would continue to do so under the No Project Alternative. Since Pier 35 does not have shoreside power, the current criteria air pollutant emission levels associated with hoteling cruise ships would remain the same and would not be reduced as they would with implementation of the Waterfront Plan. In addition, health risks near Pier 35 associated with hoteling

cruise ships would remain as they currently are and there would not be the potential increase in health risks associated with hoteling cruise ships at Pier 50 with implementation of the Waterfront Plan.

ALTERNATIVE B: LOWER GROWTH ALTERNATIVE

The Lower Growth Alternative assumes the Waterfront Plan would result in a lower amount of infill development for various piers and Port properties than the amount of development assumed and analyzed in Chapter 4, Environmental Setting, Impacts, and Mitigation Measures, of this Draft EIR, as described above and shown in Table 6-1, p. 6-5. A detailed description of development anticipated under Alternative B is included in Appendix C of this Draft EIR.

The reduced extent of development under Alternative B would result in a lower amount of infill development for various piers and Port properties within the Fisherman's Wharf, Northeast Waterfront, South Beach, and Mission Bay waterfront subareas as compared to the amount of development that could occur in these subareas with implementation of the Waterfront Plan. However, no new types of activities or uses not already assumed under the Waterfront Plan would be developed under Alternative B. The Lower Growth Alternative would entail a reduced extent of the same types of urban development within the aforementioned subareas that could occur under the Waterfront Plan.

As noted above, as part of implementation of the Waterfront Plan, the Port would allow cruise ships to dock at Pier 50, which has shoreside power that can be upgraded to support cruise vessels as an alternate location to Pier 35, which does not have shoreside power. Cruise ships currently docking at Pier 35 would continue to do so under Alternative B. Since Pier 35 does not have shoreside power, the current criteria air pollutant emission levels associated with hoteling cruise ships would remain the same and would not be reduced as they would with implementation of the Waterfront Plan. In addition, health risks near Pier 35 associated with hoteling cruise ships would remain as they currently are and there would not be the potential increase in health risks associated with hoteling cruise ships at Pier 50 with implementation of the Waterfront Plan.

Based on the reduced amount of development, Alternative B would not conflict with or obstruct implementation of an applicable air quality plan. Similar to the Waterfront Plan, operational impacts related to a net increase in non-attainment criteria air pollutant emissions would be less than significant with no mitigation required with implementation of Alternative B, based on a comparison of VMT growth to population growth. Also similar to the Waterfront Plan, Alternative B would result in less-than-significant Plan-level and cumulative impacts related to the production of odors that could adversely affect a substantial number of people. Alternative B would result in similar, less-than-significant impacts related to odors that have been identified for the Waterfront Plan.

Despite the reduced amount of development, construction and operation of subsequent projects or multiple projects under Alternative B could result in air quality impacts. Similar to the Waterfront Plan, because the specific characteristics of each subsequent project and the required construction equipment are not currently known, it is not possible to quantitatively determine whether or not emissions could exceed significance thresholds. Therefore, construction of subsequent projects under Alternative B could result in a cumulatively considerable net increase in criteria air pollutant emissions. Similarly, because the specific characteristics of each subsequent project and the required construction equipment are not currently known, even with the reduced extent of development and implementation of Mitigation Measure M-AQ-3a and Measure M-AQ-3b, it cannot be stated with certainty that mitigation would reduce construction criteria air pollutant impacts associated with subsequent projects under Alternative B to less-than-significant levels. Therefore, similar to

the Waterfront Plan, construction of subsequent projects that could occur under Alternative B would be significant and unavoidable with mitigation. With regard to operational emissions of criteria air pollutants, even with the reduced extent of development and implementation of Measures M-AQ-4a through M-AQ-4d, it cannot be stated with certainty that operational criteria air pollutant impacts associated with subsequent projects would be reduced to less-than-significant levels. It is anticipated that only very large projects with substantial heavy-duty truck activity would be expected to exceed the criteria air pollutant significance thresholds. Nevertheless, due to this uncertainty, impacts from subsequent projects under Alternative B would be significant and unavoidable with mitigation, similar to the Waterfront Plan. The highest modeled $PM_{2.5}$ concentration is $0.21 \mu\text{g}/\text{m}^3$, which is just above the threshold of $0.2 \mu\text{g}/\text{m}^3$, so it is likely that with the reduced growth under this alternative, this impact would be reduced to a less-than-significant level. Nevertheless, at localized areas where subsequent projects are developed, there could still be significant TAC emissions leading to a significant $PM_{2.5}$ concentration. Similarly, despite the reduced extent of development and implementation of Measures M-AQ-3a, M-AQ-4b, M-AQ-4c, M-AQ-5a, M-AQ-5b, and M-AQ-5c, it cannot be stated with certainty that Plan-level and cumulative significant impacts related to emissions of $PM_{2.5}$ and TACs that could expose sensitive receptors to substantial air pollutant concentrations associated with subsequent projects would be reduced to less-than-significant levels.

Given that project-specific information regarding the size and location of subsequent projects, as well as the construction phasing, equipment, and number of employees associated with subsequent projects that could occur under the Waterfront Plan is not currently known, construction emissions from subsequent projects were not modeled as part of this analysis. However, construction of subsequent projects could result in TAC emissions and health risks, given that health risks are highly dependent on the distance between the emissions source and sensitive receptors. Therefore, impacts from subsequent projects under Alternative B would be significant and unavoidable with mitigation, similar to the Waterfront Plan.

While the Lower Growth Alternative would reduce the magnitude of significant air quality impacts associated with the Waterfront Plan, the impacts identified above would remain significant and unavoidable with mitigation. Nonetheless, similar to the Waterfront Plan, identification of these significant impacts for Alternative B does not preclude a finding of a less-than-significant impact or less-than-significant-with-mitigation impact for subsequent projects that are below the applicable thresholds of significance with or without application of mitigation measures.

6.F.6 Biological Resources

WATERFRONT PLAN

Section 4.F, Biological Resources, evaluates the potential effects on biological resources that could occur with implementation of the Waterfront Plan, including subsequent project construction, operation, and maintenance.

The analysis considers potential impacts on suitable habitat, special-status species, sensitive natural communities, wetlands and waters, and wildlife corridors based on relevant CEQA and local standards, policies, and guidelines, and identifies mitigation measures to avoid or reduce potential adverse impacts. Implementation of Mitigation Measures M-BI-1a and M-BI-1b would reduce potential impacts to special-status plants by requiring environmental training for construction personnel; conducting a rare plant survey and avoiding special-status species where feasible; and, if avoidance is not feasible, implementing salvage and

relocation of the plants. Implementation of Mitigation Measures M-BI-1a and M-BI-2b would reduce potential construction-related impacts to special-status roosting bats by requiring worker environmental awareness training; pre-construction surveys to identify active bat roosts; establishment of protective buffers until roosts are no longer in use; and limiting the removal of trees or structures with potential bat roosting habitat to the time of year when bats are active to avoid disturbing bats during the maternity roosting season or months of winter torpor. Implementation of in-water construction best management practices together with Mitigation Measure M-BI-3 and Mitigation Measure M-HY-1 would ensure that potential water quality impacts on protected fish or marine mammals due to pile installation or removal would be less than significant with mitigation. Mitigation Measures M-BI-1a and M-BI-4 would reduce construction-related impacts to pickleweed mats to less than significant with mitigation by requiring worker environmental awareness training; the avoidance and minimization of impacts to pickleweed mats; restoration of temporary impacts to pickleweed mats; and compensation for permanent impacts to pickleweed mats. Mitigation Measures M-BI-1a and M-BI-6 would reduce construction-related impacts on state or federally protected wetlands to less than significant with mitigation by requiring worker environmental awareness training; identification and avoidance of wetlands and waters; restoration of temporarily impacted wetlands and waters; and compensation for permanent impacts to wetlands and waters. Implementation of Mitigation Measure M-BI-3 would ensure that any construction-related impacts to marine movement corridors and established native wildlife nursery sites for subsequent projects that could occur under the Waterfront Plan would be less than significant with mitigation. Finally, compliance with San Francisco's Urban Forestry Ordinance (article 16 of the public works code) would ensure that impacts related to conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance, would be less than significant.

ALTERNATIVE A: NO PROJECT ALTERNATIVE

The No Project Alternative assumes that without implementation of the updates to the Waterfront Plan, there would be no additional increase in housing units or employment in the Plan area beyond the background growth projected to occur (largely attributable to long-term development projects that have completed CEQA documentation and have been approved). While the background growth under the No Project Alternative could result in effects to terrestrial and marine biological resources, none of the less-than-significant-with-mitigation impacts to biological resources resulting from with the Waterfront Plan would occur; therefore, impacts would be reduced as compared to the Waterfront Plan.

ALTERNATIVE B: LOWER GROWTH ALTERNATIVE

The Lower Growth Alternative assumes the Waterfront Plan would result in a lower amount of infill development for various piers and Port properties than the amount of development assumed and analyzed in Chapter 4, Environmental Setting, Impacts, and Mitigation Measures, of this Draft EIR, as described above and shown in Table 6-1, p. 6-5. A detailed description of development anticipated under Alternative B is included in Appendix C of this Draft EIR.

The reduced extent of development under Alternative B would result in a lower amount of infill development for various piers and Port properties within the Fisherman's Wharf, Northeast Waterfront, South Beach, and Mission Bay waterfront subareas as compared to the amount of development that could occur in these subareas under the Waterfront Plan. Despite this reduced amount of development, construction of subsequent projects or multiple projects under Alternative B could still result in potential impacts on suitable habitat, special-status species, sensitive natural communities, wetlands and waters, and wildlife corridors. However, no new types of activities or uses not already assumed under the Waterfront Plan would be

developed under Alternative B. The Lower Growth Alternative would entail a reduced extent of the same types of urban uses within the aforementioned subareas that could occur under the Waterfront Plan, which have been determined to result in less-than-significant-with-mitigation impacts related to biological resources. However, the reduction of development and rehabilitation of piers and seawall lots within the Fisherman's Wharf, Northeast Waterfront, South Beach, and Mission Bay waterfront subareas as compared to the amount of development that could occur under the Waterfront Plan would reduce the extent of in-water construction and related potential effects on protected fish or marine mammals. The reduced pier and seawall construction under Alternative B also would reduce potential construction-related impacts to special-status roosting bats. In summary, the reduced development under Alternative B would reduce the already less-than-significant-with-mitigation impacts to biological resources associated with the Waterfront Plan. Mitigation Measures M-BI-1a, M-BI-1b, M-BI-2a, M-BI-2b, M-BI-3, M-BI-4, M-BI-6, and M-HY-1 would remain necessary under the Lower Growth Alternative. However, the Lower Growth Alternative would result in similar, albeit reduced, less-than-significant-with-mitigation impacts as compared to the Waterfront Plan due to the reduced extent of physical development that could occur under the Plan.

6.F.7 Issues Analyzed in the Initial Study

IMPACTS RELATED TO THE INTENSITY OF DEVELOPMENT

ALTERNATIVE A: NO PROJECT ALTERNATIVE

Given that the No Project Alternative would result in a smaller percentage of housing, population, and employment growth within the Plan area (see Table 6-1, p. 6-8) compared to the Waterfront Plan, it is expected that impacts would be reduced in the areas of land use and planning, population and housing, recreation, utilities and service systems, and public services (discussed in the initial study [see Appendix B]). It is expected that all of these impacts would be less than significant as with the Waterfront Plan. Impacts related to greenhouse gas emissions and energy also would be less than significant as with the Waterfront Plan. However, as discussed above in Section 6.F.5, Air Quality, as part of implementation of the Waterfront Plan, the Port would allow cruise ships to dock at Pier 50, which has shoreside power that can be upgraded to support cruise vessels as an alternate location to Pier 35, which does not have shoreside power. Cruise ships currently docking at Pier 35 would continue to do so under the No Project Alternative. Since Pier 35 does not have shoreside power, the current GHG emission levels and energy usage associated with hoteling cruise ships would remain the same and would not be reduced as they would with implementation of the Waterfront Plan.

ALTERNATIVE B: LOWER GROWTH ALTERNATIVE

Given that the Lower Growth Alternative would have reduced development compared to Waterfront Plan, it is expected that impacts would be similar or less than those of the Waterfront Plan in the areas of land use and planning, population and housing, greenhouse gas emissions, recreation, utilities and service systems, public services, and energy. It is expected that all of these impacts would be less than significant as with the Waterfront Plan. Impacts related to greenhouse gas emissions and energy also would be less than significant as with the Waterfront Plan. However, as discussed above in Section 6.F.5, Air Quality, as part of implementation of the Waterfront Plan, the Port would allow cruise ships to dock at Pier 50, which has shoreside power that can be upgraded to support cruise vessels as an alternate location to Pier 35, which does not have shoreside power. Cruise ships currently docking at Pier 35 would continue to do so under Alternative B. Since Pier 35 does not have shoreside power, the current GHG emission levels and energy usage associated with hoteling cruise ships would remain the same and would not be reduced as they would with implementation of the Waterfront Plan.

IMPACTS RELATED TO SITE-SPECIFIC CONDITIONS

ALTERNATIVE A: NO PROJECT ALTERNATIVE

Given that the No Project Alternative would result in a smaller percentage of housing, population, and employment growth and associated physical development within the Plan area compared to the Waterfront Plan, it is expected that impacts related to site-specific conditions would be reduced in the areas of land use and planning, archeological resources and human remains, tribal cultural resources, wind, shadow, geology and soils, hydrology and water quality, and hazards and hazardous materials. As with the Waterfront Plan, no impacts related to mineral resources, agricultural or forestry resources, or wildfire would occur under the No Project Alternative, as there are no such resources or conditions in the Plan area that would be affected with implementation of the Waterfront Plan. All of these impacts would be less than significant or less than significant with mitigation, as with the Waterfront Plan.

ALTERNATIVE B: LOWER GROWTH ALTERNATIVE

Given that the Lower Growth Alternative would have reduced development compared to Waterfront Plan, it is expected that impacts related to site-specific conditions would be reduced in the areas of and use and planning, archeological resources and human remains, tribal cultural resources, wind, shadow, geology and soils, hydrology and water quality, and hazards and hazardous materials. As with the Waterfront Plan, no impacts related to mineral resources, agricultural or forestry resources, or wildfire would occur under the Lower Growth Alternative, as there are no such resources or conditions in the Plan area that would be affected with implementation of the Waterfront Plan. It is expected that all of these impacts would be less than significant or less than significant with mitigation as with the Waterfront Plan.

6.G Comparison of Alternatives and Environmentally Superior Alternative

6.G.1 Comparison and Summary of Impacts of Alternatives and Their Ability to Meet Project Objectives

The impacts of each alternative and its ability to meet the project objectives compared to the Waterfront Plan are summarized below in **Table 6-3** and the subsequent discussion.

ALTERNATIVE A: NO PROJECT ALTERNATIVE

The No Project Alternative (Alternative A) assumes that without implementation of the updates to the Waterfront Plan there would be no additional increase in housing units or employment in the Plan area beyond the background growth projected to occur under existing zoning (largely attributable to long-term development projects that have completed CEQA documentation and have been approved). As shown in Table 6-1, p. 6-8, the growth projections for Alternative A with the background growth include the addition by 2050 of approximately 6,280 housing units and 13,060 residents (about 4 percent less than with implementation of the updated Waterfront Plan) and approximately 15,490 jobs (about 49 percent less than with implementation of the updated Waterfront Plan). These assumptions reflect development allowed under existing zoning.

Table 6-3 Summary of Ability of Alternatives to Meet Project Objectives

Objectives	Alternative A: No Project Alternative	Alternative B: Lower Growth Alternative
1. Approve amendments to the Waterfront Plan to incorporate updated information, goals, policies, and objectives developed through a public process that describe public and Port Commission values, to provide policy direction for projects, investments, and stewardship programs that protect and improve properties and resources owned and managed by the Port of San Francisco.	No	Yes
2. Preserve and enhance diverse maritime uses and operations by providing for the current and future needs of cargo shipping, cruise, ferry and water taxis, excursion boats, fishing, ship repair, berthing, harbor services, recreational boating, and other water-dependent activities, consistent with Proposition H approved by San Francisco voters in 1990.	Yes, but less than the Waterfront Plan	Yes, but less than the Waterfront Plan due to reduction in development
3. Complete, enhance, and activate the Port's network of parks, public access, and natural areas along the 7.5-mile Bay shoreline to provide recreational, social, and open space benefits for residents and visitors of all races, ages, and abilities, including historically marginalized communities.	No	Partially due to reduction in development
4. Support a vibrant urban waterfront with commercial and industrial businesses, and public-oriented entertainment, civic, cultural, and recreational activities that respect maritime needs, activate waterfront parks, and equitably serve and attract visitors of all races, ages, and economic means.	Yes, but less than the Waterfront Plan	Yes, but less than the Waterfront Plan due to reduction in development
5. Ensure that new public and private investments stimulate waterfront revitalization and resilience improvements and support a financially secure Port enterprise, equitably providing new jobs and economic opportunities, revenues, public amenities, and other public trust benefits for the diverse residents of San Francisco and California.	No	Partially due to reduction in development
6. Design waterfront projects that highlight visual and physical connections to the city and San Francisco Bay, promote rehabilitation of Port maritime historic and cultural resources, and respect the character of adjacent neighborhoods.	Yes, but less than the Waterfront Plan	Yes, but less than the Waterfront Plan due to reduction in development
7. Ensure that the waterfront is accessible and safe for all users through sustainable transportation that serves the needs of workers, neighbors, visitors, and Port maritime and tenant operations.	No	Partially due to reduction in development
8. Limit the impacts of climate change, improve the ecology of the Bay and its environs, and ensure healthy waterfront neighborhoods by meeting the highest standards for environmental sustainability, stewardship, and justice.	No	Partially due to reduction in development
9. Strengthen Port resilience to hazards and promote adaptation to climate change and rising tides through equitable investments to protect community, ecological, and economic assets and services along its 7.5-mile waterfront.	No	Partially due to reduction in development

Objectives	Alternative A: No Project Alternative	Alternative B: Lower Growth Alternative
10. Strengthen Port public engagement to increase understanding of Port and community needs, including the needs of historically marginalized communities of color, in lease and project approval processes, and to promote public agency partnerships to align policies and regulations to achieve waterfront projects and programs for the benefit of San Francisco and California.	No	Partially due to reduction in development

While the smaller percentage of growth under the No Project Alternative could still result in environmental effects related to aesthetics, air quality, biological resources, cultural resources (archeological, tribal, and historic), energy, geology and soils, greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality, land use and planning, noise, population and housing, public services, recreation, shadow, transportation and circulation, utilities and service systems, and wind, none of the environmental effects that are expected to result from the updated Waterfront Plan would occur under the No Project Alternative.

Alternative A would not result in amendments to the currently adopted 1997 Waterfront Plan to incorporate updated information, goals, policies, and objectives to provide policy direction for projects, investments, and stewardship programs that protect and improve properties and resources owned and managed by the Port of San Francisco. Alternative A would not recognize the updated Waterfront Plan objective for new public and private investments to stimulate waterfront revitalization and resilience improvements and support a financially secure Port enterprise, equitably providing new jobs and economic opportunities, revenues, and public amenities. Alternative A also would not recognize the updated Waterfront Plan objective to limit the impacts of climate change, improve the ecology of the bay and its environs, and ensure healthy waterfront neighborhoods by meeting the highest standards for environmental sustainability, stewardship, and justice. In addition, Alternative A would accommodate substantially less new employment than the Waterfront Plan. As described above, Alternative A would result in approximately 49 percent fewer jobs than with implementation of the Waterfront Plan. Consequently, this alternative would be substantially less successful than the Waterfront Plan in potentially creating new jobs.

While development of new parks, maritime facilities, historic rehabilitation, and development projects on Port properties would continue to be guided by the goals and policies in the currently adopted 1997 Waterfront Plan under Alternative A, none of the specific new objectives of the Waterfront Plan addressing transportation, financial stability, community engagement, environmental sustainability, climate change, and waterfront resilience would be met under this alternative.

ALTERNATIVE B: LOWER GROWTH ALTERNATIVE

Alternative B, the Lower Growth Alternative, assumes the Waterfront Plan would result in a lower amount of infill development for various piers and Port properties than the amount of development assumed and analyzed in Chapter 4, Environmental Setting, Impacts, and Mitigation Measures, of this Draft EIR. The growth projections for the Waterfront Plan reflect a maximum estimate of land use assumptions to provide a conservative analysis in this Draft EIR. However, there are many variables that influence the type and magnitude of development and investments that occur on Port properties, including real estate market cycles, construction costs, structural condition and repair requirements, regulatory requirements, and community engagement. Alternative B

assumes a lower amount of development than under the Waterfront Plan based on an assumption that certain policies targeted to increase certainty and financial feasibility of structural repair and rehabilitation of Embarcadero Historic District bulkheads and piers are excluded from the Waterfront Plan (Diverse Use Policies 24, 25, 27, and 29). This would result in revised growth projections that assume fewer properties are developed or rehabilitated than analyzed in the Waterfront Plan. Alternative B assumes that some Embarcadero Historic District pier structures would be financially infeasible to repair or rehabilitate and would be vacated due to structural deterioration and closed pursuant to Port Building Code requirements, and that fewer piers in the Embarcadero Historic District would be rehabilitated and seismically improved to allow public use of facilities and so would be occupied by less-intensive land uses. Alternative B also assumes that Waterfront Plan Diverse Use Policy 36 is excluded from the Waterfront Plan, which would result in a lower amount of development on seawall lots within the Plan area west of The Embarcadero. The lower growth projections for Alternative B include the addition by 2050 of approximately 260 housing units and 540 residents (similar to the Waterfront Plan) and approximately 17,550 jobs (about 42 percent less than with the Waterfront Plan). Alternative B would add fewer jobs to the Plan area associated with the following employment categories: cultural, institutional, and educational; office; retail; and industrial.³⁷⁷ Commensurate with its reduced extent of development for various piers and Port properties as compared to the Waterfront Plan analyzed in Chapter 4, Environmental Setting, Impacts, and Mitigation Measures, of this Draft EIR, the Lower Growth Alternative would likely result in reduced less-than-significant and less-than-significant-with-mitigation environmental effects related to aesthetics, air quality, biological resources, cultural resources (archeological, tribal, and historic), energy, geology and soils, greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality, land use and planning, noise, population and housing, public services, recreation, shadow, transportation and circulation, utilities and service systems, and wind identified for the updated Waterfront Plan in this Draft EIR. In addition, the magnitude of significant impacts related to transportation and air quality identified for the updated Waterfront Plan in this Draft EIR would be reduced under the Lower Growth Alternative but would remain significant-and-unavoidable or significant-and-unavoidable-with-mitigation.

Alternative B assumes the same conforming amendments to the planning code, zoning map, general plan, and BCDC's San Francisco Waterfront Special Area Plan would be implemented as with the Waterfront Plan. In this respect, Alternative B would meet or partially meet most of the project objectives of the Waterfront Plan. However, by substantially reducing the extent of development for various piers and Port properties, Alternative B would be less successful than the Waterfront Plan in meeting the objective to ensure that new public and private investments stimulate waterfront revitalization, particularly in the Embarcadero Historic District, resilience improvements, supporting a financially secure Port enterprise, equitably providing new jobs and economic opportunities, revenues, public amenities, and other public trust benefits for the diverse residents of San Francisco and California. As noted above, certain Waterfront Plan policies targeted to increase certainty and financial feasibility of structural repair and rehabilitation of Embarcadero Historic District bulkheads and piers (Diverse Use Policies 24, 25, 27, and 29) would be excluded from the Waterfront Plan under Alternative B. Alternative B also assumes that Waterfront Plan Diverse Use Policy 36 is excluded from the Waterfront Plan, which would result in a lower amount of development on seawall lots within the Plan area. Moreover, the removal of infill development on piers under Alternative B would be less successful in meeting the Waterfront Plan objective to strengthen Port resilience to hazards and promote adaptation to climate change and rising tides through equitable investments to protect community, ecological, and economic assets and services along its 7.5-mile waterfront. In addition, Alternative B would result in approximately 42 percent fewer jobs than with implementation of the Waterfront Plan. Consequently, this alternative would be less

³⁷⁷ See Appendix C, Land Use Assumptions and Growth Projections Memorandum, for a more detailed description of the land use assumptions and growth projections for Alternative B, Lower Growth Alternative.

successful than the Waterfront Plan in potentially creating new jobs. Therefore, Alternative B would be partially consistent with the project objectives of the Waterfront Plan.

6.G.2 Environmentally Superior Alternative

The CEQA Guidelines require the identification of an environmentally superior alternative to the Waterfront Plan (section 15126.6[e]). Based on the analysis and comparison of the impacts of the alternatives presented above, this subsection identifies Alternative A (No Project Alternative) as the environmentally superior alternative. As described above, Alternative A would do the most to substantially lessen the severity of the significant and unavoidable impacts and less-than-significant impacts with mitigation of the Waterfront Plan, due to the smaller percentage of growth that would occur within the Plan area. Alternative A would not update and provide new Plan goals and policies for transportation, financial stability, community engagement, environmental sustainability, climate change and waterfront resilience management and stewardship of Port lands. While it is likely that Alternative A would substantially reduce all of the identified significant and unavoidable impacts and less-than-significant impacts with mitigation related to development under the Waterfront Plan, it cannot be stated with certainty whether Alternative A would avoid all identified impacts, because development would continue to occur within the Plan area under this alternative.

CEQA Guidelines section 15126.6(e)(2) provides that if the “no project” alternative is the environmentally superior alternative, the EIR should also identify an environmentally superior alternative among the other alternatives.

Alternative B would offer an overall lower level of impact as a result of the reduced development program. Alternative B also would meet or partially meet most of the project objectives of the Waterfront Plan. Therefore, Alternative B is the environmentally superior alternative.

6.G.3 Alternatives Considered but Rejected

INCLUDE RESIDENTIAL USES IN THE SOUTHERN WATERFRONT

While the transportation analysis for the Waterfront Plan does not identify a significant VMT impact, this alternative is intended to reduce the amount of VMT generated by subsequent projects that could occur under the Waterfront Plan, which would reduce the net increase in criteria air pollutants (PM_{2.5} and TACs) that would occur with implementation of the Plan. It would designate some portion of the Southern Waterfront for residential development, which could potentially be occupied by employees that work at existing and future commercial and industrial uses envisioned for the Plan area. By locating residential uses within the Southern Waterfront, trip distances traveled by workers at such residential uses destined for jobs within the Plan area would be shorter and may even result in a mode shift (i.e., fewer vehicle trips and more walking, bicycling, and/or transit trips). However, a substantial area has been planned for residential mixed-use development at Pier 70, and the remaining area in the Southern Waterfront is primarily used or designated for cargo and maritime industrial uses and natural habitat, wetlands and open space, which are core public trust uses of Port property. For this reason, this alternative is not carried forward for further evaluation.

CHAPTER 7

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