DRAFT ENVIRONMENTAL IMPACT REPORT
Volume 1

Potrero Power Station Mixed-Use Development Project

SAN FRANCISCO PLANNING DEPARTMENT
CASE NO. 2017-011878ENV
STATE CLEARINGHOUSE NO. 2017112005

Draft EIR Publication Date:	OCTOBER 3, 2018
Draft EIR Public Hearing Date:	NOVEMBER 8, 2018
Draft EIR Public Comment Period:	OCTOBER 4, 2018 – NOVEMBER 19, 2018

Written comments should be sent to:
San Francisco Planning Department
Attention: Rachel Schuett, PPS EIR Coordinator
1650 Mission Street, Suite 400 | San Francisco, CA 94103
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TABLE OF CONTENTS

Potrero Power Station Mixed-Use Development Project Draft EIR

Page

Volume 1

Page

List of Figures

List of Figures (continued)

Page

List of Figures (continued)

List of Tables

List of Tables (continued)

Page

List of Tables (continued)

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ACRONYMS AND ABBREVIATIONS

ABAG	Association of Bay Area Governments
ADA	Americans with Disabilities Act
AWSS	Auxiliary Water Supply System
BART	Bay Area Rapid Transit
BCDC	San Francisco Bay Conservation and Development Commission
BMP	Best Management Practice
CalOSHA	California Division of Occupational Safety and Health
Caltrans	California Department of Transportation
CD	compact disc
CEQA	California Environmental Quality Act
cfs	cubic-foot-per-second
D for D	Design for Development
dBA	A-weighted decibel
DDT	dichloro-diphenyl-trichloroethane
DNAPL	dense non-aqueous phase liquid
DEHP	di (2 ethylhexyl) phthalate
DSM	Deep Soil Mixing
DTR	Downtown Residential District
EDD	Employment Development Department
EIR	environmental impact report
ERO	Environmental Review Officer
FEMA	Federal Emergency Management Agency
FTA	Federal Transit Administration
GHG	greenhouse gas
gpm	gallons per minute
gsf	gross square feet
HRER	Historic Resources Evaluation Responses
HVAC	heating/ventilation/air conditioning
in/sec	inches per second
I-80	Interstate 80
I-280	Interstate 280
kV	kilovolt
LEED	Leadership in Energy and Environmental Design

L_{dn}	day-night noise level
L_{eq}	steady-state energy level
L_{max}	root mean squared maximum level of a noise source or environment
LMI	Labor Market Information
LOS	Level of Service
LTS	less than significant
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
MLLW	Mean Lower Low Tide
MS4	Municipal Separate Storm Sewer Systems
MTC	Metropolitan Transportation Commission
Muni	San Francisco Municipal Transportation Agency
NAVD88	North American Vertical Datum of 1988
NI	no impact
NOAA	National Oceanic and Atmospheric Administration
NOP	notice of preparation
NPDES	National Pollutant Discharge Elimination System
PG&E	Pacific Gas and Electric Company
PCB	polychlorinated biphenyl
PDA	Priority Development Area
PDR	Production, Distribution and Repair
PPV	peak particle velocity
PS	potentially significant
R&D	research and development
RMS	root-mean-square pressure level
ROSE	Recreation and Open Space Element
SEL	sound exposure level
sf	square feet
SFMTA	City and County of San Francisco Municipal Transportation Agency
SFPUC	San Francisco Public Utilities Commission
SoMa	South of Market Area
SU	significant and unavoidable
SUD	Special Use District
TAZ	Traffic Analysis Zones
TDM	Transportation Demand Management
U.S. EPA	U.S. Environmental Protection Agency
U.S. 101	United States Highway 101
VMT	vehicle miles traveled
WETA	Water Emergency Transportation Authority

SUMMARY

S.1 Project Synopsis

S.1.1 Project Description

The California Barrel Company LLC, the project sponsor, proposes to implement the Potrero Power Station Mixed-Use Development project (proposed project), the redevelopment of an approximately 29-acre site along San Francisco's central bayside waterfront with a variety of residential, commercial, parking, community facilities, and open space land uses. The residential uses would include both market-rate and affordable housing, and the commercial uses would include office, research and development (R&D)/life science, retail, hotel, entertainment/ assembly, and production, distribution, and repair (PDR) uses. The proposed project would also include public access areas and open space, playing fields and other active open space uses, shoreline improvements, an internal grid of public streets, shared public ways, and utilities infrastructure. Overall, the proposed project could consist of up to approximately 5.4 million gross square feet (gsf) of development. The project site is located within the Central Waterfront neighborhood, generally bounded by 22nd Street to the north, the San Francisco Bay to the east, 23rd Street to the south, and Illinois Street to the west. Figure 2-1, Project Location**,** (see Chapter 2, Project Description, page 2-2) shows the project location.

The proposed project would include amendments to the General Plan and Planning Code, creating a new Potrero Power Station Special Use District (SUD). The SUD would establish land use controls for the project site and incorporate design standards and guidelines in a new Potrero Power Station Design for Development (D for D) document. The Zoning Maps would be amended to change the current zoning to the proposed SUD zoning. These amendments would also modify the existing height limits on the portions of the project site not owned by the Port of San Francisco. The proposed rezoning would modify the existing height limits of 40 and 65 feet to various heights ranging from 65 to 300 feet. The proposed project would also include improvements to transportation and circulation, shoreline features, and utilities infrastructure.

The proposed sponsor has filed an application for the proposed project to be certified as an environmental leadership development project by the Governor of California. The approval of this application would make the project subject to streamlined judicial review under the Jobs and Economic Improvement Through Environmental Leadership Act of 2011 (California Public Resources Code section 21178 *et seq*.). Pursuant to the requirements of this act, the San Francisco Planning Department has provided a record of proceedings for the proposed project that can be accessed and downloaded from the following website: http://www.PPSmixeduse.com. The record of proceedings contain all reference documents and other materials submitted to, or relied upon by, the lead agency in the preparation of this EIR.

The San Francisco Planning Department has determined that the proposed project is subject to the requirements of the California Environmental Quality Act (CEQA) and that an environmental impact report (EIR) is required to inform the public and decision-makers about the potential significant physical environmental effects of the proposed project, to identify possible ways to minimize the project's significant adverse effects, and to describe and analyze possible alternatives to the proposed project.

S.1.1.1 Background

The project site encompasses the location of the former Potrero Power Plant, which ceased operation in 2011, and certain adjacent parcels. The approximately 29.0-acre site is comprised of five sub-areas based on current ownership and control: the 21-acre Power Station sub-area, a 4.8-acre PG&E sub-area, a 2.9-acre Port sub-area, a 0.2-acre Southern sub-area, and a triangularly shaped City sub-area. These are shown in Figure 2-2, Project Site Sub-Areas and Ownership, (see Chapter 2, Project Description, page 2-5). The project sponsor owns and has control over the development of the Power Station sub-area and has received letters of authorization from the Port of San Francisco, Pacific Gas and Electric Company (PG&E), and Harrigan Weidenmuller Company to study the proposed project on their respective properties.

Existing structures at the project site consist primarily of vacant buildings and facilities. The project site currently has little vegetation other than occasional ruderal weeds, unmaintained vegetation and a row of street trees along Illinois Street at the western boundary of the site and on a short segment of the north side of 23rd Street. Current uses on the Power Station sub-area include warehouses, parking, vehicle storage, and office space. In the Power Station and PG&E sub-areas, PG&E has completed or is currently completing hazardous materials remediation of the soils, soil vapors, and groundwater that have been contaminated by historical activities; all remediation efforts have been and are being conducted under the oversight of the San Francisco Bay Regional Water Quality Control Board. Twenty-four structures remain on the site associated with the former power plant, including six historic structures associated with the historic Third Street Industrial District: the Unit 3 Power Block, the Boiler Stack, Station A, the Meter House, the Gate House, and the Compressor House.

Figure 2-3, Existing Zoning on Project Site, (see Chapter 2, Project Description, page 2-7), shows the existing zoning and height and bulk designations for the project site. The Power Station sub-area is zoned M-2 (Heavy Industrial) and located in a 40-X Height and Bulk District. The portions of the Port sub-area along the shoreline are zoned M-2 (Heavy Industrial) and PDR-1-G (Production, Distribution and Repair – General) and are located in a 40-X Height and Bulk District. The PG&E sub-area is zoned M-2 (Heavy Industrial) and is located in the 40-X and 65-X Height and Bulk districts. The City and Southern subareas and the portion of the Port sub-area on 23rd Street consist of rights-of-way and, consequently, are not within zoning or height and bulk districts.

S.1.1.2 Project Characteristics

The Potrero Power Station Mixed-Use Development project would rezone and establish development controls for a multi-phased, mixed-use development at the project site. **Table S-1, Potrero Power Station Mixed-Use Development Preferred Project Characteristics**, summarizes the proposed project's characteristics, including a description of the types and amounts of proposed land uses, details regarding proposed dwelling units, building heights, vehicle and bicycle parking, and other features. As shown in Table S-1, the project would include approximately 2.7 million gsf of residential uses (2,682 residential units), and approximately 1.6 million square feet of commercial uses. In addition, the project would provide approximately 922,000 gsf parking, approximately 100,000 gsf of community facilities, approximately 25,000 gsf of entertainment/assembly uses, and approximately 6.2 acres of open space. As part of the proposed project, approximately 20 existing structures on the project site would be demolished, including up to five historic structures that are contributors to the historic Third Street Industrial District.

Figure 2-4, Proposed Land Use Plan, (see Chapter 2, Project Description, page 2-9) presents the conceptual project site plan, illustrating the proposed layout of the development blocks and street network and location of proposed uses. As shown on this figure, the proposed project incorporates a flexible land use program in which certain blocks on the project site are designated for either residential or commercial uses (referred to as "flex blocks"), where future market conditions would ultimately determine the type and amount of land uses to be developed on those blocks. The project characteristics presented in Table S-1 reflects the project sponsor's preferred allocation of residential and commercial uses for the various flex blocks.

Transportation and circulation improvements under the proposed project would include: a continuous street network, connection to the planned Pier 70 Mixed-Use District project directly north of the project site; a new bus stop and shuttle service; and the installation of traffic signals at the intersections of Illinois Street at 23rd and Humboldt streets. The roadway network would be accessible for all modes of transportation and would include vehicular, bicycle and pedestrian improvements. Proposed shoreline improvements would include the development of waterfront parks, construction of a floating dock extending out and above the tidal zone to provide access from the site to the bay for fishing and suitable recreational vessels, stormwater drainage outfalls, and physical improvements to guard against potential flooding due to future sea level rise. The proposed project would construct infrastructure and utilities improvements to serve the proposed development, including potable, non-potable, and emergency water facilities; wastewater and stormwater collection and conveyance; and natural gas and electricity distribution. The project would pursue LEED v4 Gold certification for each proposed building.

As part of the project, the proposed sponsor has developed a draft Transportation Demand Management Plan to support sustainable land use development, and would implement a final approved plan as part of project operations. The plan would prioritize pedestrian and bicycle access and implement measures to encourage alternative modes of transportation and to support a dense, walkable, mixed-use, transit-oriented development that prioritizes safety, especially for bicyclists and pedestrians.

TABLE S-1
POTRERO POWER STATION MIXED-USE DEVELOPMENT PREFERRED PROJECT CHARACTERISTICS[a]

Project Characteristic	Metric	
Project Site Size and Shape	***Dimensions***	
Area	29.0 acres	
Maximum Length and Width	Approximately 1,650 feet by 950 feet	
Proposed Land Use Program[b]	***Area (gsf)***	
Residential	2,682,427	
Commercial (Retail)	107,439	
Commercial (Office)	597,723	
Commercial (R&D/life science)	645,738	
Commercial (Hotel)	241,574[c]	
Commercial (PDR)	45,040	
Community Facilities	100,938	
Entertainment/Assembly	25,000	
Parking	921,981	
Total Building Area	**5,367,860 gsf**	
Proposed Dwelling Units	***Number***	***Percentage (approximate)***
Studio	388	14.5%
1-Bedroom	1,159	43.2%
2-Bedroom	867	32.3%
3-Bedroom	268	10.0%
Total Dwelling Units	**2,682**	100%
Proposed Parking	***Number***	
Vehicle Parking Spaces[d]	**2,622**	
Car Share Spaces	38	
Bicycle Parking[e]		
Bicycle Parking Class 1	1,577	
Bicycle Parking Class 2	373	
Total Bicycle Parking	**1,950**	
Open Space	***Area (gsf)***	
Publicly Accessible Open Space	Approximately 6.2 acres	
Private Open Space	36 square feet per unit if located on balcony, or 48 square feet per unit if commonly accessible to residents	
Building Characteristics	***Area (gsf)***	
Stories	5 to 30 stories	
Height	65 to 180 feet; one building at 300 feet	
Ground Floor	All blocks would include ground floor active/retail/production space	
Basements	All development blocks would allow but not require one below-grade level of vehicle parking spaces[f]	

NOTES: gsf = gross square feet; R&D = research and development; PDR = production, distribution, and repair

[a] All numbers in this table are approximate.

[b] The proposed project includes a number of flex blocks, for which either residential or certain commercial uses may ultimately be selected. The numbers shown in this table show the anticipated development of the flex blocks, assuming a targeted amount/type of residential and commercial development at each flex block. The EIR addresses the potential for variation in the total amount of residential and amount and type of commercial development on the flex blocks.

[c] The hotel would have 220 hotel rooms.

[d] Per the proposed Design for Development document, the number of vehicle parking spaces is based on 0.6 space per residential unit; one space per 1,500 square feet of commercial office, R&D/life science, or PDR uses; three spaces per 1,000 square feet of grocery store use; and one space per each 16 hotel guest rooms. Dedicated car share spaces would be as required by planning code section 166. The number of car share spaces is based on one car share space per residential buildings with 50 to 200 dwelling units; for residential buildings with over 200 dwelling units, two car share spaces plus one for every 200 dwelling units over 200; for non-residential buildings, providing between 25 and 49 parking spaces, one car share space; for non-residential buildings providing 50 or more parking spaces, one car share space plus one for every 50 parking spaces over 50.

[e] Per the proposed D for D, the number of bicycle parking spaces reflects Planning Code requirements, as follows.

- Residential: One Class 1 bicycle parking space for each dwelling unit up to 100 plus one space for every four units in excess of 100; one Class 2 bicycle parking space for every 20 dwelling units.
- Office: One Class 1 bicycle parking space for every 5,000 square feet of occupied floor area; two Class 2 bicycle parking spaces up to 5,000 square feet of OFA plus one for each 50,000 square feet of OFA in excess of 5,000 square feet.
- PDR, R&D/life science: One Class 1 bicycle parking space for every 12,000 square feet of OFA; two Class 2 bicycle parking spaces up to 50,000 square feet of OFA, and an additional two for spaces in excess of 50,000 square feet of OFA.
- Retail: One Class 1 bicycle parking space per 7,500 square feet of OFA; minimum two Class 2 bicycle parking spaces with a rate of one per 2,500 square feet up to 50,000 square feet and an additional space for each additional 10,000 square feet.
- Hotel: One Class 1 space per 30 rooms; one Class 2 space per 30 rooms and one Class 1 space per 5,000 square feet of conference space.

[f] Basement parking is accounted for in the above line item for parking.

SOURCE: California Barrel Company, EEA PPA Application Package, Potrero Power Station Mixed Use Development, October 2017

One potential element of the proposed project is environmental remediation activities beyond those currently being conducted by PG&E, if deemed necessary by the Regional Water Quality Control Board. As stated above, PG&E has conducted and is undertaking environmental remediation activities as directed by the regional board. PG&E is required to complete remediation activities to achieve a commercial/industrial land use standard. However, regulatory requirements governing the portions of the site subject to remediation activities specify that residential or other sensitive land uses are prohibited without prior approval from the regional board. Therefore, in order to implement proposed residential or other sensitive land uses (such as childcare uses), the project sponsor would be required to conduct further environmental remediation activities as directed by the regional board, which could include additional human health risk evaluation, additional media-specific mitigation, and/or additional institutional and engineering controls, to ensure the health and safety of current and future site users.

S.1.1.3 Project Construction

Construction is estimated to occur over a 15-year period, beginning in 2020 and ending in 2034, but the construction period could vary depending on market conditions and permitting requirements. Project construction would likely occur in seven overlapping phases (Phase 0 through 6), with each phase lasting approximately three to five years. Following the initial demolition, site preparation and rough grading for the entire site (Phase 0), Phase 1 of construction is anticipated to start on the southeast portion of the site and Phase 6 of construction would end in the northwest portion of the site. Each phase would construct a portion of the transportation and circulation improvements, utilities infrastructure improvements, open space improvements, and other aspects of the project (including the bike and automobile parking), in conjunction with the construction of new buildings within each phase. Once a construction phase is completed, occupancy and long-term operations of completed phases would commence, concurrent with construction of subsequent phases. Construction phasing is shown in Figure 2-25, Proposed Project Phasing Plan, (see Chapter 2, Project Description, page 2-51). The project characteristics presented above (including the total number of residential units, square footage of commercial use, acres of open space, bicycle and automobile spaces) are totals based on full buildout and completion of all phases of the proposed project. Construction activities would take place up to seven days a week, between 7 a.m. and 8 p.m., consistent with the provisions of section 2908 of the San Francisco Police Code. Nighttime construction activities would be limited to certain areas of the project site during phase 1 only, prior to residential occupancy on the site.

S.2 Summary of Impacts and Mitigation Measures

The initial study determined that the following topics would have either no significant impacts or impacts that can be reduced to less than significant with mitigation: archeological resources, human remains, and tribal cultural resources; greenhouse gas emissions; recreation; utilities and services systems; public services; geology, soils and paleontological resources; mineral and energy resources; and agricultural and forest resources. Discussion and analysis of impacts in these resource areas are presented in Appendix B.

Impacts related to aesthetics are not analyzed in the initial study or this EIR because under CEQA (Public Resources Code section 21099), aesthetics impacts of a mixed-use or employment center project on an infill site located within a transit priority area are not to be considered significant impacts, and the proposed project meets the applicable criteria under this section.

Chapter 4 of the EIR presents detailed discussion and analysis of the following resources: land use and land use planning; population and housing; historic architectural resources; transportation and circulation; noise and vibration; air quality; wind and shadow; biological resources; hydrology and water quality; and hazards and hazardous materials.

Table S-2 (at the end of this chapter) summarizes all of the impacts of the proposed project, identifies the significance of each impact, and presents the full text of the recommended mitigation measures and improvement measures. Mitigation measures are feasible measures that would avoid, lessen, or reduce significant impacts, and would be required to be implemented if the project is approved. Improvement measures would also lessen or reduce impacts, but unlike mitigation measures, implementation of improvement measures is not required under CEQA because they apply only to impacts determined to be less than significant. However, all improvement measures identified in this EIR would be incorporated into conditions of approval and therefore would also be required to be implemented if the project is approved. The summary table includes all impacts and mitigation measures applicable to the proposed project, with the EIR sections presented first, followed by the initial study sections.

As indicated on Table S-2, the EIR determined that the proposed project would result in significant and unavoidable impacts in the following areas, even with implementation of feasible mitigation measures:

- **Historic architectural resources:** impacts on individually significant buildings, and on the integrity of a historic district at a project-specific and cumulative level (Impact CR-4, Impact CR-5, and Impact C-CR-2)
- **Transportation and circulation:** transit capacity and transit operations, both at a project-specific and cumulative level (Impact TR-4, Impact TR-5, Impact C-TR-4, and Impact C-TR-5)
- **Noise:** construction noise levels at noise-sensitive receptors, operational noise increases along roadways, and cumulative traffic noise increases (Impact NO-2, Impact NO-8, Impact NO-1, and Impact C-NO-2)
- **Air quality:** criteria air pollutant emissions during construction and overlapping operations, criteria air pollutant emissions during operations, and cumulative regional air quality impacts (Impact AQ-2, Impact AQ-3, and Impact C-AQ-1)
- **Wind:** potential for hazardous wind conditions during interim periods during phased construction and/or due to changes in the building layout and/or massing. (Impact WS-2)

S.3 Summary of Project Alternatives

CEQA requires that an EIR must describe and evaluate a reasonable range of alternatives to the proposed project that would avoid or lessen significant impacts of the proposed project, would meet most of the project objectives, and would be feasible. The following seven alternatives are analyzed in this EIR:

- Alternative A: No Project/Code Compliant Alternative
- Alternative B: Full Preservation/Reduced Program Alternative
- Alternative C: Full Preservation/Similar Program Alternative
- Alternative D: Partial Preservation 1 Alternative
- Alternative E: Partial Preservation 2 Alternative
- Alternative F: Partial Preservation 3 Alternative
- Alternative G: Partial Preservation 4 Alternative

The San Francisco Planning Department determined that these seven alternatives are feasible and adequately represent the range of alternatives required under CEQA for this project, although the financial feasibility of all alternatives is unknown. These alternatives would lessen, and in some cases avoid, significant and unavoidable adverse impacts related to historic architectural resources, transportation, air quality, noise, and wind that were identified for the proposed project, as well as meet most of the project objectives. A "no project alternative" is included as Alternative A, as required by CEQA, even though it would not meet the basic project objectives. Schematics of all alternatives are included in Chapter 6 (pages 6-18 to 6-24).

S.3.1 Alternative A: No Project/Code Compliant Alternative

S.3.1.1 Description of Alternative

Alternative A assumes that the project sponsor would develop the Power Station sub-area in compliance with the existing planning code and land use designations. In addition, the adjoining Southern, City and eastern portions of the Port sub-areas of the project site would be developed in conjunction with the Power Station sub-area to provide continuity and connectivity to the bay and surrounding land uses; the 1.3 acre portion of the Port sub-area along 23rd Street would not be developed. However, due to the limited development potential under the existing zoning code and land use designations, this alternative assumes that the project sponsor would not seek to partner with PG&E in the development of the adjacent PG&E sub-area and that the 4.8-acre PG&E sub-area would remain in its current use as storage and housing for power transmission equipment. Thus, Alternative A would consist of development of a total of 22.9 acres compared to the 29 acres under the proposed project.

Overall development on the project site would be reduced to about 28 percent of that proposed under the proposed project, consisting of commercial, PDR, and retail uses. There would be no residential uses (including no childcare uses), and no commercial uses designated for R&D/life

sciences uses, since these uses are not be allowed under the existing zoning. Open space would be reduced to 4.4 acres, compared to 6.2 acres for the project. All buildings would be 40 feet in height, consistent with the existing height limit, and there would be no recreational dock. This alternative also assumes that Station A, the Compressor House, Gate House, Meter House, and Unit 3 Power Block would be demolished, but that the Boiler Stack would be retained.

S.3.1.2 Summary of Impacts

Alternative A would avoid or reduce some—but not all—of the significant and unavoidable impacts identified for the proposed project. This alternative would substantially lessen the severity of the following impacts, reducing them from significant and unavoidable with mitigation to less than significant or less than significant with mitigation: impacts on Muni capacity, both at a project-specific and cumulative level; impacts on Muni operations, both at a project-specific and cumulative level; impacts from construction-related increases in ambient noise levels to future onsite receptors; impacts from construction--related plus overlapping operational criteria air pollutant emissions; impacts from operations-related criteria air pollutant emissions; impacts from cumulative regional air quality impacts; and impacts from interim wind hazards.

However, significant and unavoidable impacts identified for the project (including some impacts that would be lessened compared to the project but still significant and unavoidable) that would not be substantially reduced under Alternative A and would still occur include impacts related to: individually eligible historic resources; effects on the Third Street Industrial District, both at a project-specific and cumulative level; construction-related increases in ambient noise levels to future Pier 70 receptors; operational offsite traffic noise increases, both at a project-specific and cumulative level; and cumulative construction-related noise increases.

S.3.2 Alternative B: Full Preservation/Reduced Program Alternative

S.3.2.1 Description of Alternative

Alternative B would retain and rehabilitate in accordance with the Secretary of Interior's Standards all six on-site historic structures: Station A, the Meter House, the Compressor House, the Gate House, the Unit 3 Power Block, and the Unit 3 Boiler Stack. Building floors would be added to the open volume interior space of Station A. This alternative would incorporate these structures into a development reduced in all aspects to about two thirds the size of the proposed project, thereby reducing the magnitude of both construction and operational impacts, but still retaining the diversity of land uses under the proposed project. The gross square footage of the development would be reduced to two thirds that of the project, and building heights of proposed towers would also be reduced to two thirds that of the project, but open space acreage would remain the same as that of the project.

S.3.2.2 Summary of Impacts

Alternative B would avoid or substantially lessen the severity of four of the significant and unavoidable impacts identified for the proposed project. This alternative would substantially lessen the severity of the following impacts, reducing them from significant and unavoidable with mitigation to less than significant or less than significant with mitigation: impacts on individually eligible historic resources; impacts on the Third Street Industrial District, both at a project-specific and cumulative level; and impacts on transit operations, both at a project-specific and cumulative level.

Significant and unavoidable impacts identified for the project that would not be substantially reduced under Alternative B and would still occur include the following: Muni capacity impacts, both at a project-specific and cumulative level; construction-related increases in ambient noise levels to future on-site and Pier 70 receptors; operational off-site traffic noise increases; cumulative construction-related noise increases; impacts related to construction- and operations-related criteria air pollutant emissions; cumulative regional air quality impacts, and interim wind hazards.

S.3.3 Alternative C: Full Preservation/Similar Program Alternative

S.3.3.1 Description of Alternative

Alternative C would retain and rehabilitate in accordance with the Secretary of Interior's Standards all six on-site historic structures: Station A, Meter House, Compressor House, Gate House, Unit 3 Power Block, and Unit 3 Boiler Stack. Building floors would be added to the open volume interior space of Station A. This alternative would incorporate these structures into a development program and mix of uses similar in magnitude to the proposed project, and would specifically include about the same number of residential units as the project but with a slight reduction in office uses. Overall total building area would be about 99 percent of the proposed project, and buildings heights would generally be the same as those identified for proposed project, ranging in most part from 65 to 180 feet, except there would be two 300-foot towers and two 240-foot towers instead of one 300-foot tower and three 180-foot towers for the proposed project. Open space acreage would remain the same as that of the project.

S.3.3.2 Summary of Impacts

Alternative C would avoid or substantially lessen the severity of three of the significant and unavoidable impacts identified for the proposed project. This alternative would substantially lessen the severity of the following impacts, reducing them from significant and unavoidable with mitigation to less than significant with mitigation: impacts on individually eligible historic resources; and impacts on the Third Street Industrial District, both at a project-specific and cumulative level.

Significant and unavoidable impacts identified for the project that would not be substantially reduced under Alternative C and would still include the following: Muni capacity impacts, both at a project-specific and cumulative level; transit operations impacts, both at a project-specific and cumulative level; construction-related increases in ambient noise levels to future on-site and Pier 70 receptors; operational off-site traffic noise increases, both at a project-specific and cumulative level; cumulative construction-related noise increases; construction and operations related criteria air pollutant emissions; cumulative regional air quality impacts; and interim wind hazards.

In addition, there is the potential for Alternative C to have two additional significant and unavoidable impacts associated with wind hazards. Although no wind tunnel testing has been completed for this alternative, there is the likelihood that wind conditions would be more severe than those under the project because of the additional towers. Conservatively, it is assumed that Alternative C would have significant and unavoidable wind impacts at build-out even with mitigation, at both a project-specific and cumulative level.

S.3.4 Alternative D: Partial Preservation 1 Alternative

S.3.4.1 Description of Alternative

Alternative D would retain Station A and rehabilitate its exterior character-defining features in accordance with the Secretary of Interior's Standards. Building floors would be added to the open volume interior space of Station A. This alternative would incorporate a development program similar in magnitude to the proposed project. Three historic structures—the Meter House, the Compressor House, and the Gate House—would be demolished. The major changes from the proposed project would be that Station A would exist in place of a 125-foot building on Block 10, and the 300-foot tower on Block 6 would be relocated to Block 7. Similar to the proposed project, Alternative D would retain the Unit 3 Power Block for hotel use and rehabilitate the Boiler Stack. The development program and mix of uses would be similar in magnitude to the proposed project, with a slight reduction in residential and office uses. Overall total building area would be about 94 percent of the proposed project, and buildings heights would generally be the same as those identified for proposed project. Open space acreage would remain the same as that of the project.

S.3.4.2 Summary of Impacts

Alternative D would reduce two of the significant and unavoidable impacts identified for the proposed project to less than significant with mitigation: impacts on the Third Street Industrial District, both at a project-specific and cumulative level.

Significant and unavoidable impacts identified for the project that would not be reduced under Alternative D and would still occur include the following: impacts on individually eligible historic resources; impacts on Muni capacity, both at a project-specific and cumulative level; transit operations impacts, both at a project-specific and cumulative level; construction-related increases in ambient noise levels to future on-site and Pier 70 receptors; operational off-site traffic noise increases both at a project-specific and cumulative level; cumulative construction-related noise increases; construction and operations related criteria air pollutant emissions; cumulative regional air quality impacts; and interim wind hazards.

S.3.5 Alternative E: Partial Preservation 2 Alternative

S.3.5.1 Description of Alternative

Alternative E would retain the southern portion of Station A and rehabilitate all or a portion of the exterior character-defining features of the remaining portion of the structure in accordance with the Secretary of Interior's Standards to the extent feasible. Building floors would be added to the open volume interior space of the remaining portion of Station A. The southern portion of Station A was selected because there are more character-defining features at that end, and it would replace a 125-foot-tall office building in the same location under the proposed project. Otherwise, this alternative generally follows the same land use mixes, heights, and configurations as the proposed project, including demolition of the Meter House, Compressor House, Gate House, and northern portion of Station A. Similar to the proposed project, Alternative E would retain the Unit 3 Power Block for hotel use and rehabilitate the Boiler Stack. The development program and mix of uses would be similar in magnitude to the proposed project, with a slight reduction in office uses. Overall total building area would be about 97 percent of the proposed project, and buildings heights would generally be the same as those identified for proposed project. Open space acreage would remain the same as that of the project.

S.3.5.2 Summary of Impacts

The overall impacts of Alternative E compared to those of the proposed project would generally be the same as described above for Alternative D. Like Alternative D, this alternative would substantially lessen the severity of the following impact, reducing it from significant and unavoidable with mitigation to less than significant with mitigation: impacts on the Third Street Industrial District, both at a project-specific and cumulative level.

Alternative E would also partially lessen the severity of the significant and unavoidable impact on individually eligible historic resources, but not substantially enough to change the CEQA significance determination of significant and unavoidable with mitigation. All of the other impacts of Alternative E compared to those of the proposed project would be the same as described above for Alternative D.

S.3.6 Alternative F: Partial Preservation 3 Alternative

S.3.6.1 Description of Alternative

Alternative F would retain the Compressor House and Meter House and rehabilitate all or a portion of their exterior character-defining features in accordance with the Secretary of Interior's Standards. This alternative would incorporate these structures into a development program similar in magnitude to the proposed project. Two historic structures—Station A and the Gate House—would be demolished. The major change from the proposed project would be that the parking garage with rooftop playing field would be relocated from Block 5 to Block 1, with an associated reduction in the building area of the garage and residential uses that are proposed on these blocks under the project. Similar to the proposed project, Alternative F would retain the

Unit 3 Power Block for a hotel use and would rehabilitate the Boiler Stack. The development program and mix of uses would be similar in magnitude to the proposed project, with a slight reduction in residential uses. Overall total building area would be about 95 percent of the proposed project, and buildings heights would generally be the same as those identified for proposed project. Open space acreage would remain the same as that of the project.

S.3.6.2 Summary of Impacts

The overall impacts of Alternative F compared to those of the proposed project would be generally the same as described above for Alternative D. Like Alternative D, this alternative would substantially lessen the severity of the following impacts, reducing them from significant and unavoidable with mitigation to less than significant with mitigation: impacts on the Third Street Industrial District, both on project-specific and cumulative level.

Alternative F would also partially lessen the severity of the significant and unavoidable impact on individually eligible historic resources, but not substantially enough to change the CEQA significance determination of significant and unavoidable with mitigation. All of the other impacts of Alternative F compared to those of the proposed project would be the same as described above for Alternative D.

However, there is the potential for Alternative F to have two additional significant and unavoidable impact associated with wind hazards. Although no wind tunnel testing has been completed for this alternative, there is the likelihood that wind conditions would be more severe than those under the project because of the massing of the 180-foot tall building at the southwest corner of the project site at Block 5. Conservatively, it is assumed that Alternative F would have significant and unavoidable wind impacts at buildout even with mitigation, at both a project-specific and cumulative level.

S.3.7 Alternative G: Partial Preservation 4 Alternative

S.3.7.1 Description of Alternative

Alternative G would retain the façades and exterior character-defining features of Station A, the Compressor House, and the Meter House, but would include new construction within and above these buildings. A 125-foot-tall office building would extend from within the façades of the southern portion of Station A, and a 300-foot-tall residential tower would rise from within the façades of the northern portion of Station A. The ground floors within the façades of the Compressor House and Meter House would be used for retail, with new construction extending 65 feet above the Compressor House to be used for office space. The alternative would incorporate these structures into a development similar in magnitude to the proposed project. One historic structure—the Gate House—would be demolished. The major changes from the proposed project would be: (1) the parking garage with rooftop playing field would be relocated from Block 5 to Block 1, with an associated reduction in the building area of the garage and residential uses that are proposed on these blocks under the project, and (2) the 65-foot and 180-foot residential buildings adjacent to the Compressor House and Meter House would be redesigned. Similar to the proposed project, Alternative G would retain the Unit 3 Power Block for a hotel use and would rehabilitate the Boiler Stack. The development program and mix of uses would be similar in magnitude to the proposed project, with a slight reduction in residential and office uses. Overall total building area would be about 96 percent of the proposed project, and buildings heights would generally be the same as those identified for proposed project. Open space acreage would remain the same as that of the project.

S.3.7.2 Summary of Impacts

The overall impacts of Alternative G compared to those of the proposed project would be generally the same as described above for Alternative D. Like Alternative D, this alternative would substantially lessen the severity of the following impacts, reducing them from significant and unavoidable with mitigation to less than significant with mitigation: impacts on the Third Street Industrial District, both at a project-specific and cumulative level.

Alternative G would also partially lessen the severity of the significant and unavoidable impact on individually eligible historic resources, but not substantially enough to change the CEQA significance determination of significant and unavoidable with mitigation. All of the other impacts of Alternative G compared to those of the proposed project would be the same as described above for Alternative D.

However, there is the potential for Alternative G to have two additional significant and unavoidable impacts associated with wind hazards. Although no wind tunnel testing has been completed for this alternative, there is the likelihood that wind conditions would be more severe than those under the project because of the massing of the 180-foot tall building at the southwest corner of the project site at Block 5. Conservatively, it is assumed that Alternative G would have significant and unavoidable wind impacts at build-out even with mitigation, at both a project-specific and cumulative level.

S.3.8 Environmentally Superior Alternative

Table S-3 (at the end of this chapter, following Table S-2) presents a summary comparison of the impacts of all the alternatives, focusing only on impacts that would substantially or noticeably be different under the alternatives compared to the project; other impacts not shown on the table would substantially have all the same or similar impacts as identified for the proposed project. Overall, Alternative B, Full Preservation/Reduced Program Alternative, is considered the environmentally superior alternative. Alternative B would eliminate the significant and unavoidable impacts related to individually eligible historic resources, effects on the Third Street Industrial District, and transit operations that would occur under the proposed project. Even though some significant and unavoidable impacts would still occur under Alternative B, this alternative would lessen the severity of the significant adverse impacts related to transit capacity, construction and operational noise, and construction and operational criteria air pollutant emissions, pedestrian safety and accessibility, and health risk from exposure to toxic air contaminants when compared to the impacts of the proposed project. Compared to the other alternatives, Alternative B would meet most of the basic project objectives and would offer the greatest environmental advantages over the proposed project.

S.4 Areas of Controversy and Issues to Be Resolved

On November 1, 2017, the San Francisco Planning Department issued a Notice of Preparation (NOP) of an EIR on the proposed Potrero Power Station Mixed-Use Development project and made the NOP available on its website. The NOP was sent to governmental agencies, organizations, and persons interested in the proposed project to initiate the 30-day public scoping period for this EIR, which started on November 1, 2017 and ended on December 1, 2017. A scoping meeting was held on November 15, 2017, to solicit comments on the scope of the EIR. The NOP and comments on the NOP are included in Appendix A of this document.

Based on the comments received, controversial issues for the proposed project include:

- Project land uses, consideration of alternate uses, and compatibility of land uses on parcels adjacent to Pier 70;
- Noise from construction, operational traffic, and generators on sensitive receptors;
- Impact from exposure to air pollutants during construction and operation on sensitive receptors;
- Wind and shadow impacts generated by the project and cumulatively by the project and Pier 70, with particular concern to recreation resources and the bay;
- The approach to the transportation impact analysis, reasons for the assumptions incorporated (specifically into mode share), employees by different income brackets and miles travelled, times of day and week studied, and cumulative projects considered;
- Impacts on transportation and circulation (including highways, arterial streets, local streets, transit stations and service, and emergency response);
- The project's assumptions and analysis for on-site parking demand and supply;
- Impacts associated with site remediation or management of soils during project construction;
- Project consistency with McAteer-Petris Act, Bay Plan, Coastal Zone Management Act, and with San Francisco Bay Conservation and Development Commission (BCDC) jurisdiction – including with respect to 100-foot shoreline band compliance, BCDC related permits, public access, remediation and sea level rise;
- Impacts to onsite historic buildings (including Meter House, Compressor House, Station A, and the Gate House) and consideration of their preservation and possibilities for reuse;
- Impacts related to affordable housing and jobs housing balance by the project;
- Financing, (including fair share contribution), monitoring, scheduling, and responsibility for implementation of mitigation measures;
- Cumulative impacts of development of the project combined with development of other projects (including Pier 70), and development under other plans, in the vicinity.

TABLE S-2
SUMMARY OF IMPACTS OF THE PROPOSED PROJECT—DISCLOSED IN THIS EIR

Environmental Impact	Level of Significance prior to Mitigation	Improvement/Mitigation Measures	Level of Significance after Mitigation
EIR Section 4.B Land Use and Land Use Planning			
Impact LU-1: The proposed project would not physically divide an established community.	LTS	No mitigation required.	NA
Impact LU-2: The proposed project would not conflict with applicable land use plans, policies, or regulations of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect.	LTS	No mitigation required.	NA
Impact C-LU-1: The proposed project, in combination with past, present, or reasonably foreseeable future projects, would not contribute considerably to significant cumulative land use impacts related to physical division of an established community.	LTS	No mitigation required.	NA
Impact C-LU-2: The proposed project, in combination with past, present, or reasonably foreseeable future projects, would not contribute considerably to significant cumulative land use impacts related to conflicts with applicable land use plans, policies, and/or regulations adopted for the purpose of avoiding or mitigating an environmental effect.	LTS	No mitigation required.	NA
EIR Section 4.C Population and Housing			
Impact PH-1: Construction of the proposed project would not induce substantial population growth in an area.	LTS	No mitigation required.	NA
Impact PH-2: Operation of the proposed project would not induce substantial population growth in an area.	LTS	No mitigation required.	NA
Impact C-PH-1: The proposed project, in combination with past, present, and reasonably foreseeable future projects, would not result in a cumulatively considerable contribution to significant cumulative population and housing impacts.	LTS	No mitigation required.	NA
EIR Section 4.D Historic Architectural Resources			
Impact CR-4: The proposed demolition of individually significant buildings would materially alter, in an adverse manner, the physical characteristics that justify their inclusion in the California Register of Historical Resources.	S	**Mitigation Measure M-CR-5a: Documentation** (see Impact CR-5, below) **Mitigation Measure M-CR-5b: Video Recordation** (see Impact CR-5, below) **Mitigation Measure M-CR-5c: Public Interpretation and Salvage** (see Impact CR-5, below)	SUM

TABLE S-2 (CONTINUED)
SUMMARY OF IMPACTS OF THE PROPOSED PROJECT—DISCLOSED IN THIS EIR

Environmental Impact	Level of Significance prior to Mitigation	Improvement/Mitigation Measures	Level of Significance after Mitigation
EIR Section 4.D Historic Architectural Resources (cont.)			
Impact CR-5: The proposed demolition, substantial alteration, and rehabilitation of contributing buildings would materially alter, in an adverse manner, the physical characteristics of the Third Street Industrial District that justify its inclusion in the California Register of Historical Resources.	S	**Mitigation Measure M-CR-5a: Documentation** Before any demolition or rehabilitation activities within the project site, the project sponsor shall retain a professional who meets the Secretary of the Interior's Professional Qualification Standards for Architectural History to prepare written and photographic documentation of Station A, the Compressor House, the Meter House, the Gate House, the Boiler Stack, and Unit 3. The documentation shall be prepared based on the National Park Service's Historic American Building Survey (HABS)/Historic American Engineering Record (HAER) Historical Report Guidelines. The HABS/HAER package shall jointly document the Third Street Industrial District contributors and individually eligible resources to be demolished or otherwise adversely affected. This type of documentation is based on a combination of both HABS/HAER standards and National Park Service's policy for photographic documentation, as outlined in the National Register and National Historic Landmarks Survey Photo Policy Expansion. The documentation shall be scoped and approved by Planning Department Preservation staff and will include the following: • *Measured Drawings:* A set of measured drawings that depict the existing size, scale, and dimension of Station A, the Compressor House, the Meter House, the Gate House, and the Unit 3 Power Block. Planning Department Preservation staff will accept the original architectural drawings or an as-built set of architectural drawings (plan, section, elevation, etc.). Planning Department Preservation staff will assist the consultant in determining the appropriate level of measured drawings; • *HABS-Level Photography:* Either HABS standard large-format or digital photography shall be used. The scope of the photographs shall be reviewed by Planning Department Preservation staff for concurrence. All digital photography shall be conducted according to the latest National Park Service standards. The photography shall be undertaken by a qualified professional with demonstrated experience in HABS photography. Photograph views for the dataset shall include (a) contextual views; (b) views of each side of each building and interior views; (c) oblique views of the buildings; and (d) detail views of character-defining features, including features on the interior. All views shall be referenced on a photographic key. This photographic key shall be on a map of the property and shall show the photograph number with an arrow to indicate the direction of the view. Historical photographs shall also be collected, reproduced, and included in the dataset; and • *HABS Historical Report:* A written historical narrative and report, per HABS Historical Report Guidelines. • *Print-On-Demand Book*: A Print On Demand softcover book will be produced that includes the content of the HABS historical report, historical photographs, HABS-level photography, measured drawings and field notes.	SUM

TABLE S-2 (CONTINUED)
SUMMARY OF IMPACTS OF THE PROPOSED PROJECT—DISCLOSED IN THIS EIR

Environmental Impact	Level of Significance prior to Mitigation	Improvement/Mitigation Measures	Level of Significance after Mitigation
EIR Section 4.D Historic Architectural Resources (cont.)			
Impact CR-5 (cont.)		The project sponsor shall transmit such documentation to the San Francisco Planning Department, the Port of San Francisco, and to repositories including the History Room of the San Francisco Public Library, San Francisco Heritage, Internet Archive, the California Historical Society, the Potrero Hill Archives Project, and the Northwest Information Center of the California Historical Information Resource System. All documentation will be reviewed and approved by the San Francisco Planning Department’s Preservation staff prior to granting any demolition or site permit. **Mitigation Measure M-CR-5b: Video Recordation** Prior to any demolition or substantial alteration of an individual historical resource or contributor to a historic district on the project site, the project sponsor shall retain a qualified professional to undertake video documentation of the affected historical resource and its setting. The documentation shall be conducted by a professional videographer with experience recording architectural resources. The professional videographer shall provide a storyboard of the proposed video recordation for review and approval by Planning Department preservation staff. The documentation shall be narrated by 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 Code of Federal Regulations, Part 61). The documentation shall include as much information as possible—using visuals in combination with narration—about the materials, construction methods, current condition, historical use, and historic context of the historic resources. Archival copies of the video documentation shall be submitted to the Planning Department, and to repositories including: the San Francisco Planning Department, the Port of San Francisco, the San Francisco Public Library, San Francisco Heritage, Prelinger Archives, the California Historical Society, the Potrero Hill Archives Project, and the Northwest Information Center of the California Historical Information Resource System. This mitigation measure would supplement the traditional HABS documentation, and would enhance the collection of reference materials that would be available to the public and inform future research. The video documentation shall be reviewed and approved by the San Francisco Planning Department’s preservation staff prior to issuance of a demolition permit or site permit or issuance of any Building Permits for the project. **Mitigation Measure M-CR-5c: Public Interpretation and Salvage** Prior to any demolition or rehabilitation activities that would remove character-defining features of an individual historical resource or contributor to a historic district on the project site, the project sponsor shall consult with planning department preservation staff as to whether any such features may be salvaged, in whole or in part, during demolition/alteration. The project sponsor shall make a good faith effort to salvage materials of historical interest to be utilized as part of the interpretative program. This could include reuse of the Greek Revival façade of the Machine Shop Office, Gate House or a portion of the Unit 3 Power Block. Following any demolition or rehabilitation activities within the project site, the project sponsor	

TABLE S-2 (CONTINUED)
SUMMARY OF IMPACTS OF THE PROPOSED PROJECT—DISCLOSED IN THIS EIR

Environmental Impact	Level of Significance prior to Mitigation	Improvement/Mitigation Measures	Level of Significance after Mitigation
EIR Section 4.D Historic Architectural Resources (cont.)			
Impact CR-5 (cont.)		shall provide within publicly accessible areas of the project site a permanent display(s) of interpretive materials concerning the history and architectural features of the individual historical resources and Third Street Industrial District. The content of the interpretive display(s) shall be coordinated and consistent with the site-wide interpretive plan prepared in coordination with planning department preservation staff, and may include the display of salvaged features recovered through the process described above. The specific location, media, and other characteristics of such interpretive display(s) shall be presented to planning department preservation staff for review prior to any demolition or removal activities. The historic interpretation plan shall be prepared in coordination with an architectural historian or historian who meets the Secretary of the Interior's Professional Qualification Standards and an exhibit designer or landscape architect with historical interpretation design experience. As feasible, coordination with local artists should occur. Interpretive display(s) shall document both the Third Street Industrial District and individually eligible resources to be demolished or rehabilitated. The interpretative program should also coordinate with other interpretative displays currently proposed along the Bay, specifically at Pier 70, those along the Blue Greenway, and others in the general vicinity. The interpretative plan should also explore contributing to digital platforms that are publicly accessible. A proposal describing the general parameters of the interpretive program shall be approved by planning department preservation staff prior to issuance of a site permit. The substance, media and other elements of such interpretive display shall be approved by planning department preservation staff prior to issuance of a Temporary Certificate of Occupancy. **Mitigation Measure M-CR-5d: Rehabilitation of the Boiler Stack** Prior to the issuing of building permits associated with modifications to the exterior of the Boiler Stack, planning department preservation staff shall review the proposed design and confirm that it conforms to the Secretary of the Interior's Standards for Rehabilitation and the Design for Development standards and guidelines. **Mitigation Measure M-CR-5e: Historic Preservation Plan and Review Process for Alteration of the Boiler Stack** Prior to the approval of the first building permit for construction of Phase 1, a historic preservation plan establishing protective measures shall be prepared and implemented to aid in preserving and protecting the Boiler Stack, which would be retained as part of the project. The historic preservation plan shall be prepared by a qualified architectural historian who meets the Secretary of Interior's Professional Qualification Standards (36 Code of Federal Regulations Part 61). The plan shall establish measures to protect the retained character-defining features during construction of the project, such as avoiding construction equipment inadvertently coming in contact with the Boiler Stack, to minimize construction-related damage to the Boiler Stack, and to ensure that any such damage is documented and repaired. If deemed necessary upon further condition assessment of the resource, the plan shall include stabilization of the Boiler Stack prior to construction to prevent deterioration or damage. Where pile driving and other construction activities involving the use of heavy equipment	

TABLE S-2 (CONTINUED)
SUMMARY OF IMPACTS OF THE PROPOSED PROJECT—DISCLOSED IN THIS EIR

Environmental Impact	Level of Significance prior to Mitigation	Improvement/Mitigation Measures	Level of Significance after Mitigation
EIR Section 4.D Historic Architectural Resources (cont.)			
Impact CR-5 (cont.)		would occur in proximity to the Boiler Stack, the project sponsor shall undertake a vibration monitoring program as described in Mitigation Measure M-NO-4a, including establishing a maximum vibration level that shall not be exceeded based on existing conditions, character-defining features, soils conditions, and anticipated construction practices in use at the time. The project sponsor shall ensure that the contractor follows these plans. The preservation and protection plan, specifications, monitoring schedule, and other supporting documents shall be incorporated into the building or site permit application plan sets. The documentation shall be reviewed and approved by Planning Department Preservation staff. **Mitigation Measure M-NO-4a: Construction Vibration Monitoring** (see Section 4.F, Noise and Vibration, Impact NO-4) **Mitigation Measure M-NO-4b: Vibration Control Measures During Controlled Blasting and Pile Driving** (see Section 4.F, Noise and Vibration, Impact NO-4) **Mitigation Measure M-NO-4c: Vibration Control Measures During Use of Vibratory Equipment** (see Section 4.F, Noise and Vibration, Impact NO-4)	
Impact CR-6: The proposed infill construction could materially alter, in an adverse manner, the physical characteristics of the Third Street Industrial District that justify its inclusion in the California Register of Historical Resources.	S	**Mitigation Measure M-CR-6: Design Controls for New Construction** The SUD and Design for Development (D for D) shall contain design standards and guidelines that ensure that new construction and site development within the SUD shall be compatible with the character of the Third Street Industrial District. Beyond the site-wide standards and guidelines developed for open space, buildings, and streetscapes in the D for D, the D for D shall contain design controls for the Third Street Industrial District, as outlined below (see site-wide design controls below). Additional design standards shall apply to the western façades of new buildings fronting Illinois Street, the southern façades of new buildings fronting 23rd Street, and the eastern and/or southern façades of new buildings fronting the Boiler Stack (see block and frontage-specific design controls below and **Figure M-CR-6**, **Site Frontages Subject to Design Controls**). These façades would all face contributors to the Third Street Industrial District. The additional design standards that shall apply specifically to those frontages are included below. These design controls in the D for D shall be compatible with the Secretary of the Interior Standards for Rehabilitation, Standard 9. Standard 9 states that new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the integrity of the historic district and its environment. ***Review Process*** New construction in the Special Use District will be subject to administrative design review prior to the issuing of building permits. Planning staff along with Preservation staff will review new projects to ensure compatibility with the Third Street Industrial District as determined in the above standards and guidelines and identified in the D for D.	LSM

TABLE S-2 (CONTINUED)
SUMMARY OF IMPACTS OF THE PROPOSED PROJECT—DISCLOSED IN THIS EIR

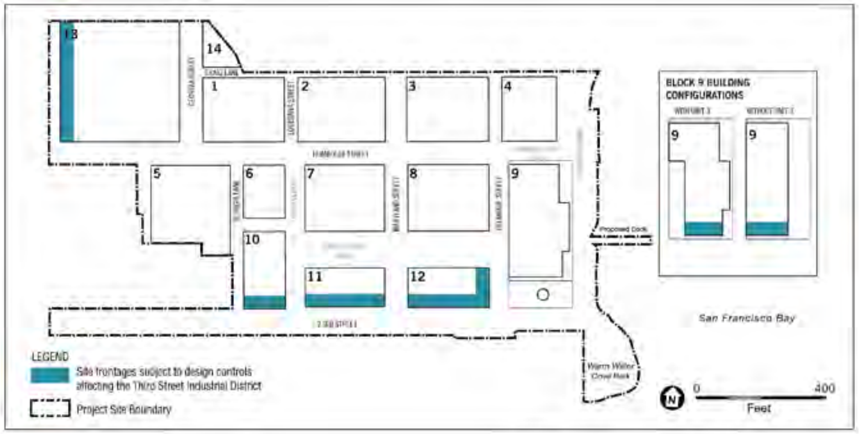
Environmental Impact	Level of Significance prior to Mitigation	Improvement/Mitigation Measures	Level of Significance after Mitigation
EIR Section 4.D Historic Architectural Resources (cont.)			
Impact CR-6 (cont.)		 SOURCE: Perkins+Will 2018 Potrero Power Station Mixed-Use Development Project **Figure M-CR-6** Site Frontages Subject to Design Controls The D for D shall contain the following Third Street Industrial District Frontage Design Controls: • *Block and Frontage-Specific Design Controls Ground Floor Height for Blocks 11, 12, and 13*: For Ground Floor of Blocks 11 and 12 facing 23rd Street Sugar Warehouses and Block 13 facing American Industrial Center all ground floor spaces shall have a minimum floor-to-floor height of 15 feet as measured from grade. • *Height + Massing along 23rd and Illinois street frontages*. In order for 23rd and Illinois streets to appear balanced on either side, new construction shall respect existing heights of contributors to the Third Street Industrial District by referencing their heights with an upper level 10-foot setback at approximately 65 feet. • *Awnings on Blocks 10, 11, 12, and 13*. An awning shall be provided on the southern facades of Blocks 10, 11, and 12 that face 23rd Street at a height of 15 to 25 feet above sidewalk grade to reference the industrial awning at the westernmost Sugar Refinery Warehouse. Awnings at this location may project up to 15 feet into the public realm. Should the southern façade of Station A be retained, an awning on Block 10 would not be required. For Block 13 frontages facing Illinois Street, canopies and awnings should only be located at the retail land use at the corner of Illinois and 22nd streets.	

TABLE S-2 (CONTINUED)
SUMMARY OF IMPACTS OF THE PROPOSED PROJECT—DISCLOSED IN THIS EIR

Environmental Impact	Level of Significance prior to Mitigation	Improvement/Mitigation Measures	Level of Significance after Mitigation
EIR Section 4.D Historic Architectural Resources (cont.)			
Impact CR-6 (cont.)		The character, design and materials used for such awnings shall be industrial in character and design, suggestions are the following: – They should be flat or pitched, and should not be arched. The functional supporting structure and/or tieback rods should be clearly read [i.e., remain apparent to the observer]. – Materials used for canopies and awnings should be utilitarian. Suggested materials include wood, standing seam or louvered metal panels, and corrugated metal. • *Openings along 23rd and Illinois street frontages*. To the extent allowed by the Department of Public Health, large doors, such as sliding or roll-up doors that facilitate the movement of people, equipment, and goods in and out of the ground floor of new construction on Blocks 10-13 shall be incorporated along 23rd Street and Illinois Street. • *Special Corners on Block 12*. To frame the view of the iconic Boiler Stack, the northeast corner of Block 12 should include the use of high quality materials, such as brick, concrete, copper, steel, glass, and wood, and in addition shall include: – Volumetric shaping of the area of a building within 15-feet of the northeastern corner of Block 12 with architectural treatments including but not limited to chamfers, round edges, setbacks, and/or protrusions to highlight views or relate to the shape of the Boiler Stack from the public realm. • *Special Corners Block 9 without Unit 3*. To create an open and inviting entrance to Waterfront Park and Stack Plaza from Delaware Street and Power Station Park, the southwest corner of Block 9 without Unit 3 should use high-quality materials, such as brick, concrete, copper, steel, glass, and wood, and in addition shall include: – Volumetric shaping of any building in the area within 15-feet of the southwest corner of Block 9 with architectural treatments including but not limited to chamfers, round edges, setbacks, and/or protrusions to highlight views or relate to the shape of the Boiler Stack from the public realm. • *Block 9 without Unit 3*. For deference to the historic Stack, and to create more physical space between the Stack and new construction, the building of Block 9 without Unit 3 shall be designed such that the overall bulk is reduced by at least 10 percent from the maximum permitted floor area, with a focus along the southern façade of the new building, facing the Stack. A potential distribution of bulk reduction, for example, could result in an 8 percent reduction along the southern façade with a 2 percent reduction elsewhere. The building should interact meaningfully with the Boiler Stack, such as referencing the existing relationship between it and Unit 3 (i.e., the simple, iconic form of the Boiler Stack in contrast to the highly complex, detailed form of the Unit 3 Power Block). Retain the existing exhaust infrastructure connecting the Unit 3 Power Block with the Boiler Stack and incorporating it into the new structure as feasible. Consider preserving other elements of the Unit 3 Power Block, such as portions of the steel gridded frame structure, in new construction.	

TABLE S-2 (CONTINUED)
SUMMARY OF IMPACTS OF THE PROPOSED PROJECT—DISCLOSED IN THIS EIR

Environmental Impact	Level of Significance prior to Mitigation	Improvement/Mitigation Measures	Level of Significance after Mitigation
EIR Section 4.D Historic Architectural Resources (cont.)			
Impact CR-6 (cont.)		• *Architectural Features on Blocks 10, 11, 12, and 13*. Regularly-spaced structural bays should be expressed on the exterior of the lower massing through the use of rectangular columns or pilasters, which reference the rhythm of loading docks on the Western Sugar Refinery Warehouses and American Industrial Center. Bay widths shall be no larger than 30 feet on center. Architectural features such as cornice lines, belt courses, architectural trim, or change in materiality or color should be incorporated into the building design to reference heights and massing of the Western Sugar Refinery Warehouses on 23rd Street and American Industrial Center on Illinois Street at areas of the façade that are not required to be set back. • *Third Street District Fenestration*. Operable windows shall be single or double hung wood sash, or awning, pivot, or other industrial style steel or aluminum fenestration. Casement windows shall be avoided at lower building massing. Divided lite windows are appropriate. Ground level glazing shall incorporate transom windows if not utilizing roll up or full height sliding doors. Upper level glazing shall consist of regular repeated punched openings with divided lites. Punched openings shall be rectangular in proportion; an exception is the use of segmentally arched openings if the building material is brick. • *Third Street District Building Rooftops*. Rooftops shall reflect the historic industrial character of the district and include flat, monitor, or shallow shed roofs. Gable or hipped roofs shall be avoided as primary features. ***The D for D shall contain the following Site Wide Design Controls:*** • *Recommended Materials.* Recommended materials should be incorporated into building design. Recommended materials include brick, concrete, copper, steel, glass, smooth stucco and wood. Avoid using veneer masonry panels except as described in the Depth of Façade, below. Avoid using smooth, flat, or minimally detailed glass curtain walls; highly reflective glass; coarse-sand finished stucco as a primary siding material; bamboo wood siding as a primary siding material; laminated timber panels; or black and dark materials should not be used as a predominate material. Where metal is used, selection should favor metals with naturally occurring patina such as copper, steel, or zinc. Metals should be matte in finish. Where shiny materials are used, they should be accent elements rather than dominant materials, and are generally not encouraged. • *Depth of Façade.* The façade should be designed to create a sense of durability and substantiality, and to avoid a thin or veneer-like appearance. Full brick or masonry is a preferred material. If thin brick or masonry or panel systems are used, these materials should read as having a volumetric legibility that is appropriate to their thickness. For example, masonry should turn the corner at a depth that is consistent with the typical depth of a brick.	

TABLE S-2 (CONTINUED)
SUMMARY OF IMPACTS OF THE PROPOSED PROJECT—DISCLOSED IN THIS EIR

Environmental Impact	Level of Significance prior to Mitigation	Improvement/Mitigation Measures	Level of Significance after Mitigation
EIR Section 4.D Historic Architectural Resources (cont.)			
Impact CR-6 (cont.)		Windows and other openings are an opportunity to reinforce the volumetric legibility of the façade, with an appropriate depth that relates to the material selected. For example, the depth of the building frame to the glazing should be sufficiently deep to convey a substantial exterior wall, and materials should turn the corner into a window reveal. • *Quality and Durability.* Exterior finishes should have the qualities of permanence and durability found in similar contextual building materials used on neighboring sites and in the Central Waterfront. Materials should be low-maintenance, well suited to the specific maritime microclimate of the neighborhood, and able to naturally weather over time without extensive maintenance and upkeep. Materials characteristic of the surrounding context, such as brick, concrete, stone, wood, and glass, and, are envisioned on site and are good candidates to meet durability needs. ***The D for D shall contain the following Street and Open Spaces Design Controls:*** • *Stack Plaza*. No more than one-third of the area within 45 feet of the Boiler Stack shall be planted. Paving and hardscape elements shall incorporate industrial elements and materials into the design. Design elements should use simple geometric forms, regular or repeating paving patterns and utilitarian materials such as simple masonry pavers or salvaged masonry units if feasible and safe for public use. Stack Plaza design elements, such as planters and native planting, should be kept low to the ground to complement and not distract from the Boiler Stack. Surfaces should not be designed with elaborately applied patterns. Any patterning should be the pragmatic result of the use of unit pavers or concrete score joints. • *23rd Street Streetscape*. The streetscape design of 23rd Street should balance the historic utilitarian character of the Third Street Industrial District with welcoming design gestures for this important entrance to the Potrero Power Station development. To that end, the following guidelines shall be followed: – Landscape elements should feel additive to the industrial streetscape. Examples include potted or otherwise designed raised beds of plants and trees that are placed onto paved surfaces; small tree wells within paved surfaces; green walls; and raised or lowered beds edged with industrial materials such as brick, low granite curbs, or steel. – Tree planting locations should be irregularly spaced or placed in small groupings along the street, in contrast with standard Better Street Plan requirements, in order to provide better compatibility with the historic district. – A tree and vegetation palette should be used that does not detract from the industrial character. Green walls, planter boxes, and vegetation should be considered rather than trees for storm water management. – Public art installations, such as murals, are encouraged.	

TABLE S-2 (CONTINUED)
SUMMARY OF IMPACTS OF THE PROPOSED PROJECT—DISCLOSED IN THIS EIR

Environmental Impact	Level of Significance prior to Mitigation	Improvement/Mitigation Measures	Level of Significance after Mitigation
EIR Section 4.D Historic Architectural Resources (cont.)			
Impact CR-6 (cont.)		• *Transit Bus Shelter.* The bus shelter should be utilitarian in materiality and design to reflect the industrial nature of the nearby Western Sugar Refinery Warehouse buildings. The bus shelter shall be coordinated with the building design on Block 12. • *23rd Street and Illinois Paving*. Sidewalk paving at 23rd Street and Illinois Street should be more industrial in character compared to sidewalk paving at other portions of the site. Consider varying sidewalk concrete score joint patterns or pavers from block to block. Design must be reviewed and approved by San Francisco Public Works and San Francisco Municipal Transportation Agency as part of the Street Improvement Plans. • *23rd Street Transit Island Paving*. Pavement at the transit boarding island should incorporate concrete or stone pavers or enhanced cast-in-place concrete with smaller scale joint patterns for a more refined appearance. Integral color and decorative aggregates may be selected for aesthetic quality and shall meet accessible design requirements for slip-resistance. Design must be reviewed and approved by San Francisco Public Works and San Francisco Municipal Transportation Agency as part of the Street Improvement Plans. • *Signage*. Tenant signage facing contributing buildings to the Third Street Industrial District should be utilitarian in design and materiality to reflect the adjacent historic resources and strengthen the 23rd Street streetscape. Backlit signage should be avoided.	
Impact CR-7: The proposed project would not materially alter, in an adverse manner, the physical characteristics of the adjacent Union Iron Works Historic District that justify its inclusion in the California Register of Historical Resources.	LTS	No mitigation required.	NA
Impact C-CR-2: The impacts of the proposed project, in combination with those of past, present, and reasonably foreseeable future projects, would materially alter, in an adverse manner, some of the physical characteristics of the Third Street Industrial District that justify its inclusion in the California Register of Historical Resources, resulting in a cumulative impact.	S	**Mitigation Measure M-CR-5a: Documentation (**see Impact CR-5, above) **Mitigation Measure M-CR-5b: Video Recordation** (see Impact CR-5, above) **Mitigation Measure M-CR-5c: Public Interpretation and Salvage** (see Impact CR-5, above) **Mitigation Measure M-CR-5d: Rehabilitation of the Boiler Stack** (see Impact CR-5, above) **Mitigation Measure M-CR-5e: Historic Preservation Plan and Review Process for Alteration of the Boiler Stack** (see Impact CR-5, above) **Mitigation Measure M-CR-6: Design Controls for New Construction** (see Impact CR-6, above) **Mitigation Measure M-NO-4a: Construction Vibration Monitoring** (see Section 4.F, Noise and Vibration, Impact NO-4)	SUM

TABLE S-2 (CONTINUED)
SUMMARY OF IMPACTS OF THE PROPOSED PROJECT—DISCLOSED IN THIS EIR

Environmental Impact	Level of Significance prior to Mitigation	Improvement/Mitigation Measures	Level of Significance after Mitigation
EIR Section 4.D Historic Architectural Resources (cont.)			
Impact C-CR-2 (cont.)		**Mitigation Measure M-NO-4b: Vibration Control Measures During Controlled Blasting and Pile Driving** (see Section 4.F, Noise and Vibration, Impact NO-4) **Mitigation Measure M-NO-4c: Vibration Control Measures During Use of Vibratory Equipment** (see Section 4.F, Noise and Vibration, Impact NO-4)	
EIR Section E Transportation and Circulation			
Impact TR-1: Construction of the proposed project would not result in substantial interference with pedestrian, bicycle, or vehicle circulation and accessibility to adjoining areas, and would not result in potentially hazardous conditions.	LTS	**Improvement Measure I-TR-A: Construction Management Plan and Public Updates** • ***Construction Management Plan***—The project sponsor will develop and, upon review and approval by the San Francisco Municipal Transportation Agency (SFMTA) and San Francisco Public Works, implement a Construction Management Plan, addressing transportation-related circulation, access, staging and hours of delivery. The Construction Management Plan would disseminate appropriate information to contractors and affected agencies with respect to coordinating construction activities to minimize overall disruption and ensure that overall circulation in the project area is maintained to the extent possible, with particular focus on ensuring transit, pedestrian, and bicycle connectivity. The Construction Management Plan would supplement and expand, rather than modify or supersede, the regulations, or provisions set forth by the SFMTA, Public Works, or other City departments and agencies, and the California Department of Transportation. Management practices could include: best practices for accommodating pedestrians and bicyclists, identifying routes for construction trucks to utilize, actively managing construction truck traffic, and minimizing delivery and haul truck trips during the morning (7 a.m. to 9 a.m.) and evening (4 p.m. to 6 p.m.) peak periods (or other times, as determined by the SFMTA). If construction of the proposed project is determined to overlap with nearby adjacent project(s) using the same truck access routes in the project vicinity, the project sponsor or its contractor(s) will consult with various City departments, as deemed necessary by the SFMTA, Public Works, and the Planning Department, to develop a Coordinated Construction Truck Routing Plan to minimize the severity of any disruption of access to land uses and transportation facilities. The plan will identify optimal truck routes between the regional facilities and the project sites, taking into consideration truck routes of other development and infrastructure projects and any construction activities affecting the roadway network. • ***Carpool, Bicycle, Walk, and Transit Access for Construction Workers***—To minimize parking demand and vehicle trips associated with construction workers, the construction contractor will include as part of the Construction Management Plan methods to encourage carpooling, bicycle, walk and transit access to the project site by construction workers. These methods could include providing secure bicycle parking spaces, participating in free-to-employee and employer ride matching program from www.511.org, participating in the emergency ride home program through the City of San Francisco (www.sferh.org), and providing transit information to construction workers.	NA

TABLE S-2 (CONTINUED)
SUMMARY OF IMPACTS OF THE PROPOSED PROJECT—DISCLOSED IN THIS EIR

Environmental Impact	Level of Significance prior to Mitigation	Improvement/Mitigation Measures	Level of Significance after Mitigation
EIR Section E Transportation and Circulation (cont.)			
Impact TR-1 (cont.)		• ***Project Construction Updates for Nearby Businesses and Residents***—To minimize construction impacts on access to nearby residences and businesses, the project sponsor will provide nearby residences and adjacent businesses with regularly-updated information regarding project construction, including construction activities, peak construction vehicle activities, travel lane closures, and parking lane and sidewalk closures (e.g., via the project’s website). A regular email notice will be distributed by the project sponsor that would provide current construction information of interest to neighbors, as well as contact information for specific construction inquiries or concerns.	
Impact TR-2: The proposed project would not cause substantial additional VMT or induced automobile travel.	LTS	No mitigation required.	NA
Impact TR-3: The proposed project would not create major traffic hazards.	LTS	**Improvement Measure I-TR-B: Monitoring and Abatement of Queues** As an improvement measure to reduce the potential for queuing of vehicles accessing the project garages, it will be the responsibility of the project sponsor to ensure that recurring vehicle queues or vehicle conflicts do not occur adjacent to garage entries. A vehicle queue is defined as one or more vehicles blocking any portion of adjacent sidewalks, bicycle lanes, or travel lanes for a consecutive period of three minutes or longer on a daily and/or weekly basis. If recurring queuing occurs, the owner/operator of the facility will employ abatement methods as needed to abate the queue. Appropriate abatement methods will vary depending on the characteristics and causes of the recurring queue, as well as the characteristics of the parking facility, the street(s) to which the facility connects, and the associated land uses (if applicable). Suggested abatement methods include, but are not limited to the following: redesign of facility to improve vehicle circulation and/or onsite queue capacity; employment of parking attendants; installation of “GARAGE FULL” signs with active management by parking attendants; use of valet parking or other space-efficient parking techniques; use of other garages on the project site; use of parking occupancy sensors and signage directing drivers to available spaces; travel demand management strategies; and/or parking demand management strategies such as parking time limits, paid parking, time-of-day parking surcharge, or validated parking. If the planning director, or his or her designee, determines that a recurring queue or conflict may be present, the planning department will notify the project sponsor in writing. Upon request, the owner/operator will hire a qualified transportation consultant to evaluate the conditions at the site for no less than seven days. The consultant will prepare a monitoring report to be submitted to the planning department for review. If the planning department determines that a recurring queue or conflict does exist, the project sponsor will have 90 days from the date or the written determination to abate the recurring queue or conflict.	NA

TABLE S-2 (CONTINUED)
SUMMARY OF IMPACTS OF THE PROPOSED PROJECT—DISCLOSED IN THIS EIR

Environmental Impact	Level of Significance prior to Mitigation	Improvement/Mitigation Measures	Level of Significance after Mitigation
EIR Section E Transportation and Circulation (cont.)			
Impact TR-4: The proposed project would result in a substantial increase in transit demand that could not be accommodated by nearby Muni transit capacity.	S	**Mitigation Measure M-TR-4: Increase Capacity on Muni 22 Fillmore and 48 Quintara/Street Routes** The project sponsor shall provide capital costs to the San Francisco Municipal Transportation Agency (SFMTA) that allow for increased capacity on each affected route to be provided in a manner deemed acceptable by SFMTA through the following means: • The project sponsor shall pay the capital costs, adjusted for inflation, for the additional buses that would be necessary to accommodate the projected travel demand within the 85 percent capacity utilization standard. The additional capacity required to reduce the capacity utilization to below the 85 percent standard would be one additional bus on the 48 Quintara/24th Street route when the proposed project is 35 percent built out (i.e., prior to construction of Phase 3 of the project) and one additional bus on the 22 Fillmore route when the project is 65 percent built out (i.e., prior to construction of Phase 5 of the project). While the project sponsor will provide funding for procurement of the two buses, the SFMTA would need to identify funding to pay for the added operating cost associated with operating increased service made possible by the increased vehicle fleet. The source of that funding has not been established. • Alternatively, if the SFMTA determines that the options described below increase capacity along the route would more effectively address the impacts of the project on affected routes at 35 or 65 percent buildout, the project sponsor shall pay an amount equivalent to the cost of two buses toward completion of one or more of the following options, as determined by the SFMTA: – Convert to using higher-capacity vehicles on the 22 Fillmore (or alternative route) and 48 Quintara/24th Street routes. In this case, the project sponsor funding shall be used to pay a portion of the capital costs to convert the route from standard buses (with a capacity of 63 passengers) to articulated buses (with a capacity of 94 passengers). Some bus stops along the routes may not currently be configured to accommodate the longer articulated buses. Some bus zones could likely be extended by removing one or more parking spaces; in some locations, appropriate space may not be available. The project sponsor's contribution may not be adequate to facilitate the full conversion of the route to articulated buses. The source of funding needed to complete the remainder, including improvements to bus stop capacity at all of the bus stops along the route that do not currently accommodate articulated buses, has not yet been established. – Increase bus travel speeds along the route. In this case, the project sponsor's funding would be used to fund a study to identify appropriate and feasible improvements and/or implement a portion of the improvements that would increase bus travel speeds sufficiently to increase capacity along the affected route(s) such that the project's impacts along the route(s) would be determined to be less than	SUM

TABLE S-2 (CONTINUED)
SUMMARY OF IMPACTS OF THE PROPOSED PROJECT—DISCLOSED IN THIS EIR

<table>
<tr><th>Environmental Impact</th><th>Level of Significance prior to Mitigation</th><th>Improvement/Mitigation Measures</th><th>Level of Significance after Mitigation</th></tr>
<tr><td colspan="4">EIR Section E Transportation and Circulation (cont.)</td></tr>
<tr><td>Impact TR-4 (cont.)</td><td></td><td>significant. Increased speeds could be accomplished by funding a portion of the current 16th Street Improvement Project along 16th Street between Church and Kansas streets. Adding a traffic signal with transit signal priority at the intersection of Pennsylvania Avenue/ Street may increase travel speeds on this relatively short segment of the 48 Quintara/24th Street bus route. The project sponsor’s funding may not be adequate to fully achieve the capacity increases needed to reduce the project’s impacts and SFMTA may need to secure additional sources of funding.
– Another option to increase capacity in the vicinity of the project site is to add a new Muni service route in this area. By providing an additional service route, a
percentage of the current transit riders on the 22 Fillmore and 48 Quintara/ Street would likely shift to the new route, lowering the capacity utilization below the 85 percent utilization standard for the 22 Fillmore (or the alternative route) and 48 Quintara/24th Street. The SFMTA may need to secure funding to pay for operating the new route.</td><td></td></tr>
<tr><td>Impact TR-5: The proposed project would result in a substantial increase in delays or operating costs such that significant adverse impacts to Muni would occur.</td><td>S</td><td>Mitigation Measure M-TR-5: Implement Measures to Reduce Transit Delay
<i>Performance Standard.</i> The project sponsor shall be responsible for implementing transportation demand management (TDM) measures to limit the number of project-generated vehicle trips during the p.m. peak hour to a maximum of 89 percent of the EIR-estimated values of each of the phases of project development (performance standard), as shown in the table below. The number of vehicle trips by phase to meet the above stated performance standard shall be included in the approved TDM Plan.
<table>
<tr><th></th><th colspan="2">Maximum P.M. Peak Hour Vehicle Trips</th></tr>
<tr><th>Project Development Phase</th><th>Phase Total</th><th>Running Total</th></tr>
<tr><td>Phase 1</td><td>380</td><td>380</td></tr>
<tr><td>Phase 2</td><td>400</td><td>780</td></tr>
<tr><td>Phase 3</td><td>270</td><td>1,050</td></tr>
<tr><td>Phase 4</td><td>640</td><td>1,690</td></tr>
<tr><td>Phase 5</td><td>300</td><td>1,990</td></tr>
<tr><td>Phase 6</td><td>270</td><td>2,260</td></tr>
</table>
<i>Monitoring and Reporting.</i> Within one year of issuance of the project’s first certificate of occupancy, the project sponsor shall retain a qualified transportation consultant approved by the SFMTA to begin monitoring daily and p.m. peak period (4 p.m. to 7 p.m.) vehicle trips in accordance with an SFMTA and San Francisco Planning Department agreed upon</td><td>SUM</td></tr>
</table>

TABLE S-2 (CONTINUED)
SUMMARY OF IMPACTS OF THE PROPOSED PROJECT—DISCLOSED IN THIS EIR

Environmental Impact	Level of Significance prior to Mitigation	Improvement/Mitigation Measures	Level of Significance after Mitigation
EIR Section E Transportation and Circulation (cont.)			
Impact TR-5 (cont.)		monitoring and reporting plan, which shall be included as a part of the approved TDM Plan. The vehicle data collection shall include counts of the number of vehicles entering and exiting the project site on internal streets at the site boundaries on 22nd, Illinois, and 23rd streets for three weekdays. The data for the three weekdays (Tuesday, Wednesday or Thursday) shall be averaged, and surveys shall be conducted within the same month annually. A document with the results of the annual vehicle counts shall be submitted to the Environmental Review Officer and the SFMTA for review within 30 days of the data collection, or with the project's annual TDM monitoring report as required by the TDM Plan (if the latter is preferable to Environmental Review Officer in consultation with the SFMTA). The project sponsor shall begin submitting monitoring reports to the Planning Department 18 months following 75 percent occupancy of the first phase. Thereafter, annual monitoring reports shall be submitted (referred to as "reporting periods") until eight consecutive reporting periods show that the fully built project has met the performance standard, or until expiration of the project's development agreement, whichever is earlier. If the City finds that the project exceeds the stated performance standard for any development phase, the project sponsor shall select and implement additional TDM measures in order to reduce the number of project-generated vehicle trips to meet the performance standard for that development phase. These measures could include expansion of measures already included in the project's proposed TDM Plan (e.g., providing additional project shuttle routes to alternative destinations, increases in tailored transportation marketing services, etc.), other measures identified in the City's TDM Program Standards Appendix A (as such appendix may be amended by the Planning Department from time to time) that have not yet been included in the project's approved TDM Plan, or, at the project sponsor's discretion, other measures not included in the City's TDM Program Standards Appendix A that the City and the project sponsor agree are likely to reduce peak period driving trips. For any development phase where additional TDM measures are required, the project sponsor shall have 30 months to demonstrate a reduction in vehicle trips to meet the performance standard. If the performance standard is not met within 30 months, the project sponsor shall submit to the Environmental Review Officer and the SFMTA a memorandum documenting proposed methods of enhancing the effectiveness of the TDM measures and/or additional feasible TDM measures that would be implemented by the project sponsor, along with annual monitoring of the project-generated vehicle trips to demonstrate their effectiveness in meeting the performance standard. The comprehensive monitoring and reporting program shall be terminated upon the earlier of (i) expiration of the project's development agreement, or (ii) eight consecutive reporting periods showing that the fully built project has met the performance standard. However, compliance reporting for the City's TDM Program shall continue to be required. If the additional TDM measures do not achieve the performance standard, then the City shall impose additional measures to reduce vehicle trips as prescribed under the development agreement, which may include on-site or off-site capital improvements intended to reduce	

TABLE S-2 (CONTINUED)
SUMMARY OF IMPACTS OF THE PROPOSED PROJECT—DISCLOSED IN THIS EIR

Environmental Impact	Level of Significance prior to Mitigation	Improvement/Mitigation Measures	Level of Significance after Mitigation
EIR Section E Transportation and Circulation (cont.)			
Impact TR-5 (cont.)		vehicle trips from the project. Capital measures may include, but are not limited to, peak period or all-day transit-only lanes (e.g., along 22nd Street), turn pockets, bus bulbs, queue jumps, turn restrictions, pre-paid boarding pass machines, and/or boarding islands, or other measures that support sustainable trip making. The monitoring and reporting plan described above may be modified by the Environmental Review Officer in coordination with the SFMTA to account for transit route or transportation network changes, or major changes to the development program. The modification of the monitoring and reporting plan, however, shall not change the performance standard set forth in this mitigation measure.	
Impact TR-6: The proposed project would not result in a substantial increase in regional transit demand that could not be accommodated by regional transit capacity and would not result in a substantial increase in delays or operating costs such that significant adverse impacts to regional transit would occur.	LTS	No mitigation required.	NA
Impact TR-7: The proposed project would not create hazardous conditions for people walking, or otherwise interfere with accessibility for people walking to the site or adjoining areas, but existing pedestrian facilities could present barriers to accessible pedestrian travel.	S	**Mitigation Measure M-TR-7: Improve Pedestrian Facilities at the Intersection of Illinois Street/22nd Street** In the event that the Pier 70 Mixed-Use District project does not implement improvements at the intersection of Illinois Street/22nd Street, as part of the proposed project's sidewalk improvements on the east side of Illinois Street between 22nd and 23rd streets, the project sponsor shall work with SFMTA to implement the following improvements: • Install a traffic signal, including pedestrian countdown signal heads at the intersection of Illinois Street/22nd Street. • Stripe marked crosswalks in the continental design. • Construct/reconstruct ADA compliant curb ramps at the four corners, as necessary. In the event that the Pier 70 Mixed-Use District project does not implement these improvements, the project sponsor shall be responsible for costs associated with design and implementation of these improvements. The SFMTA shall determine whether the SFMTA or the project sponsor would implement these improvements.	LTS
Impact TR-8: The proposed project would not result in potentially hazardous conditions for bicyclists, or otherwise interfere with bicycle accessibility to the project site or adjacent areas.	LTS	No mitigation required.	NA
Impact TR-9: The proposed project would accommodate its commercial vehicle and passenger loading demand, and proposed project loading operations would not create potentially hazardous conditions or significant delays for transit, bicyclists, or people walking.	LTS	No mitigation required.	NA

TABLE S-2 (CONTINUED)
SUMMARY OF IMPACTS OF THE PROPOSED PROJECT—DISCLOSED IN THIS EIR

Environmental Impact	Level of Significance prior to Mitigation	Improvement/Mitigation Measures	Level of Significance after Mitigation
EIR Section E Transportation and Circulation (cont.)			
Impact TR-10: The proposed project would not result in a substantial parking deficit and thus the project's parking supply would not create potentially hazardous conditions or significant delays affecting transit, bicyclists, or people walking.	LTS	No mitigation required.	NA
Impact TR-11: The proposed project would not result in inadequate emergency vehicle access.	LTS	No mitigation required.	NA
Impact C-TR-1: The proposed project, in combination with past, present, and reasonably foreseeable future projects, would not result in cumulative construction-related transportation impacts.	LTS	No mitigation required. **Improvement Measure I-TR-A: Construction Management Plan and Public Updates** (see Impact TR-1, above)	NA
Impact C-TR-2: The proposed project, in combination with past, present, and reasonably foreseeable future projects, would not contribute considerably to significant cumulative impacts related to VMT.	LTS	No mitigation required.	NA
Impact C-TR-3: The proposed project, in combination with past, present, and reasonably foreseeable future projects, would not result in significant cumulative impacts related to traffic hazards.	LTS	No mitigation required. **Improvement Measure I-TR-B: Monitoring and Abatement of Queues** (see Impact TR-3, above)	NA
Impact C-TR-4: The proposed project, in combination with past, present, and reasonably foreseeable future projects, would contribute considerably to significant cumulative transit impacts related to transit capacity utilization on Muni routes.	S	**Mitigation M-TR-4: Increase Capacity on Muni 22 Fillmore and 48 Quintara/Street Routes** (see Impact TR-4, above).	SUM
Impact C-TR-5: The proposed project, in combination with past, present, and reasonably foreseeable future projects, would contribute considerably to significant cumulative transit impacts related to travel delay or operating costs on Muni.	S	**Mitigation: Mitigation Measure M-TR-5: Implement Measures to Reduce Transit Delay** (see Impact TR-5, above)	SUM
Impact C-TR-6: The proposed project, in combination with past, present, and reasonably foreseeable future projects, would not contribute considerably to significant cumulative transit impacts on regional transit providers.	LTS	No mitigation required.	NA
Impact C-TR-7: The proposed project, in combination with past, present, and reasonably foreseeable future projects, would not result in significant cumulative pedestrian impacts.	LTS	No mitigation required.	NA
Impact C-TR-8: The proposed project, in combination with past, present, and reasonably foreseeable future projects, would not result in significant cumulative bicycle impacts.	LTS	No mitigation required.	NA

TABLE S-2 (CONTINUED)
SUMMARY OF IMPACTS OF THE PROPOSED PROJECT—DISCLOSED IN THIS EIR

Environmental Impact	Level of Significance prior to Mitigation	Improvement/Mitigation Measures	Level of Significance after Mitigation
EIR Section E Transportation and Circulation (cont.)			
Impact C-TR-9: The proposed project, in combination with past, present, and reasonably foreseeable future projects, would not result in significant cumulative loading impacts.	LTS	No mitigation required.	NA
Impact C-TR-10: The proposed project, in combination with past, present, and reasonably foreseeable future projects, would not result in significant cumulative parking impacts.	LTS	No mitigation required.	NA
Impact C-TR-11: The proposed project, in combination with past, present, and reasonably foreseeable future projects, would not result in significant cumulative emergency access impacts.	LTS	No mitigation required.	NA
EIR Section 4.F Noise and Vibration			
Impact NO-1: Project construction could expose people to or generate noise levels in excess of standards in the Noise Ordinance (Article 29 of the San Francisco Police Code) or applicable standards of other agencies.	S	**Mitigation Measure M-NO-1: Construction Noise Control Measures** The project sponsor shall implement construction noise controls as necessary to ensure compliance with the Noise Ordinance limits and to reduce construction noise levels at sensitive receptor locations to the degree feasible. Noise reduction strategies that could be implemented include, but are not limited to, the following: • Require the general contractor to ensure that equipment and trucks used for project construction utilize the best available noise control techniques (e.g., improved mufflers, equipment redesign, use of intake silencers, ducts, engine enclosures, and acoustically-attenuating shields or shrouds). • Require the general contractor to locate stationary noise sources (such as the rock/concrete crusher, or compressors) as far from adjacent or nearby sensitive receptors as possible, to muffle such noise sources, and/or to construct barriers around such sources and/or the construction site, which could reduce construction noise by as much as 5 dBA. To further reduce noise, the contractor shall locate stationary equipment in pit areas or excavated areas, to the maximum extent practicable. • Require the general contractor to use impact tools (e.g., jack hammers, pavement breakers, and rock drills) that are hydraulically or electrically powered wherever possible to avoid noise associated with compressed air exhaust from pneumatically powered tools. Where use of pneumatic tools is unavoidable, an exhaust muffler on the compressed air exhaust shall be used, along with external noise jackets on the tools, which would reduce noise levels by as much as 10 dBA. • Include noise control requirements for construction equipment and tools, including specifically concrete saws, in specifications provided to construction contractors. Such requirements could include, but are not limited to, erecting temporary plywood noise barriers around a construction site, particularly where a site adjoins noise-sensitive uses ; utilizing noise control blankets on a building structure as the building is erected	LTS

TABLE S-2 (CONTINUED)
SUMMARY OF IMPACTS OF THE PROPOSED PROJECT—DISCLOSED IN THIS EIR

Environmental Impact	Level of Significance prior to Mitigation	Improvement/Mitigation Measures	Level of Significance after Mitigation
EIR Section 4.F Noise and Vibration (cont.)			
Impact NO-1 (cont.)		to reduce noise levels emanating from the construction site; performing all work in a manner that minimizes noise; using equipment with effective mufflers; undertaking the most noisy activities during times of least disturbance to surrounding residents and occupants; and selecting haul routes that avoid residential uses. • Prior to the issuance of each building permit, along with the submission of construction documents, submit to the Planning Department and Department of Building Inspection or the Port, as appropriate, a plan to track and respond to complaints pertaining to construction noise. The plan shall include the following measures: (1) a procedure and phone numbers for notifying the San Francisco Department of Building Inspection or the Port, the Department of Public Health, and the Police Department (during regular construction hours and off-hours); (2) a sign posted onsite describing permitted construction days and hours, noise complaint procedures, and a complaint hotline number that shall be answered at all times during construction; (3) designation of an onsite construction compliance and enforcement manager for the project; and (4) notification of neighboring residents and non residential building managers within 3001 feet of the project construction area at least 30 days in advance of extreme noise-generating activities (such as pile driving and blasting) about the estimated duration of the activity. • Wherever pile driving or controlled rock fragmentation/rock drilling is proposed to occur, the construction noise controls shall include as many of the following control strategies as feasible: – Implement “quiet” pile-driving technology such as pre-drilling piles where feasible to reduce construction-related noise and vibration. – Use pile-driving equipment with state-of-the-art noise shielding and muffling devices. – Use pre-drilled or sonic or vibratory drivers, rather than impact drivers, wherever feasible (including slipways) and where vibration-induced liquefaction would not occur. – Schedule pile-driving activity for times of the day that minimize disturbance to residents as well as commercial uses located onsite and nearby. – Erect temporary plywood or similar solid noise barriers along the boundaries of each project block as necessary to shield affected sensitive receptors. – Implement other equivalent technologies that emerge over time. – If controlled rock fragmentation (including rock drills) were to occur at the same time as pile driving activities in the same area and in proximity to noise-sensitive receptors, pile drivers should be set back at least 100 feet while rock drills should be set back at least 50 feet (or vice-versa) from any given sensitive receptor. – If blasting is done as part of controlled rock fragmentation, use of blasting mats and reducing blast size shall be implemented to the extent feasible in order to minimize noise impacts on nearby sensitive receptors.	

TABLE S-2 (CONTINUED)
SUMMARY OF IMPACTS OF THE PROPOSED PROJECT—DISCLOSED IN THIS EIR

Environmental Impact	Level of Significance prior to Mitigation	Improvement/Mitigation Measures	Level of Significance after Mitigation
EIR Section 4.F Noise and Vibration (cont.)			
Impact NO-2: Project construction would cause a substantial temporary or periodic increase in ambient noise levels at noise-sensitive receptors, above levels existing without the project.	S	**Mitigation Measure M-NO-1: Construction Noise Control Measures** (see Impact NO-1, above)	SUM
Impact NO-3: Construction truck traffic would not cause a substantial temporary or periodic increase in ambient noise levels along access streets in the project vicinity	LTS	No Mitigation required. **Improvement Measure I-NO-A: Avoidance of Residential Streets** Trucks should be required to use routes and queuing and loading areas that avoid existing and planned residential uses to the maximum extent feasible, including existing residential development on Third Street (north of 23rd Street), existing residential development on Illinois Street (north of 20th Street), and planned Pier 70 residential development (north of 22nd Street). **Improvement Measure I-TR-A, Construction Management Plan and Public Updates** (see Section 4.E, Transportation and Circulation, Impact TR-1)	NA
Impact NO-4: Project construction would generate excessive groundborne vibration that could result in building damage.	S	**Mitigation Measure M-CR-5e: Historic Preservation Plan and Review Process for Alteration of the Boiler Stack** (see Impact CR-5) **Mitigation Measure M-NO-4a: Construction Vibration Monitoring** The project sponsor shall undertake a monitoring program to ensure that construction-related vibration does not exceed 0.5 in/sec PPV at the Boiler Stack, the American Industrial Center South building, and the Western Sugar Warehouses as required pursuant to Mitigation Measures M-NO-4b (Vibration Control Measures During Controlled Blasting and Pile Driving), M-NO-4c (Vibration Control Measures During Use of Vibratory Equipment), and M-CR-5e (Historic Preservation Plan and Review Process for Alteration of the Boiler Stack). The monitoring program shall include the following components: • Prior to any controlled blasting, pile driving, or use of vibratory construction equipment (vibration-inducing construction), the project sponsor shall engage a historic architect or qualified historic preservation professional and a qualified acoustical/vibration consultant or structural engineer to undertake a pre-construction survey of the Boiler Stack, the American Industrial Center South building, and the Western Sugar Warehouses to document and photograph the buildings' existing conditions. Based on the construction and condition of the resource, a structural engineer or other qualified entity shall establish a maximum vibration level that shall not be exceeded based on existing conditions, character-defining features, soils conditions and anticipated construction practices in use at the time. The qualified consultant shall conduct regular periodic inspections of each historical resource within 80 feet of vibration-inducing construction throughout the duration of vibration-inducing construction. The pre-construction survey and inspections shall be conducted in concert with the Historic Preservation Plan required pursuant to Mitigation Measure M-CR-5e, Historic Preservation Plan and Review Process for Alteration of the Boiler Stack.	LTS

Table S-2 (continued)
Summary of Impacts of the Proposed Project—Disclosed in this EIR

Environmental Impact	Level of Significance prior to Mitigation	Improvement/Mitigation Measures	Level of Significance after Mitigation
EIR Section 4.F Noise and Vibration (cont.)			
Impact NO-4 (cont.)		• Prior to the start of any vibration-inducing construction, the qualified acoustical/vibration consultant or structural engineer shall undertake a pre-construction survey of any offsite structures or onsite structures constructed by the project within 80 feet of such vibration inducing construction. The qualified acoustical/vibration consultant or structural engineer shall conduct periodic inspections of all other non-historic structures throughout the duration of vibration inducing construction. • The qualified historic and acoustical/structural consultant shall submit monitoring reports to San Francisco Planning documenting vibration levels and findings from regular inspections. • Based on planned construction activities for the project and condition of the adjacent structures, an acoustical consultant shall monitor vibration levels at each structure and shall prohibit vibration inducing construction activities that generate vibration levels in excess of 0.5 in/sec PPV. Should vibration levels be observed in excess of 0.5 in/sec PPV or should damage to any structure be observed, construction shall be halted and alternative construction techniques put in practice, to the extent feasible. For example, smaller, lighter equipment might be able to be used or pre-drilled piles could be substituted for driven piles, if soil conditions allow. **Mitigation Measure M-NO-4b: Vibration Control Measures During Controlled Blasting and Pile Driving** Vibration controls shall be specified to ensure that the vibration limit of 0.5 in/sec PPV can be met at all nearby structures when all potential construction-related vibration sources (onsite and offsite) are considered. These controls could include smaller charge sizes if controlled blasting is used, pre-drilling pile holes, using the pulse plasma fragmentation technique, or using smaller vibratory equipment. This vibration limit shall be coordinated with vibration limits required under Mitigation Measure M-BI-4, Fish and Marine Mammal Protection during Pile Driving, to ensure that the lowest of the specified vibration limits is ultimately implemented. **Mitigation Measure M-NO-4c: Vibration Control Measures During Use of Vibratory Equipment** In areas with a “very high” or “high” susceptibility for vibration-induced liquefaction or differential settlement risks, as part of subsequent site-specific geotechnical investigations, the project’s geotechnical engineer shall specify an appropriate vibration limit based on proposed construction activities and proximity to liquefaction susceptibility zones. At a minimum, the vibration limit shall not exceed 0.5 in/sec PPV, unless the geotechnical engineer demonstrates, to the satisfaction of the Environmental Review Officer (ERO), that a higher vibration limit would not result in building damage. The geotechnical engineer shall specify construction practices (such as using smaller equipment or pre-drilling pile holes) required to ensure that construction-related vibration does not cause liquefaction hazards at	

TABLE S-2 (CONTINUED)
SUMMARY OF IMPACTS OF THE PROPOSED PROJECT—DISCLOSED IN THIS EIR

Environmental Impact	Level of Significance prior to Mitigation	Improvement/Mitigation Measures	Level of Significance after Mitigation
EIR Section 4.F Noise and Vibration (cont.)			
Impact NO-4 (cont.)		nearby structures. The project sponsor shall ensure that all construction contractors comply with these specified construction practices. This vibration limit shall be coordinated with vibration limits required under Mitigation Measure M-BI-4, Fish and Marine Mammal Protection during Pile Driving, to ensure that the lowest of the specified vibration limits is ultimately implemented.	
Impact NO-5: Operation of the stationary equipment on the project site could result in a substantial permanent increase in ambient noise levels in the immediate project vicinity, and permanently expose noise-sensitive receptors to noise levels in excess of standards in the San Francisco Noise Ordinance.	S	**Mitigation Measure M-NO-5: Stationary Equipment Noise Controls** For all stationary equipment on the project site, noise attenuation measures shall be incorporated into the design of fixed stationary noise sources to ensure that the noise levels meet section 2909 of the San Francisco Police Code. A qualified acoustical engineer or consultant shall verify the ambient noise level based on noise monitoring and shall design the stationary equipment to ensure that the following requirements of the noise ordinance are met: • Fixed stationary equipment shall not exceed 5 dBA above the ambient noise level at the property plane at the closest residential uses (Blocks 1, 5 - 8, 13 and possibly Blocks 4, 9, 12, and 14, depending on the use ultimately developed) and 8 dBA on blocks where commercial/industrial uses are developed (Blocks 2, 3, 10, 11, and possibly Blocks 4, 12, and 14, depending on the use ultimately developed); • Stationary equipment shall be designed to ensure that the interior noise levels at adjacent or nearby sensitive receptors (residential, hotel, and childcare receptors) do not exceed 45 dBA. Noise attenuation measures could include installation of critical grade silencers, sound traps on radiator exhaust, provision of sound enclosures/barriers, addition of roof parapets to block noise, increasing setback distances from sensitive receptors, provision of intake louvers or louvered vent openings, location of vent openings away from adjacent residential uses, and restriction of generator testing to the daytime hours. The project sponsor shall demonstrate to the satisfaction of the Environmental Review Officer (ERO) that noise attenuation measures have been incorporated into the design of all fixed stationary noise sources to meet these limits prior to approval of a building permit.	LTS
Impact NO-6: Events that include outdoor amplified sound would not result in substantial temporary or periodic increases in ambient noise levels.	LTS	No mitigation required.	NA
Impact NO-7: Proposed rooftop bars and restaurants that include outdoor amplified sound would not result in substantial temporary or periodic increases in ambient noise levels.	LTS	No mitigation required.	NA

TABLE S-2 (CONTINUED)
SUMMARY OF IMPACTS OF THE PROPOSED PROJECT—DISCLOSED IN THIS EIR

Environmental Impact	Level of Significance prior to Mitigation	Improvement/Mitigation Measures	Level of Significance after Mitigation
EIR Section 4.F Noise and Vibration (cont.)			
Impact NO-8: Project traffic would result in a substantial permanent increase in ambient noise levels.	S	**Mitigation Measure M-TR-5: Implement Measures to Reduce Transit Delay** (see Impact TR-5) **Mitigation Measure M-NO-8: Design of Future Noise-Sensitive Uses** Prior to issuance of a building permit for vertical construction of a residential building or a building with childcare or hotel uses, a qualified acoustical consultant shall conduct a noise study to determine the need to incorporate noise attenuation features into the building design in order to meet a 45-dBA interior noise limit. This evaluation shall be based on noise measurements taken at the time of the building permit application and the future cumulative traffic (year 2040) noise levels expected on roadways located on or adjacent to the project site (i.e., 67 dBA on Illinois Street, 66 dBA on 22nd Street, 60 dBA on Humboldt Street, and 64 dBA on 23rd Street at 50 feet from roadway centerlines) to identify the STC ratings required to meet the 45-dBA interior noise level. The noise study and its recommendations and attenuation measures shall be incorporated into the final design of the building and shall be submitted to the San Francisco Department of Building Inspection for review and approval. The project sponsor shall implement recommended noise attenuation measures from the approved noise study as part of final project design for buildings that would include residential, hotel, and childcare uses.	SUM
Impact C-NO-1: Cumulative construction of the proposed project combined with construction of other past, present, and reasonably foreseeable future projects would cause a substantial temporary or periodic increase in ambient noise levels.	S	**Mitigation Measure M-NO-1: Construction Noise Control Measures** (see Impact NO-1, above) **Mitigation Measure M-NO-4a: Vibration Control Measures During Controlled Blasting and Pile Driving** (see Impact NO-4, above) **Improvement Measure I-NO-A: Avoidance of Residential Streets** (see Impact NO-3 above) **Improvement Measure I-TR-A, Construction Management Plan and Public Updates** (see Impact TR-1)	SUM
Impact C-NO-2: Cumulative traffic increases would cause a substantial permanent increase in ambient noise levels in the project vicinity.	S	**Mitigation Measure M-TR-5: Implement Measures to Reduce Transit Delay** (see, Impact TR-5)	SUM
EIR Section 4.G Air Quality			
Impact AQ-1: During construction the proposed project would not generate fugitive dust but would not violate an air quality particulate standard, contribute substantially to an existing or projected particulate violation, or result in a cumulatively considerable net increase in particulate concentrations.	LTS	No mitigation required.	NA

TABLE S-2 (CONTINUED)
SUMMARY OF IMPACTS OF THE PROPOSED PROJECT—DISCLOSED IN THIS EIR

Environmental Impact	Level of Significance prior to Mitigation	Improvement/Mitigation Measures	Level of Significance after Mitigation
EIR Section 4.G Air Quality (cont.)			
Impact AQ-2: During construction (including construction phases that overlap with project operations), the proposed project would generate criteria air pollutants which would violate an air quality standard, contribute substantially to an existing or projected air quality violation, or result in a cumulatively considerable net increase in criteria air pollutants.	S	**Mitigation Measure M-AQ-2a: Construction Emissions Minimization** The project sponsor or the project sponsor's contractor shall comply with the following: *A.* ***Engine Requirements*.** 1. The project sponsor shall also ensure that all on-road heavy-duty diesel trucks with a gross vehicle weight rating of 19,500 pounds or greater used at the project site (such as haul trucks, water trucks, dump trucks, and concrete trucks) be model year 2010 or newer. 2. All off-road equipment (including water construction equipment used onboard barges) greater than 25 horse power shall have engines that meet Tier 4 Final off-road emission standards. Tugs shall comply with U.S. EPA Tier 3 Marine standards for Marine Diesel Engine Emissions. 3. Since grid power will be available, portable diesel engines shall be prohibited. 4. Renewable diesel shall be used to fuel all diesel engines if it can be demonstrated to the Environmental Review Officer (ERO) that it is compatible with on-road or off-road engines and that emissions of ROG and NOx from the transport of fuel to the project site will not offset its NOx reduction potential. 5. Diesel engines, whether for off-road or on-road equipment, shall not be left idling for more than two minutes, at any location, except as provided in exceptions to the applicable state regulations regarding idling for off-road and on-road equipment (e.g., traffic conditions, safe operating conditions). The contractor shall post legible and visible signs in English, Spanish, and Chinese, in designated queuing areas and at the construction site to remind operators of the two-minute idling limit. 6. The contractor shall instruct construction workers and equipment operators on the maintenance and tuning of construction equipment, and require that such workers and operators properly maintain and tune equipment in accordance with manufacturer specifications. *B.* ***Waivers.*** The ERO may waive the equipment requirements of Subsection (A)(1) if: a particular piece of off-road equipment is technically not feasible; the equipment would not produce desired emissions reduction due to expected operating modes; installation of the equipment would create a safety hazard or impaired visibility for the operator; or, there is a compelling emergency need to use other off-road equipment. If the ERO grants the waiver, the contractor must use the next cleanest piece of off-road equipment, according to the table below.	SUM

TABLE S-2 (CONTINUED)
SUMMARY OF IMPACTS OF THE PROPOSED PROJECT—DISCLOSED IN THIS EIR

Environmental Impact	Level of Significance prior to Mitigation	Improvement/Mitigation Measures	Level of Significance after Mitigation
EIR Section 4.G Air Quality (cont.)			
Impact AQ-2 (cont.)		The ERO may waive the equipment requirements of Subsection (A)(2) if: a particular piece of off-road equipment with an engine meeting Tier 4 Final emission standards is not regionally available to the satisfaction of the ERO. If seeking a waiver from this requirement, the project sponsor must demonstrate to the satisfaction of the ERO that the health risks from existing sources, project construction and operation, and cumulative sources do not exceed a total of 10 µg/m3 or 100 excess cancer risks for any onsite or offsite receptor. The ERO may waive the equipment requirements of Subsection (A)(3) if: an application has been submitted to initiate on-site electrical power, portable diesel engines may be temporarily operated for a period of up to three weeks until on site electrical power can be initiated or, there is a compelling emergency. C. ***Construction Emissions Minimization Plan.*** Before starting onsite construction activities, the contractor shall submit a Construction Emissions Minimization Plan to the ERO for review and approval. The plan shall state, in reasonable detail, how the contractor will meet the requirements of Section A, Engine Requirements. 1. The Construction Emissions Minimization Plan shall include estimates of the construction timeline by phase, with a description of each piece of off-road equipment required for every construction phase. The description 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 usage and hours of operation. For off-road equipment using alternative fuels, the description shall also specify the type of alternative fuel being used. 2. The project sponsor shall ensure that all applicable requirements of the Construction Emissions Minimization Plan have been incorporated into the contract specifications. The plan shall include a certification statement that the contractor agrees to comply fully with the plan. 3. The contractor shall make the Construction Emissions Minimization Plan available to the public for review onsite during working hours. The contractor shall post at the construction site a legible and visible sign summarizing the plan. The sign shall also state that the public may ask to inspect the plan for the project at any time during working hours and shall explain how to request to inspect the plan. The contractor shall post at least one copy of the sign in a visible location on each side of the construction site facing a public right-of-way. *D.* ***Monitoring.*** After start of construction activities, the contractor shall submit quarterly reports to the ERO documenting compliance with the Construction Emissions Minimization Plan. After completion of construction activities and prior to receiving a final certificate of occupancy, the project sponsor shall submit to the ERO a final report summarizing construction activities, including the start and end dates and duration of each construction phase, and the specific information required in the plan.	

TABLE S-2 (CONTINUED) SUMMARY OF IMPACTS OF THE PROPOSED PROJECT—DISCLOSED IN THIS EIR

Environmental Impact	Level of Significance prior to Mitigation	Improvement/Mitigation Measures	Level of Significance after Mitigation
EIR Section 4.G Air Quality (cont.)			
Impact AQ-2 (cont.)		**Mitigation Measure M-AQ-2b: Diesel Backup Generator Specifications** To reduce NOx associated with operation of the proposed project, the project sponsor shall implement the following measures. A. All new diesel backup generators shall: 1. Have engines that meet or exceed California Air Resources Board Tier 4 off-road emission standards which have the lowest NOx emissions of commercially available generators; and 2. Be fueled with renewable diesel, if commercially available[1], which has been demonstrated to reduce NOx emissions by approximately 10 percent. B. All new diesel backup generators shall have an annual maintenance testing limit of 50 hours, subject to any further restrictions as may be imposed by the Bay Area Air Quality Management District in its permitting process. C. For each new diesel backup generator permit submitted to Bay Area Air Quality Management District for the project, the project sponsor shall submit the anticipated location and engine specifications to the San Francisco Planning Department environmental review officer for review and approval prior to issuance of a permit for the generator from the San Francisco Department of Building Inspection. 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 shall be required to be consistent with these emissions specifications. The operator of the facility at which the generator is located shall be required to maintain records of the testing schedule for each diesel backup generator for the life of that diesel backup generator and to provide this information for review to the planning department within three months of requesting such information. **Mitigation Measure M-AQ-2c: Promote Use of Green Consumer Products** The project sponsor shall provide educational programs and/or materials for residential and commercial tenants concerning green consumer products. Prior to receipt of any certificate of final occupancy and every five years thereafter, the project sponsor shall work with the San Francisco Department of Environment to develop electronic correspondence to be distributed by email annually to residential and/or commercial tenants of each building on the project site that encourages the purchase of consumer products that generate lower than typical VOC emissions. The correspondence shall encourage environmentally preferable purchasing and shall include contact information and website links to SF Approved (www.sfapproved.org). This website also may be used as an informational resource by businesses and residents.	

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[1] Neste MY renewable Diesel is available in the Bay Area through Western States Oil.

TABLE S-2 (CONTINUED)
SUMMARY OF IMPACTS OF THE PROPOSED PROJECT—DISCLOSED IN THIS EIR

Environmental Impact	Level of Significance prior to Mitigation	Improvement/Mitigation Measures	Level of Significance after Mitigation
EIR Section 4.G Air Quality (cont.)			
Impact AQ-2 (cont.)		**Mitigation Measure M-AQ-2d: Electrification of Loading Docks** The project sponsor shall ensure that loading docks for retail, light industrial, or warehouse uses that will receive deliveries from refrigerated transport trucks incorporate electrification hook-ups for transportation refrigeration units to avoid emissions generated by idling refrigerated transport trucks. **Mitigation Measure M-TR-5, Implement Measures to Reduce Transit Delay** (see Impact TR-5, above) **Mitigation Measure M-AQ-2e: Additional Mobile Source Control Measures** The following Mobile Source Control Measures from the Bay Area Air Quality Management District's 2010 Clean Air Plan shall be implemented: • Promote use of clean fuel-efficient vehicles through preferential (designated and proximate to entry) parking and/or installation of charging stations beyond the level required by the City's Green Building code, from 8 to 20 percent. • Promote zero-emission vehicles by requesting that any car share program operator include electric vehicles within its car share program to reduce the need to have a vehicle or second vehicle as a part of the TDM program that would be required of all new developments. **Mitigation Measure M-AQ-2f: Offset Construction and Operational Emissions** Prior to issuance of the final certificate of occupancy for the final building associated with Phase 1, the project sponsor, with the oversight of the Environmental Review Officer (ERO), shall either: (1) ***Directly fund or implement a specific offset project within San Francisco*** to achieve equivalent to a one-time reduction of 12 tons per year of ozone precursors. This offset is intended to offset the combined emissions from construction and operations remaining above significance levels after implementing the other mitigation measures discussed. To qualify under this mitigation measure, the specific emissions offset project must result in emission reductions within the San Francisco Bay Area Air Basin that would not otherwise be achieved through compliance with existing regulatory requirements. A preferred offset project would be one implemented locally within the City and County of San Francisco. Prior to implementing the offset project, it must be approved by the ERO. The project sponsors shall notify the ERO within six (6) months of completion of the offset project for verification; or (2) ***Pay mitigation offset*** fees in two installments to the Bay Area Air Quality Management District Bay Area Clean Air Foundation. The mitigation offset fee, currently estimated at approximately $30,000 per weighted ton, plus an administrative fee of no more than five percent of the total offset, shall fund one or more emissions reduction projects within the San Francisco Bay Area Air Basin. The fee will be determined by the planning department, the project sponsor and the air district, and be based on the type of projects	

TABLE S-2 (CONTINUED)
SUMMARY OF IMPACTS OF THE PROPOSED PROJECT—DISCLOSED IN THIS EIR

Environmental Impact	Level of Significance prior to Mitigation	Improvement/Mitigation Measures	Level of Significance after Mitigation
EIR Section 4.G Air Quality (cont.)			
Impact AQ-2 (cont.)		available at the time of the payment. This fee is intended to fund emissions reduction projects to achieve reductions that may total up to 16 tons of ozone precursors per year, which is the amount required to reduce emissions below significance levels after implementation of other identified mitigation measures as currently calculated. The offset fee shall be made prior to issuance of the final certificate of occupancy for the final building associated with Phase 1 of the project (or an equivalent of approximately 360,000 square feet of residential, 176,000 square feet of office, 16,000 square feet of retail, 15,000 square feet of PDR, 240,000 square feet of hotel, and 25,000 square feet of assembly) when the combination of construction and operational emissions is predicted to first exceed 54 pounds per day. This offset payment shall total the predicted 13 tons per year of ozone precursors above the 10 ton per year threshold after implementation of Mitigation Measures M-AQ-2a though M-AQ-2e and M-TR-5. The total emission offset amount was calculated by summing the maximum daily construction and operational emissions of ROG and NOX (pounds/day), multiplying by 260 work days per year for construction and 365 days per year for operation, and converting to tons. The amount represents the total estimated operational and construction-related ROG and NOx emissions offsets required. (3) ***Additional mitigation offset fee***. The need for an additional mitigation offset payment shall be determined as part of the performance standard assessment of Mitigation Measure M-TR-5. If at that time, it is determined that implementation of Mitigation Measure M-TR-5 has successfully achieved its targeted trip reduction at project buildout, or the project sponsor demonstrates that the project's emissions upon the earlier of: (a) full build-out or (b) termination of the Development Agreement are less than the 10-ton-per-year thresholds for ROG and NOx, then no further installment shall be required. However, if the performance standard assessment determines that the trip reduction goal has not been achieved, and the project sponsor is unable to demonstrate that the project's emissions upon the earlier of: (a) full build-out or (b) termination of the Development Agreement are less than the 10-ton-per-year thresholds for ROG and NOx, then an additional offset payment shall be made in an amount reflecting the difference in emissions, in tons per year of ROG and NOx, represented by the shortfall in trip reduction. Documentation of mitigation offset payments, as applicable, shall be provided to the planning department. When paying a mitigation offset fee, the project sponsor shall enter into a memorandum of understanding (MOU) with the Bay Area Air Quality Management District Clean Air Foundation. The MOU shall include details regarding the funds to be paid, the administrative fee, and the timing of the emissions reductions project. Acceptance of this fee by the air district shall serve as acknowledgment and a commitment to (1) implement an emissions reduction project(s) within a time frame to be determined, based on the type of project(s) selected, after receipt of the mitigation fee to achieve the emissions reduction objectives specified above and (2) provide documentation to the planning department and the project sponsor describing the project(s) funded by the mitigation fee, including the amount of emissions of ROG and NOx reduced (tons per year) within the San Francisco	

TABLE S-2 (CONTINUED)
SUMMARY OF IMPACTS OF THE PROPOSED PROJECT—DISCLOSED IN THIS EIR

Environmental Impact	Level of Significance prior to Mitigation	Improvement/Mitigation Measures	Level of Significance after Mitigation
EIR Section 4.G Air Quality (cont.)			
Impact AQ-2 (cont.)		Bay Area Air Basin from the emissions reduction project(s). To qualify under this mitigation measure, the specific emissions reduction project must result in emission reductions within the basin that are real, surplus, quantifiable, and enforceable and would not otherwise be achieved through compliance with existing regulatory requirements or any other legal requirement. The requirement to pay such mitigation offset fee shall terminate if the project sponsor is able to demonstrate that the project's emissions upon the earlier of: (a) full build-out or (b) termination of the Development Agreement are less than the 10-ton-per-year thresholds for ROG and NOx.	
Impact AQ-3: During project operations, the proposed project would result in emissions of criteria air pollutants at levels that would violate an air quality standard, contribute to an existing or projected air quality violation, or result in a cumulatively considerable net increase in criteria air pollutants.	S	**Mitigation Measure M-AQ-2b: Diesel Backup Generator Specifications** (see Impact AQ-2) **Mitigation Measure M-AQ-2c: Promote Use of Green Consumer Products** (see Impact AQ-2, above) **Mitigation Measure M-AQ-2d: Electrification of Loading Docks** (see Impact AQ-2, above) **Mitigation Measure M-TR-5, Implement Measure to Reduce Transit Delay** (see Section 4.E, Transportation and Circulation) **Mitigation Measure M-AQ-2e: Additional Mobile Source Control Measures** (see Impact AQ-2, above) **Mitigation Measure M-AQ-2f: Offset Construction and Operational Emissions** (see Impact AQ-2, above)	SUM
Impact AQ-4: Construction and operation of the proposed project would generate toxic air contaminants, including diesel particulate matter, which could expose sensitive receptors to substantial pollutant concentrations.	S	**Mitigation Measure M-AQ-2a: Construction Emissions Minimization** (see Impact AQ-2, above) **Mitigation Measure M-AQ-2b: Diesel Backup Generator Specifications** (see Impact AQ-2, above) **Mitigation Measure AQ-4: Siting of Uses that Emit Toxic Air Contaminants** For new development including R&D/life science uses and PDR use or other uses that would be expected to generate toxic air contaminants (TACs) as part of everyday operations, prior to issuance of the certificate of occupancy, the project sponsor shall obtain written verification from the Bay Area Air Quality Management District either that the facility has been issued a permit from the air district, if required by law, or that permit requirements do not apply to the facility. However, since air district could potentially issue multiple separate permits to operate that could cumulatively exceed an increased cancer risk of 10 in one million, the project sponsor shall also submit written verification to the San Francisco Planning Department that increased cancer risk associated with all such uses does not cumulatively exceed 10 in one million at any onsite receptor. This measure shall be applicable, at a minimum, to the following uses and any other potential uses that may emit TACs: gas dispensing facilities; auto body shops; metal plating shops; photographic processing shops; appliance repair shops; mechanical assembly cleaning; printing shops; medical clinics; laboratories, and biotechnology research facilities.	LTS

TABLE S-2 (CONTINUED) SUMMARY OF IMPACTS OF THE PROPOSED PROJECT—DISCLOSED IN THIS EIR

Environmental Impact	Level of Significance prior to Mitigation	Improvement/Mitigation Measures	Level of Significance after Mitigation
EIR Section 4.G Air Quality (cont.)			
Impact AQ-5: The proposed project could conflict with implementation of the Bay Area 2017 Clean Air Plan.	S	**Mitigation Measure M-AQ-2a: Construction Emissions Minimization** (see Impact AQ-2, above) **Mitigation Measure M-AQ-2b: Diesel Backup Generator Specifications** (see Impact AQ-2, above) **Mitigation Measure M-AQ-2d: Electrification of Loading Docks** (see Impact AQ-2, above) **Mitigation Measure M-TR-5: Implement Measures to Reduce Transit Delay** (see Section 4.E, Transportation and Circulation) **Mitigation Measure M-AQ-2e: Additional Mobile Source Control Measures** (see Impact AQ-2, above) **Mitigation Measure M-AQ-4: Siting of Uses that Emit Toxic Air Contaminants** (see Impact AQ-4, above) **Mitigation Measure AQ-5: Include Spare the Air Telecommuting Information in Transportation Welcome Packets** The project sponsor shall include dissemination of information on Spare The Air Days within the San Francisco Bay Area Air Basin as part of transportation welcome packets and ongoing transportation marketing campaigns. This information shall encourage employers and employees, as allowed by their workplaces, to telecommute on Spare The Air Days.	LTS
Impact AQ-6: The proposed project would not create objectionable odors that would affect a substantial number of people.	LTS	No mitigation required.	NA
Impact C-AQ-1: The proposed project, in combination with past, present, and reasonably foreseeable future development in the project area, would contribute to cumulative regional air quality impacts.	S	**Mitigation Measure M-AQ-2a: Construction Emissions Minimization** (see Impact AQ-2, above) **Mitigation Measure M-AQ-2b: Diesel Backup Generator Specifications** (see Impact AQ-2, above) **Mitigation Measure M-AQ-2c: Promote Use of Green Consumer Products** (see Impact AQ-2, above) **Mitigation Measure M-AQ-2d: Electrification of Loading Docks** (see Impact AQ-2, above) **Mitigation Measure M-TR-5, Implement Measures to Reduce Transit Delay** (see Section 4.E, Transportation and Circulation) **Mitigation Measure M-AQ-2e: Additional Mobile Source Control Measures** (see Impact AQ-2, above) **Mitigation Measure M-AQ-2f: Offset Operational Emissions** (see Impact AQ-1, above)	SUM

TABLE S-2 (CONTINUED)
SUMMARY OF IMPACTS OF THE PROPOSED PROJECT—DISCLOSED IN THIS EIR

Environmental Impact	Level of Significance prior to Mitigation	Improvement/Mitigation Measures	Level of Significance after Mitigation
EIR Section 4.G Air Quality (cont.)			
Impact C-AQ-2: The proposed project, in combination with past, present, and reasonably foreseeable future development in the project area, could contribute to cumulative health risk impacts on sensitive receptors.	S	**Mitigation Measures M-AQ-2a: Construction Emissions Minimization** (see Impact AQ-2, above)	LTS
EIR Section 4.H Wind and Shadow			
Impact WS-1: Full build out of the proposed project would not alter wind in a manner that substantially affects public areas on or near the project site.	LTS	**Improvement Measure I-WS-1: Wind Reduction Features for Block 1** As part of the schematic design of building(s) on Block 1, the project sponsor and the Block 1 architect(s) should consult with a qualified wind consultant regarding design treatments to minimize pedestrian-level winds created by development on Block 1, with a focus on the southwest corner of the block. Design treatments could include, but need not be limited to, inclusion of podium setbacks, terraces, architectural canopies or screens, vertical or horizontal fins, chamfered corners, and other articulations to the building façade. If such building design measures are found not to be effective, landscaping (trees and shrubs), street furniture, and ground-level fences or screens may be considered. If recommended by the qualified wind consultant, the project sponsor should subject the building(s) proposed for this block to wind tunnel testing prior to the completion of schematic design. The goal of this measure is to improve pedestrian wind conditions resulting from the development of Block 1. The project sponsor should incorporate into the design of the Block 1 building(s) any wind reduction features recommended by the qualified wind consultant.	NA
Impact WS-2: The phased construction of the proposed project could alter wind in a manner that substantially affects public areas on or near the project site.	S	**Mitigation Measure M-WS-2: Identification and Mitigation of Interim Hazardous Wind Impacts** Prior to the approval of building plans for construction of any proposed building, or a building within a group of buildings to be constructed simultaneously, at a height of 85 feet or greater, the project sponsor (including any subsequent developer) shall submit to the San Francisco Planning Department for review and approval a wind impact analysis of the proposed building(s). The wind impact analysis shall be conducted by a qualified wind consultant. The wind impact analysis shall consist of a qualitative analysis of whether the building(s) under review could result in winds throughout the wind test area (as identified in the EIR) exceeding the 26-mph wind hazard criterion for more hours or at more locations than identified for full project buildout in the EIR. That is, the evaluation shall determine whether partial buildout conditions would worsen wind hazard conditions for the project as a whole. The analysis shall compare the exposure, massing, and orientation of the proposed building(s) to the same building(s) in the representative massing models for the proposed project and shall include any then-existing buildings and those under construction. The wind consultant shall review the proposed building(s) design taking into account feasible wind reduction features including, but not necessarily limited to, inclusion of podium setbacks, terraces, architectural canopies or screens, vertical or horizontal fins, chamfered corners, and other articulations to the building façade. If such building design measures are found not to be effective, landscaping (trees and shrubs), street furniture, and ground-level fences or screens may be considered. Comparable	SUM

TABLE S-2 (CONTINUED)
SUMMARY OF IMPACTS OF THE PROPOSED PROJECT—DISCLOSED IN THIS EIR

Environmental Impact	Level of Significance prior to Mitigation	Improvement/Mitigation Measures	Level of Significance after Mitigation
EIR Section 4.H Wind and Shadow (cont.)			
Impact WS-2 (cont.)		temporary wind reduction features (i.e., those that would be erected on a vacant site and removed when the site is developed) may be considered. The project sponsor shall incorporate into the design of the building(s) any wind reduction features recommended by the qualified wind consultant. If the wind consultant is unable to determine that the building(s) under consideration would not result in a net increase in hazardous wind hours or locations under partial buildout conditions compared to full buildout conditions, the building(s) under review shall undergo wind tunnel testing. The wind tunnel testing shall evaluate the building(s) to determine whether an adverse impact would occur. An adverse wind impact is defined as an aggregate net increase of 1 hour during which, and/or a net increase of 2 locations at which, the wind hazard criterion is exceeded, compared to full buildout conditions identified in the EIR and based on the existing conditions at the time of the subsequent wind tunnel test. As used herein, the existing conditions at the time of the subsequent testing shall include any completed or under construction buildings on the project site. As with the qualitative review above, the evaluation shall determine whether partial buildout conditions would worsen wind hazard conditions for the project as a whole. Accordingly, wind tunnel testing, if required, would include the same test area and test points as were evaluated in the EIR. If the building(s) would result in an adverse impact, as defined herein, additional wind tunnel testing of mitigation strategies would be undertaken until no adverse effect is identified, and the resulting mitigation strategies shall be incorporated into the design of the proposed building(s) and building site(s). All feasible means as determined by the Environmental Review Officer (such as reorienting certain buildings, sculpting buildings to include podiums and terraces or other wind reduction treatments noted above or identified by the qualified wind consultant, or installing landscaping) to eliminate hazardous winds, if predicted, shall be implemented.	
Impact WS-3: The proposed project would not create new shadow in a manner that substantially affects outdoor recreation facilities or other public areas.	LTS	No mitigation required.	NA
Impact C-WS-1: The proposed project at full buildout, when combined with other cumulative projects, would not alter wind in a manner that substantially affects public areas.	LTS	No mitigation required.	NA
Impact C-WS-2: The proposed project, in combination with past, present, and reasonably foreseeable future projects in the project vicinity, would not create new shadow in a manner that substantially affects outdoor recreation facilities or other public areas.	LTS	No mitigation required.	NA

TABLE S-2 (CONTINUED)
SUMMARY OF IMPACTS OF THE PROPOSED PROJECT—DISCLOSED IN THIS EIR

Environmental Impact	Level of Significance prior to Mitigation	Improvement/Mitigation Measures	Level of Significance after Mitigation
EIR Section 4.I Biological Resources			
Impact BI-1: Construction of the proposed project could have a substantial adverse effect either directly or through habitat modifications on migratory birds and/or on bird species identified as special status in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.	S	**Mitigation Measure M-BI-1: Nesting Bird Protection Measures** The project sponsor shall require that all construction contractors implement the following measures for each construction phase to ensure protection of nesting birds and their nests during construction: 1. To the extent feasible, conduct initial project activities outside of the nesting season (January 15–August 15). These activities include, but are not limited to: vegetation removal, tree trimming or removal, ground disturbance, building demolition, site grading, and other construction activities that may impact nesting birds or the success of their nests (e.g., controlled rock fragmentation, blasting, or pile driving). 2. For construction activities that occur during the bird nesting season, a qualified wildlife biologist[2] shall conduct pre-construction nesting surveys within 14 days prior to the start of construction or demolition at areas that have not been previously disturbed by project activities or after any construction breaks of 14 days or more. Surveys shall be performed for suitable habitat within 100 feet of the project site in order to locate any active passerine (perching bird) nests and within 100 feet of the project site to locate any active raptor (birds of prey) nests, waterbird nesting pairs, or colonies. 3. If active nests protected by federal or state law[3] are located during the preconstruction bird nesting surveys, a qualified biologist shall evaluate if the schedule of construction activities could affect the active nests and if so, the following measures would apply: a. If construction is not likely to affect the active nest, construction may proceed without restriction; however, a qualified biologist shall regularly monitor the nest at a frequency determined appropriate for the surrounding construction activity to confirm there is no adverse effect. The qualified biologist would determine spot-check monitoring frequency on a nest-by-nest basis considering the particular construction activity, duration, proximity to the nest, and physical barriers that may screen activity from the nest. The qualified biologist may revise his/her determination at any time during the nesting season in coordination with the Environmental Review Officer (ERO). 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 shall halt within the buffer until a qualified biologist determines the nest is no longer in use.	LTS

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[2] Typical experience requirements for a "qualified biologist" include a minimum of four years of academic training and professional experience in biological sciences and related resource management activities, and a minimum of two years of experience conducting surveys for each species that may be present within the project area.

[3] These would include species protected by FESA, MBTA, CESA, and California Fish and Game Code and does not apply to rock pigeon, house sparrow, or European starling. USFWS and CDFW are the federal and state agencies, respectively, with regulatory authority over protected birds and are the agencies who would be engaged with if nesting occurs onsite and protective buffer distances and/or construction activities within such a buffer would need to be modified while a nest is still active.

TABLE S-2 (CONTINUED)
SUMMARY OF IMPACTS OF THE PROPOSED PROJECT—DISCLOSED IN THIS EIR

Environmental Impact	Level of Significance prior to Mitigation	Improvement/Mitigation Measures	Level of Significance after Mitigation
EIR Section 4.I Biological Resources (cont.)			
Impact BI-1 (cont.)		Given the developed condition of the site, initial buffer distances are 100 to 250 feet for passerines and 100 to 500 feet for raptors; however, the qualified biologist may adjust the buffers based on the nature of proposed activities or site specific conditions. 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 ERO, who would notify CDFW. d. Any work that must occur within established no-disturbance buffers around active nests shall be monitored by a qualified biologist. If the qualified biologist observes adverse effects in response to project work within the buffer that could compromise the active nest, work within the no-disturbance buffer(s) shall halt until the nest occupants have fledged. e. With some exceptions, birds that begin nesting within the project area amid construction activities are assumed to be habituated to construction-related or similar noise and disturbance levels. Exclusion zones around such nests may be reduced or eliminated in these cases as determined by the qualified biologist in coordination with the ERO, who would notify CDFW. Work may proceed around these active nests as long as the nests and their occupants are not directly impacted.	
Impact BI-2: Operation of the proposed project would not have a substantial adverse effect either directly or through habitat modifications on migratory birds and/or on bird species identified as special status in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.	LTS	No mitigation required.	NA
Impact BI-3: Construction of the proposed project could have a substantial adverse effect either directly or through habitat modification on bats identified as special-status in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service.	S	**Mitigation Measure M-BI-3: Avoidance and Minimization Measures for Bats** A qualified biologist[4] 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 rehabilitation activities to conduct a pre-construction habitat assessment of the project site (focusing on buildings to be demolished or rehabilitated under the project) 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 site (e.g., guano, urine staining, dead bats, etc.).	LTS

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[4] Typical experience requirements for a qualified biologist include a minimum of four years of academic training and professional experience in biological sciences and related resource management activities, and a minimum of two years of experience conducting surveys for each species that may be present within the project area.

TABLE S-2 (CONTINUED)
SUMMARY OF IMPACTS OF THE PROPOSED PROJECT—DISCLOSED IN THIS EIR

Environmental Impact	Level of Significance prior to Mitigation	Improvement/Mitigation Measures	Level of Significance after Mitigation
EIR Section 4.I Biological Resources (cont.)			
Impact BI-3 (cont.)		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 rehabilitated under the proposed project: 1. In areas identified as potential roosting habitat during the habitat assessment, initial building demolition or rehabilitation 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*.[5] 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 rehabilitation. 3. If active bat roosts or evidence of roosting is identified during pre-construction surveys, 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 the California Department of Fish and Wildlife. 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 avoidance measures. 5. The qualified biologist shall be present during building demolition or rehabilitation if potential bat roosting habitat or active bat roosts are present. Buildings 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 rehabilitation 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.	

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[5] Torpor refers to a state of decreased physiological activity with reduced body temperature and metabolic rate.

TABLE S-2 (CONTINUED)
SUMMARY OF IMPACTS OF THE PROPOSED PROJECT—DISCLOSED IN THIS EIR

Environmental Impact	Level of Significance prior to Mitigation	Improvement/Mitigation Measures	Level of Significance after Mitigation
EIR Section 4.I Biological Resources (cont.)			
Impact BI-4: Construction of the proposed project could have a substantial adverse effect, either directly or through habitat modification, on marine species identified as a candidate, sensitive, or special-status species in local or regional plans, policies or regulations, or by the California Department of Fish and Wildlife, U.S. Fish and Wildlife Service, or National Oceanic and Atmospheric Administration.	S	**Mitigation Measure M-BI-4: Fish and Marine Mammal Protection during Pile Driving** Prior to the start of any in-water construction that would require pile driving, the project sponsor shall prepare a National Marine Fisheries Service-approved sound attenuation monitoring plan to protect fish and marine mammals, and the approved plan shall be implemented during construction. This plan shall provide detail 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. The plan shall incorporate, but not be limited to, the following best management practices: • All in-water construction 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 National Marine Fisheries Service 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 National Marine Fisheries Service pile driving thresholds are exceeded, a bubble curtain or other sound attenuation method as described in the National Marine Fisheries Service-approved sound attenuation monitoring plan shall be utilized to reduce sound levels below the criteria described above. If National Marine Fisheries Service sound level criteria are still exceeded with the use of attenuation methods, a National Marine Fisheries Service-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 National Marine Fisheries Service 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.	LTS

TABLE S-2 (CONTINUED)
SUMMARY OF IMPACTS OF THE PROPOSED PROJECT—DISCLOSED IN THIS EIR

Environmental Impact	Level of Significance prior to Mitigation	Improvement/Mitigation Measures	Level of Significance after Mitigation
EIR Section 4.I Biological Resources (cont.)			
Impact BI-4 (cont.)		This noise level limit shall be coordinated with vibration limits required under Mitigation Measures M-NO-4a, Construction Vibration Monitoring, M-NO-4b, Vibration Control Measures During Controlled Blasting and Pile Driving, and M-NO-4c, Vibration Control Measures During Use of Vibratory Equipment, to ensure that the lowest of the specified vibration limits is ultimately implemented.	
Impact BI-5: Operation of the proposed project would not have a substantial adverse effect, either directly or through habitat modification, on marine species identified as a candidate, sensitive, or special-status species in local or regional plans, policies or regulations, or by the California Department of Fish and Wildlife, U.S. Fish and Wildlife Service, or National Marine Fisheries Service.	LTS	No mitigation required.	NA
Impact BI-6: Construction and operation of the proposed project would not have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game U.S. Fish and Wildlife Service, or the National Marine Fisheries Service.	LTS	No mitigation required.	NA
Impact BI-7: Construction of the proposed project could have a substantial adverse effect on San Francisco Bay through direct removal, filling, hydrological interruption, or other means.	S	**Mitigation Measure M-BI-7: Compensation for Fill of Jurisdictional Waters** The project sponsor shall provide compensatory mitigation for placement of fill associated with maintenance or installation of new structures in the San Francisco Bay as further determined by the regulatory agencies with authority over the bay during the permitting process. Compensation may include onsite or offsite shoreline improvements or intertidal/subtidal habitat enhancements along San Francisco's waterfront through removal of chemically treated wood material (e.g., pilings, decking, etc.) by pulling, cutting, or breaking off piles at least 1 foot below mudline or removal of other unengineered debris (e.g., concrete-filled drums or large pieces of concrete).	LTS
Impact BI-8: Operation of the proposed project would not have a substantial adverse effect on state and federal waters through direct removal, filling, hydrological interruption, or other means.	LTS	No mitigation required.	NA
Impact BI-9: The proposed project could interfere substantially with the movement of 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 Measure M-BI-1: Nesting Bird Protection Measures** (see Impact BI-1, above) **Mitigation Measure M-BI-4: Fish and Marine Mammal Protection during Pile Driving** (see Impact BI-4, above)	LTS

TABLE S-2 (CONTINUED)
SUMMARY OF IMPACTS OF THE PROPOSED PROJECT—DISCLOSED IN THIS EIR

Environmental Impact	Level of Significance prior to Mitigation	Improvement/Mitigation Measures	Level of Significance after Mitigation
EIR Section 4.I Biological Resources (cont.)			
Impact BI-10: The proposed project would not conflict with any local policies or ordinances protecting biological resources; and would not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.	LTS	No mitigation required.	NA
Impact C-BI-1: The proposed project, in combination with past, present, and reasonably foreseeable future projects in the site vicinity, could result in a cumulatively considerable contribution to significant impacts on biological resources.	S	**Mitigation Measure M-BI-1: Nesting Bird Protection Measures** (See Impact BI-1, above.) **Mitigation Measure M-BI-3, Avoidance and Minimization Measures for Bats** (See Impact BI-3, above.) **Mitigation Measures M-BI-4, Fish and Marine Mammal Protection during Pile Driving** (See Impact BI-4, above.) **Mitigation Measure M-BI-7, Compensation for Fill of Jurisdictional Waters** (See Impact BI-7, above.)	LTS
EIR Section 4.J Hydrology and Water Quality			
Impact HY-1: Construction of the proposed project would not violate water quality standards or waste discharge requirements or otherwise substantially degrade water quality.	LTS	No mitigation required.	NA
Impact HY-2: Operation of the proposed project would not violate a water quality standard or waste discharge requirement or otherwise substantially degrade water quality, and runoff from the proposed project would not exceed the capacity of a storm drain system or provide a substantial source of stormwater pollutants.	LTS	No mitigation required.	NA
Impact HY-3: The proposed project 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, in a manner that would result in substantial erosion, siltation, or flooding on or off site.	LTS	No mitigation required.	NA
Impact HY-4: Operation of the proposed project would not place housing within a 100-year flood zone or place structures within an existing 100-year flood zone that would impede or redirect flood flows.	LTS	No mitigation required.	NA

TABLE S-2 (CONTINUED)
SUMMARY OF IMPACTS OF THE PROPOSED PROJECT—DISCLOSED IN THIS EIR

Environmental Impact	Level of Significance prior to Mitigation	Improvement/Mitigation Measures	Level of Significance after Mitigation
EIR Section 4.J Hydrology and Water Quality (cont.)			
Impact HY-5: Operation of the proposed project would not place structures within a future 100-year flood zone that would impede or redirect flood flows.	LTS	No mitigation required.	NA
Impact HY-6: The proposed project would not expose people or structures to substantial risk of loss, injury, or death due to inundation by seiche, tsunami, or mudflow.	LTS	No mitigation required.	NA
Impact C-HY-1: The proposed project, in combination with past, present, and reasonably foreseeable future projects in the site vicinity, would not result in a considerable contribution to cumulative impacts on hydrology and water quality.	LTS	No mitigation required.	NA
EIR Section 4.K Hazards and Hazardous Material			
Impact HZ-1: Construction and operation of the proposed project would not create a significant hazard through routine transport, use, or disposal of hazardous materials.	LTS	No mitigation required.	NA
Impact HZ-2: Demolition and renovation of buildings during construction would not expose workers or the public to hazardous building materials including asbestos-containing materials, lead-based paint, PCBs, di (2-ethylhexyl) phthalate (DEHP), and mercury, or result in a release of these materials into the environment.	LTS	No mitigation required.	NA
Impact HZ-3: Project development within the Power Station and PG&E sub-areas would be conducted on a site included on a government list of hazardous materials sites, but 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.	LTS	No mitigation required.	NA
Impact HZ-4: Construction and operation of developments within the Port, City, and Southern sub-areas could encounter hazardous materials in the soil and groundwater, but 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.	LTS	No mitigation required.	NA

TABLE S-2 (CONTINUED)
SUMMARY OF IMPACTS OF THE PROPOSED PROJECT—DISCLOSED IN THIS EIR

Environmental Impact	Level of Significance prior to Mitigation	Improvement/Mitigation Measures	Level of Significance after Mitigation
EIR Section 4.K Hazards and Hazardous Material (cont.)			
Impact HZ-5: The proposed project would not handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school. Although construction activities would emit diesel particulate matter and naturally occurring asbestos, these emissions would not result in adverse effects on nearby schools.	LTS	No mitigation required.	NA
Impact HZ-6: The proposed project would not expose people or structures to a significant risk of loss, injury, or death involving fires, nor would it impair implementation of or physically interfere with and adopted emergency response plan or emergency evacuation plan.	LTS	No mitigation required.	NA
Impact C-HZ-1: The proposed project, in combination with other past, present or reasonably foreseeable future projects in the project vicinity, would not result in a considerable contribution to significant cumulative impacts related to hazards and hazardous materials.	LTS	No mitigation required.	NA
Initial Study E.3 Cultural Resources			
Impact CR-1: The project could cause a substantial adverse change in the significance of an archeological resource.	S	**Mitigation Measure M-CR-1: Archeological Testing** Based on a reasonable presumption that archeological resources may be present within the project site in locations determined to have moderate or high archeological sensitivity, the following measures shall be undertaken to avoid any potentially significant adverse effect from the proposed project on buried or submerged historical resources. The project sponsor shall retain the services of an archeological consultant from the San Francisco rotational Department Qualified Archeological Consultants List maintained by the San Francisco Planning Department archeologist. The project sponsor shall contact the department archeologist to obtain the names and contact information for the next three archeological consultants on the list. The archeological consultant shall undertake an archeological testing program as specified herein. In addition, the consultant shall be available to conduct an archeological monitoring and/or data recovery program if required pursuant to this measure. The archeological consultant's work shall be conducted in accordance with this measure at the direction of the City's appointed project Environmental Review Officer (ERO). All plans and reports prepared by the consultant as specified herein shall be submitted first and directly to the ERO for review and comment, and shall be considered draft reports subject to revision until final approval by the ERO. Archeological monitoring and/or data recovery programs required by this measure could suspend construction of the project for up to a maximum of four weeks. At the direction of the review officer, the suspension of construction can be extended beyond four weeks only if such a suspension is the only feasible means to reduce to a less than significant level potential effects on a significant archeological resource as defined in CEQA Guidelines section 15064.5 (a) and (c).	LTS

TABLE S-2 (CONTINUED)
SUMMARY OF IMPACTS OF THE PROPOSED PROJECT—DISCLOSED IN THIS EIR

Environmental Impact	Level of Significance prior to Mitigation	Improvement/Mitigation Measures	Level of Significance after Mitigation
Initial Study E.3 Cultural Resources (cont.)			
Impact CR-1 (cont.)		***Consultation with Descendant Communities:*** On discovery of an *archeological site*[6] associated with descendant Native Americans, the Overseas Chinese, or other potentially interested descendant group an *appropriate representative*[7] of the descendant group and the review officer shall be contacted. The representative of the descendant group shall be given the opportunity to monitor archeological field investigations of the site and to offer recommendations to the review officer regarding appropriate archeological treatment of the site, of recovered data from the site, and, if applicable, any interpretative treatment of the associated archeological site. A copy of the Final Archeological Resources Report shall be provided to the representative of the descendant group. ***Archeological Testing Program.*** The archeological consultant shall prepare and submit to the review officer for review and approval an archeological testing plan. The archeological testing program shall be conducted in accordance with the approved archeological testing plan. The archeological testing plan shall identify the property types of the expected archeological resource(s) that potentially could be adversely affected by the proposed project, the testing method to be used, and the locations recommended for testing. The purpose of the archeological testing program will be to determine to the extent possible the presence or absence of archeological resources and to identify and to evaluate whether any archeological resource encountered on the site constitutes an historical resource under CEQA. At the completion of the archeological testing program, the archeological consultant shall submit a written report of the findings to the review officer. If based on the archeological testing program the archeological consultant finds that significant archeological resources may be present, the review officer in consultation with the archeological consultant shall determine if additional measures are warranted. Additional measures that may be undertaken include additional archeological testing, archeological monitoring, and/or an archeological data recovery program. No archeological data recovery shall be undertaken without the prior approval of the review officer or the planning department archeologist. If the review officer determines that a significant archeological resource is present and that the resource could be adversely affected by the proposed project, at the discretion of the project sponsor either: A. The proposed project shall be re-designed so as to avoid any adverse effect on the significant archeological resource; or B. A data recovery program shall be implemented, unless the review officer determines that the archeological resource is of greater interpretive than research significance and that interpretive use of the resource is feasible.	

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[6] The term archeological site is intended here to minimally include any archeological deposit, feature, burial, or evidence of burial.

[7] An appropriate representative of the descendant group is here defined to mean, in the case of Native Americans, any individual listed in the current Native American Contact List for the City and County of San Francisco maintained by the California Native American Heritage Commission and in the case of the Overseas Chinese, the Chinese Historical Society of America. An appropriate representative of other descendant groups should be determined in consultation with the Department archeologist.

TABLE S-2 (CONTINUED)
SUMMARY OF IMPACTS OF THE PROPOSED PROJECT—DISCLOSED IN THIS EIR

Environmental Impact	Level of Significance prior to Mitigation	Improvement/Mitigation Measures	Level of Significance after Mitigation
Initial Study E.3 Cultural Resources (cont.)			
Impact CR-1 (cont.)		***Archeological Monitoring Program.*** If the review officer in consultation with the archeological consultant determines that an archeological monitoring program shall be implemented the archeological monitoring program shall minimally include the following provisions: • The archeological consultant, project sponsor, and review officer shall meet and consult on the scope of the archeological monitoring plan reasonably prior to any project-related soils disturbing activities commencing. The review officer in consultation with the archeological consultant shall determine what project activities shall be archeologically monitored. In most cases, any soils- disturbing activities, such as demolition, foundation removal, excavation, grading, utilities installation, foundation work, driving of piles (foundation, shoring, etc.), site remediation, etc., shall require archeological monitoring because of the risk these activities pose to potential archeological resources and to their depositional context; • The archeological consultant shall advise all project contractors to be on the alert for evidence of the presence of the expected resource(s), of how to identify the evidence of the expected resource(s), and of the appropriate protocol in the event of apparent discovery of an archeological resource; • The archeological monitor(s) shall be present on the project site according to a schedule agreed upon by the project sponsor, archeological consultant, and the Environmental Review Officer (ERO) until the review officer has, in consultation with project archeological consultant, determined that project construction activities could have no effects on significant archeological deposits; • The archeological monitor shall record and be authorized to collect soil samples and artifactual/ecofactual material as warranted for analysis; • If an intact archeological deposit is encountered, all soils-disturbing activities in the vicinity of the deposit shall cease. The archeological monitor shall be empowered to temporarily redirect demolition/excavation/pile driving/construction activities and equipment until the deposit is evaluated. If in the case of pile driving or deep foundation activities (foundation, shoring, etc.), the archeological monitor has cause to believe that the pile driving or deep foundation activities may affect an archeological resource, the pile driving or deep foundation activities shall be terminated until an appropriate evaluation of the resource has been made in consultation with the review officer. The archeological consultant shall immediately notify the review officer of the encountered archeological deposit. The archeological consultant shall make a reasonable effort to assess the identity, integrity, and significance of the encountered archeological deposit, and present the findings of this assessment to the ERO. Whether or not significant archeological resources are encountered, the archeological consultant shall submit a written report of the findings of the monitoring program to the ERO.	

TABLE S-2 (CONTINUED)
SUMMARY OF IMPACTS OF THE PROPOSED PROJECT—DISCLOSED IN THIS EIR

Environmental Impact	Level of Significance prior to Mitigation	Improvement/Mitigation Measures	Level of Significance after Mitigation
Initial Study E.3 Cultural Resources (cont.)			
Impact CR-1 (cont.)		***Archeological Data Recovery Program.*** The archeological data recovery program shall be conducted in accord with an archeological data recovery plan. The archeological consultant, project sponsor, and ERO shall meet and consult on the scope of the archeological data recovery plan prior to preparation of a draft plan. The archeological consultant shall submit a draft plan to the ERO. The archeological data recovery plan shall identify how the proposed data recovery program will preserve the significant information the archeological resource is expected to contain. That is, the archeological data recovery plan will identify what scientific/historical research questions are applicable to the expected resource, what data classes the resource is expected to possess, and how the expected data classes would address the applicable research questions. Data recovery, in general, should be limited to the portions of the historical property that could be adversely affected by the proposed project. Destructive data recovery methods shall not be applied to portions of the archeological resources if nondestructive methods are practical. The scope of the archeological data recovery plan shall include the following elements: • *Field Methods and Procedures.* Descriptions of proposed field strategies, procedures, and operations. • *Cataloguing and Laboratory Analysis.* Description of selected cataloguing system and artifact analysis procedures. • *Discard and Deaccession Policy.* Description of and rationale for field and post-field discard and deaccession policies. • *Interpretive Program.* Consideration of an onsite/offsite public interpretive program during the course of the archeological data recovery program. • *Security Measures.* Recommended security measures to protect the archeological resource from vandalism, looting, and non-intentionally damaging activities. • *Final Report.* Description of proposed report format and distribution of results. • *Curation.* Description of the procedures and recommendations for the curation of any recovered data having potential research value, identification of appropriate curation facilities, and a summary of the accession policies of the curation facilities. ***Human Remains, Associated or Unassociated Funerary Objects.*** The treatment of human remains and of associated or unassociated funerary objects discovered during any soils disturbing activity shall comply with applicable state and federal laws, including immediate notification of the Office of the Chief Medical Examiner of the City and County of San Francisco and in the event of the medical examiner's determination that the human remains are Native American remains, notification of the California State Native American Heritage Commission who shall appoint a Most Likely Descendant (Public Resource Code section 5097.98). The ERO shall also be immediately notified upon discovery of human remains. The archeological consultant, project sponsor, ERO, and a most likely descendant shall have up to but not beyond six days after the discovery to make all reasonable efforts to develop an agreement for the treatment of human remains and associated or	

TABLE S-2 (CONTINUED)
SUMMARY OF IMPACTS OF THE PROPOSED PROJECT—DISCLOSED IN THIS EIR

Environmental Impact	Level of Significance prior to Mitigation	Improvement/Mitigation Measures	Level of Significance after Mitigation
Initial Study E.3 Cultural Resources (cont.)			
Impact CR-1 (cont.)		unassociated funerary objects with appropriate dignity (CEQA Guidelines section 15064.5(d)). The agreement should take into consideration the appropriate excavation, removal, recordation, analysis, curation, possession, and final disposition of the human remains and associated or unassociated funerary objects. Nothing in existing state regulations or in this mitigation measure compels the project sponsor and the ERO to accept recommendations of a most likely descendant. The archeological consultant shall retain possession of any Native American human remains and associated or unassociated burial objects until completion of any scientific analyses of the human remains or objects as specified in the treatment agreement if such as agreement has been made or, otherwise, as determined by the archeological consultant and the ERO. If no agreement is reached, state regulations shall be followed including the reburial of the human remains and associated burial objects with appropriate dignity on the property in a location not subject to further subsurface disturbance (Public Resource Code section 5097.98). ***Final Archeological Resources Report.*** The archeological consultant shall submit a Draft Final Archeological Resources Report to the ERO that evaluates the historical significance of any discovered archeological resource and describes the archeological and historical research methods employed in the archeological testing//recovery program(s) undertaken. Information that may put at risk any archeological resource shall be provided in a separate removable insert within the final report. Once approved by the ERO, copies of the Final Archeological Resources Report shall be distributed as follows: California Historical Resource Information System Northwest Information Center shall receive one (1) copy and the ERO shall receive a copy of the transmittal of the report to the Northwest Information Center. The San Francisco Planning Department Environmental Planning Division shall receive one bound, one unbound and one unlocked, searchable PDF copy on CD of the report along with copies of any formal site recordation forms (California Department of Parks and Recreation 523 form) and/or documentation for nomination to the National Register of Historic Places/California Register of Historical Resources. In instances of high public interest in or the high interpretive value of the resource, the ERO may require a different final report content, format, and distribution than that presented above.	
Impact CR-2: The project could disturb human remains, including those interred outside of dedicated cemeteries.	S	**Mitigation Measure M-CR-1: Archeological Testing** (see Impact CR-1, above)	LTS
Impact CR-3: The project could result in a substantial adverse change in the significance of a tribal cultural resource as defined in Public Resources Code section 21074.	S	**Mitigation Measure M-CR-1: Archeological Testing** (see Impact CR-1, above) **Mitigation Measure M-CR-3: Tribal Cultural Resources Interpretive Program** If the ERO determines that a significant archeological resource is present, and if in consultation with the affiliated Native American tribal representatives, the review officer determines that the resource constitutes a tribal cultural resource and that the resource could be adversely affected by the proposed project, the proposed project shall be redesigned so as to avoid any adverse effect on the significant tribal cultural resource, if feasible.	LTS

TABLE S-2 (CONTINUED)
SUMMARY OF IMPACTS OF THE PROPOSED PROJECT—DISCLOSED IN THIS EIR

Environmental Impact	Level of Significance prior to Mitigation	Improvement/Mitigation Measures	Level of Significance after Mitigation
Initial Study E.3 Cultural Resources (cont.)			
Impact CR-3 (cont.)		If the ERO, in consultation with the affiliated Native American tribal representatives, determines that preservation-in-place of the tribal cultural resources is not a sufficient or feasible option, the project sponsor shall implement an interpretive program of the tribal cultural resource in consultation with affiliated tribal representatives. An interpretive plan produced in consultation with the ERO and affiliated tribal representatives, at a minimum, and approved by the ERO would be required to implement the interpretive program. The plan shall identify, as appropriate, proposed locations for installations or displays, the proposed content and materials of those displays or installation, the producers or artists of the displays or installation, and a long-term maintenance program. The interpretive program may include artist installations, preferably by local Native American artists, oral histories with local Native Americans, artifacts displays and interpretation, and educational panels or other informational displays.	
Impact C-CR-1: The proposed project, in combination with past, present, and reasonably foreseeable future projects in the vicinity of the project site, would not result in cumulative impacts to archeological resources, tribal cultural resources, and human remains.	LTS	No mitigation required	LTS
Initial Study E.7 Greenhouse Gas Emissions			
Impact C-GG-1: The proposed project, in combination with past, present and future projects would not generate GHG emissions at levels that would result in a significant impact on the environment but may conflict with a policy, plan, or regulation adopted for the purpose of reducing GHG emissions.	LTS	No mitigation required.	NA
Initial Study E.9 Recreation			
Impact RE-1: The project would increase the use of existing neighborhood parks and other recreational facilities, but not to such an extent such that substantial physical deterioration of the facilities would occur or be accelerated or such that the construction of new or expanded facilities would be required.	LTS	No mitigation required.	NA
Impact C-RE-1: The proposed project, in combination with other past, present, and reasonably foreseeable development within approximately 0.5 mile of the project site, would not increase the use of existing neighborhood parks or other recreational facilities such that substantial physical deterioration of the facilities would occur or be accelerated or such that the construction of new or expanded facilities would be required.	LTS	No mitigation required.	NA

TABLE S-2 (CONTINUED)
SUMMARY OF IMPACTS OF THE PROPOSED PROJECT—DISCLOSED IN THIS EIR

Environmental Impact	Level of Significance prior to Mitigation	Improvement/Mitigation Measures	Level of Significance after Mitigation
Initial Study E.10 Utilities and Service Systems			
Impact UT-1: The City's water service provider would have sufficient water supply available to serve the proposed project from existing entitlements and resources. The proposed project would not require new or expanded water supply resources or entitlements or the construction of new or expanded water treatment facilities.	LTS	No mitigation required.	NA
Impact UT-2: The proposed project would not exceed wastewater treatment requirements of the Southeast Water Pollution Control Plant.	LTS	No mitigation required.	NA
Impact UT-3: The proposed project would not require or result in the construction of new wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects, nor would the project result in a determination by the SFPUC that it has inadequate capacity to serve the project's projected demand in addition to its existing commitments.	LTS	No mitigation required.	NA
Impact UT-4: The proposed project would not require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.	LTS	No mitigation required.	NA
Impact UT-5: Project construction and operation would result in increased generation of solid waste but would be served by a landfill with sufficient capacity to accommodate the proposed project's solid waste disposal needs.	LTS	No mitigation required.	NA
Impact UT-6: The construction and operation of the proposed project would comply with all applicable statutes and regulations related to solid waste.	LTS	No mitigation required.	NA
Impact C-UT-1: The proposed project, in combination with other past, present, and reasonably foreseeable future projects, would not result in significant adverse cumulative impacts on utilities and service systems.	LTS	No mitigation required.	NA

TABLE S-2 (CONTINUED)
SUMMARY OF IMPACTS OF THE PROPOSED PROJECT—DISCLOSED IN THIS EIR

Environmental Impact	Level of Significance prior to Mitigation	Improvement/Mitigation Measures	Level of Significance after Mitigation
Initial Study E.11 Public Services			
Impact PS-1: Construction of the project would not result in an increase in demand for police protection, fire protection, schools, or other services to an extent that would result in substantial adverse physical impacts associated with the construction or alteration of governmental facilities.	LTS	No mitigation required.	NA
Impact PS-2: The operation of the proposed project would not result in an increase in demand for police protection, fire protection, schools, or other services to an extent that would result in substantial adverse physical impacts associated with the construction or alteration of governmental facilities.	LTS	No mitigation required.	NA
Impact C-PS-1: The proposed project, combined with past, present, and reasonably foreseeable future projects in the vicinity, would not have a substantial cumulative impact to public services.	LTS	No mitigation required.	NA
Initial Study E.13 Geology and Soils			
Impact GE-1: The proposed project would not exacerbate the potential for the project to expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving fault rupture, seismic ground shaking, seismically induced ground failure, or seismically induced landslides.	LTS	No mitigation required.	NA
Impact GE-2: The proposed project would not result in substantial erosion or loss of topsoil.	LTS	No mitigation required.	NA
Impact GE-3: The project site would not be located on a geologic unit or soil that is unstable, or that could become unstable as a result of the proposed project.	LTS	No mitigation required.	NA
Impact GE-4: The proposed project would not create substantial risks to life or property as a result of locating buildings or other features on expansive or corrosive soils.	LTS	No mitigation required.	NA
Impact GE-5: The proposed project would not substantially change the topography or any unique geologic or physical features of the site.	LTS	No mitigation required.	NA

TABLE S-2 (CONTINUED)
SUMMARY OF IMPACTS OF THE PROPOSED PROJECT—DISCLOSED IN THIS EIR

Environmental Impact	Level of Significance prior to Mitigation	Improvement/Mitigation Measures	Level of Significance after Mitigation
Initial Study E.13 Geology and Soils (cont.)			
Impact GE-6: The proposed project could directly or indirectly destroy a unique paleontological resource or site.	S	**Mitigation Measure M-GE-6: Paleontological Resources Monitoring and Mitigation Program** Prior to issuance of a building permit for construction activities that would disturb the deep fill area, where Pleistocene-aged sediments, which may include Colma Formation, bay mud, bay clay, and older beach deposits (based on the site-specific geotechnical investigation or other available information) may be present, the project sponsor shall retain the services of a qualified paleontological consultant having expertise in California paleontology to design and implement a Paleontological Resources Monitoring and Mitigation Program. The program shall specify the timing and specific locations where construction monitoring would be required; inadvertent discovery procedures; sampling and data recovery procedures; procedures for the preparation, identification, analysis, and curation of fossil specimens and data recovered; preconstruction coordination procedures; and procedures for reporting the results of the monitoring program. The program shall be consistent with the Society for Vertebrate Paleontology Standard Guidelines for the mitigation of construction-related adverse impacts to paleontological resources and the requirements of the designated repository for any fossils collected. During construction, earth-moving activities that have the potential to disturb previously undisturbed native sediment or sedimentary rocks shall be monitored by a qualified paleontological consultant having expertise in California paleontology. Monitoring need not be conducted when construction activities would encounter artificial fill, Young Bay Mud, or non-sedimentary rocks of the Franciscan Complex. If a paleontological resource is discovered, construction activities in an appropriate buffer around the discovery site shall be suspended for a maximum of 4 weeks. At the direction of the Environmental Review Officer (ERO), the suspension of construction can be extended beyond four (4) weeks if needed to implement appropriate measures in accordance with the program, but only if such a suspension is the only feasible means to prevent an adverse impact on the paleontological resource. The paleontological consultant's work shall be conducted at the direction of the City's environmental review officer. Plans and reports prepared by the consultant 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.	LTS
Impact C-GE-1: The proposed project, in combination with past, present, and reasonably foreseeable future projects, would not result in significant cumulative impacts on geology and soils or paleontological resources.	LTS	No mitigation required.	NA

TABLE S-2 (CONTINUED)
SUMMARY OF IMPACTS OF THE PROPOSED PROJECT—DISCLOSED IN THIS EIR

Environmental Impact	Level of Significance prior to Mitigation	Improvement/Mitigation Measures	Level of Significance after Mitigation
Initial Study E.16 Mineral and Energy Resources			
Impact ME-1: The project would not result in the use of large amounts of fuel, water, or energy, or use these in a wasteful manner.	LTS	No mitigation required.	NA
Impact C-ME-1: The project, in combination with other past, present, and reasonably foreseeable future projects, would not result in significant adverse cumulative impacts on energy resources.	LTS	No mitigation required.	NA
Initial Study E.17 Agriculture and Forest Resources			
NA	NA	NA	NA

IMPACT CODES:

NA Not Applicable	S Significant
NI No impact	SU Significant and unavoidable adverse impact, no feasible mitigation
LTS Less than significant or negligible impact; no mitigation required	SUM Significant and unavoidable adverse impact, after mitigation

TABLE S-3
COMPARISON OF ENVIRONMENTAL IMPACTS OF THE PROJECT TO IMPACTS OF THE ALTERNATIVES

Impact of Proposed Project[1]	**Alternative A: No Project/ Code Compliant**	**Alternative B: Full Preservation/ Reduced Program**	**Alternative C: Full Preservation/ Similar Program**	**Alternative D: Partial Preservation 1**	**Alternative E: Partial Preservation 2**	**Alternative F: Partial Preservation 3**	**Alternative G: Partial Preservation 4**
Historic Architectural Resources							
Impact CR-4: Historic architecture, individual resources (SUM)	**Same as project, SUM**	LSM	LSM	**Less than project but still SUM**	**Less than project but still SUM**	**Less than project but still SUM**	**Less than project but still SUM**
Impact CR-5: Demolition and alteration effects on Third Street Industrial District (SUM)	**Same as project, SUM**	LSM	LSM	LSM	LSM	LSM	LSM
Impact C-CR-2: Cumulative effects on Third Street Industrial District (SUM)	**Same as project, SUM**	LSM	LSM	LSM	LSM	LSM	LSM
Transportation and Circulation							
Impact TR-4: Muni ridership (SUM)	LTS	**Less than project but still SUM**	**Similar to project, SUM**	**Similar to project, SUM**	**Similar to project, SUM**	**Similar to project, SUM**	**Similar to project, SUM**
Impact TR-5: Muni operations (SUM)	LTS	LTS	**Same as project (SUM)**	**Same as project (SUM)**	**Same as project (SUM)**	**Same as project (SUM)**	**Same as project (SUM)**
Impact TR-7: Pedestrian impacts (LSM)	LTS	Similar to project (LSM)	Similar to project (LSM)	Similar to project (LSM)	Similar to project (LSM)	Similar to project (LSM)	Similar to project (LSM)
Impact C-TR-4: Cumulative Muni ridership (SUM)	LTS	**Less than project but still SUM**	**Similar to project, SUM**	**Similar to project, SUM**	**Similar to project, SUM**	**Similar to project, SUM**	**Similar to project, SUM**
Impact C-TR-5: Cumulative transit operations (SUM)	LTS	LTS	**Similar to project, SUM**	**Similar to project, SUM**	**Similar to project, SUM**	**Similar to project, SUM**	**Similar to project, SUM**
Noise and Vibration							
Impact NO-2: Construction-related increases in ambient noise levels at noise-sensitive receptors (SUM)	**Less than project but still SUM** (impacts on future Pier 70 receptors, only)	**Less than project but still SUM**	**Same as project, SUM**	**Same as project, SUM**	**Same as project, SUM**	**Same as project, SUM**	**Same as project, SUM**
Impact NO-4: Construction-related vibration impacts on existing buildings (LSM)	Less than project but still LSM	Same as project (LSM)	Same as project (LSM)	Same as project (LSM)	Same as project (LSM)	Same as project (LSM)	Same as project (LSM)
Impact NO-8: Operational off-site traffic noise increases (SUM)	**Less than project but still SUM** (fewer affected roadway segments)	**Less than project but still SUM** (fewer affected roadway segments)	**Same as project (SUM)**	**Same as project (SUM)**	**Same as project (SUM)**	**Same as project (SUM)**	**Same as project (SUM)**

TABLE S-3 (CONTINUED)
COMPARISON OF ENVIRONMENTAL IMPACTS OF THE PROJECT TO IMPACTS OF THE ALTERNATIVES

Impact of Proposed Project[1]	Alternative A: No Project/ Code Compliant	Alternative B: Full Preservation/ Reduced Program	Alternative C: Full Preservation/ Similar Program	Alternative D: Partial Preservation 1	Alternative E: Partial Preservation 2	Alternative F: Partial Preservation 3	Alternative G: Partial Preservation 4
Noise and Vibration (cont.)							
Impact C-NO-1: Cumulative construction traffic noise increases (SUM)	**Less than project but still SUM**	**Less than project but still SUM**	**Same as project (SUM)**	**Same as project (SUM)**	**Same as project (SUM)**	**Same as project (SUM)**	**Same as project (SUM)**
Impact C-NO-2: Cumulative operational traffic noise increases (SUM)	**Less than project but still SUM**	**Less than project but still SUM**	**Same as project (SUM)**	**Same as project (SUM)**	**Same as project (SUM)**	**Same as project (SUM)**	**Same as project (SUM)**
Air Quality							
Impact AQ-2: Construction-related plus overlapping operational criteria air pollutant emissions. (SUM)	LSM	**Less than project but still SUM**	**Same as project (SUM)**	**Same as project (SUM)**	**Same as project (SUM)**	**Same as project (SUM)**	**Same as project (SUM)**
Impact AQ-3: Operations-related criteria air pollutant emissions. (SUM)	LSM	**Less than project but still SUM**	**Same as project (SUM)**	**Same as project (SUM)**	**Same as project (SUM)**	**Same as project (SUM)**	**Same as project (SUM)**
Impact AQ-4: Toxic air contaminants, cancer risk and $PM_{2.5}$ concentration at offsite receptors and onsite receptors (LSM)	Offsite (LSM) Onsite (NI)	Less than project (LSM)	Same as project (LSM)	Same as project (LSM)	Same as project (LSM)	Same as project (LSM)	Same as project (LSM)
Impact C-AQ-1: Cumulative regional air quality (SUM)	LSM	**Same as project (SUM)**	**Same as project (SUM)**	**Same as project (SUM)**	**Same as project (SUM)**	**Same as project (SUM)**	**Same as project (SUM)**
Impact C-AQ-2: Cumulative health risk (LSM)	Less than project (LSM)	Less than project (LSM)	Same as project (LSM)	Same as project (LSM)	Same as project (LSM)	Same as project (LSM)	Same as project (LSM)
Wind and Shadow							
Impact WS-1. Wind impacts at build-out (LTS)	Less than the project	Same as or less than project	**SUM (conservative in the absence of testing)**	Similar to the project	Same as project	**SUM (conservative in the absence of testing)**	**SUM (conservative in the absence of testing)**
Impact C-WS-1. Cumulative wind impacts (LTS)	Less than the project	Same as or less than project	**SUM (conservative in the absence of testing)**	Similar to the project	Same as project	**SUM (conservative in the absence of testing)**	**SUM (conservative in the absence of testing)**
Impact WS-2. Interim wind hazards or changes in building layout or massing (SUM)	LTS	**Same as project, SUM**	**Same as project, SUM**	**Same as project, SUM**	**Same as project, SUM**	**Same as project, SUM**	**Same as project, SUM**

TABLE S-3 (CONTINUED)
COMPARISON OF ENVIRONMENTAL IMPACTS OF THE PROJECT TO IMPACTS OF THE ALTERNATIVES

Impact of Proposed Project[1]	Alternative A: No Project/ Code Compliant	Alternative B: Full Preservation/ Reduced Program	Alternative C: Full Preservation/ Similar Program	Alternative D: Partial Preservation 1	Alternative E: Partial Preservation 2	Alternative F: Partial Preservation 3	Alternative G: Partial Preservation 4
Biological Resources							
Impact BI-4: Construction impacts on special-status fish and marine mammals (LSM)	LTS (no dock, so no in-water pile driving)	Same as project (LSM)	Same as project (LSM)	Same as project (LSM)	Same as project (LSM)	Same as project (LSM)	Same as project (LSM)

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[1] See Chapter 4 for complete impact statements. CEQA significance determination: NI = No Impact; LTS = Less than significant; LSM = Less than significant with mitigation; SUM = Significant and unavoidable with mitigation; SU = Significant and unavoidable.

All SUM and SU impacts are shown in **bold**.

Dark shading indicates a substantial change in impact significance from the proposed project, from SU or SUM to LTS. Medium shading indicates a noticeable change in impact significance from the proposed project, from SUM to LSM or from LSM to LTS. Light shading indicates a slight change in impact severity from the proposed project but no change in significance determination.

CHAPTER 1

Introduction

1.A Project Summary

This environmental impact report (EIR) analyzes potential environmental effects associated with the Potrero Power Station Mixed-Use Development project (proposed project). California Barrel Company LLC is the project sponsor and proposes the redevelopment of an approximately 29-acre site along San Francisco's central waterfront with a variety of residential, commercial and open space land uses. These uses include office, research and development (R&D)/life science, retail, hotel, entertainment/assembly, and production, distribution, and repair (PDR), parking, and community facilities. The project site encompasses the location of the former Potrero Power Plant and certain adjacent parcels. Further details regarding the proposed project are discussed in Chapter 2, Project Description.

1.B Purpose of this EIR

This EIR analyzes the physical environmental effects associated with implementation of the proposed project. The San Francisco Planning Department has prepared this EIR in compliance with the provisions of the California Environmental Quality Act (CEQA) and the CEQA Guidelines (California Public Resources Code sections 21000 et seq., and California Code of Regulations Title 14, sections 15000 et seq., "CEQA Guidelines"), and San Francisco Administrative Code Chapter 31. The lead agency is the public agency that has the principal responsibility for carrying out or approving a project.

As described by CEQA and in the CEQA Guidelines, public agencies are charged with the duty to avoid or substantially lessen significant environmental effects where feasible. In undertaking this duty, a public agency has an obligation to balance a project's significant effects on the environment with its benefits, including economic, social, technological, legal, and other non - environmental characteristics.

As defined in CEQA Guidelines section 15382, a "significant effect on the environment" is:

> … 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. An economic or social change by itself shall not be considered a significant effect on the environment. A social or economic change related to a physical change may be considered in determining whether the physical change is significant.

CEQA requires that before a discretionary decision can be made to approve a project that may cause a significant effect on the environment that cannot be mitigated, an EIR must be prepared. The 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. Thus, prior to taking an approval action on the proposed project, the City and County of San Francisco must consider the information in this EIR and make certain findings with respect to each significant effect that is identified. The information contained in this EIR, along with other information available through the public review processes, will be reviewed and considered by the decision-makers prior to a decision to approve, disapprove, or modify the proposed project, or to adopt an alternative to the proposed project.

This EIR evaluates the whole of the proposed action, including project-level impacts (offsite, onsite, construction-related, operational, direct, and indirect) and cumulative impacts. This is an informational document that does not determine whether a project will be approved, but instead aids in the planning and decision-making process by disclosing the potential environmental impacts associated with construction and operation of the proposed project.

The planning department has prepared this EIR with a degree of analysis that provides decision-makers with sufficient information to enable them to make a decision that accounts for the environmental consequences of the proposed project. The evaluation of the environmental impacts of a proposed project need not be exhaustive, but 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. The courts have looked not for perfection, but for adequacy, completeness, and a good faith effort at full disclosure (CEQA Guidelines section 15151).

1.C Type of EIR

This document is a project-level EIR pursuant to the CEQA Guidelines section 15161. A project-level EIR focuses on the changes in the environment that would result from construction and operation of a specific development project. Furthermore, this EIR is also a focused EIR, in accordance with CEQA Guidelines section 15063(c). In accordance with section 15128, an initial study on the proposed project was prepared (see Appendix B of this EIR) to identify which of the proposed project's effects would result in less-than-significant impacts and do not require further analysis, and which topics warrant more detailed environmental analysis in the EIR. The initial study is being published concurrently with the EIR, and comments will be accepted on the initial study during the public review period for the EIR.[1] Thus, this EIR focuses the environmental analysis on those topics identified in the initial study with the potential to have significant impacts.

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[1] Under CEQA Guidelines section 15128, the EIR must contain a brief statement indicating the reasons why certain effects were determined not to be significant and thus were not discussed in the EIR.

1.D CEQA Environmental Review Process

CEQA Guidelines sections 15080 to 15097 set forth the EIR process, which includes multiple phases involving notification and input from responsible agencies and the public. The main steps in this process are described below.

1.D.1 Notice of Preparation of an Environmental Impact Report and Scoping

California Barrel Company LLC filed an Environmental Evaluation application with the planning department on September 15, 2017. This filing initiated the environmental review process. The EIR process includes an opportunity for the public to review and comment on the proposed project's potential environmental effects and to further inform the environmental analysis.

On November 1, 2017, the planning department issued the Notice of Preparation (NOP) of an EIR on the proposed Potrero Power Station Mixed-Use Development project and made the NOP available on its website. The NOP was sent to governmental agencies, organizations, and persons interested in the proposed project, and publication of the NOP initiated the 30-day public scoping period for this EIR, which started on November 1, 2017 and ended on December 1, 2017. The NOP included a description of the proposed project and a request for agencies and the public to submit comments on the scope of environmental issues that should be addressed in the EIR. The NOP and public comments received thereon are included as Appendix A of this document.

The planning department held a public scoping meeting on Wednesday, November 15, 2017 at the project site, 420 23rd Street, San Francisco, to receive oral comments on the scope of the EIR. In total, during the scoping period the planning department received comments from two agencies, three non-governmental organizations, and three individuals. These comments received in response to the NOP during the public scoping period, both written and oral,[2] are included in Appendix A and are available for review at the San Francisco Planning Department as part of Case File No. 2017-011878ENV. The planning department has considered all of these comments in preparing the EIR for the proposed project. See Section 1.D.2 below, for a table summarizing the scoping comments received during the scoping period.

1.D.2 Scoping Comments

The planning department has considered the comments made by the public and agencies in preparation of this EIR, as summarized in **Table 1-1**, **Summary of Scoping Comments**. Comments on the NOP that relate to environmental issues are addressed and analyzed throughout this EIR and initial study (see Appendix B for the initial study). The table lists the commenter and in which section of the initial study or 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.

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[2] A transcript of the oral comments received at the November 15, 2017 public scoping meeting is included in Appendix A.

TABLE 1-1
SUMMARY OF SCOPING COMMENTS

Commenter	Summary of Comment	EIR Section where Comment is Addressed
Federal and State Agencies		
Patricia Maurice, District Branch Chief, California Department of Transportation (CA DOT)		
	Multimodal system planning. To further maximize transit use as part of the project, Caltrans suggests adding the Muni T Third Street light rail to the proposed Transportation Demand Management program. The project should maintain a low parking ratio.	• Chapter 2, Project Description • Chapter 4, Section E, Transportation and Circulation
	Vehicle trip reduction. The project site is identified as Place Type 1: Urban Core. The project should include a robust Transportation Demand Management (TDM) Program to reduce vehicle miles traveled (VMT) and greenhouse gases emissions, and Caltrans includes a long list of potential measures that can be included in the TDM program. TDM program should include annual monitoring reports by an onsite TDM coordinator.	• Chapter 2, Project Description • Chapter 4, Section E, Transportation and Circulation
	Travel demand analysis. Please submit the project's VMT analysis for Caltrans to review. Caltrans also lists information to be included in the travel demand analysis.	• Appendix C, Transportation Supporting Information
	Mitigation measures. The project's fair share contribution, financing, scheduling, and implementation responsibilities should be fully discussed, including City's responsibilities.	• Chapter 4, Section E, Transportation and Circulation
	The Draft EIR should be submitted to both the Metropolitan Transportation Commission and the Association of Bay Area Governments for review and comments.	• EIR mailing list
Tinya Hoang, Coastal Program Analyst, San Francisco Bay Conservation and Development Commission (BCDC)		
	Project consistency with McAteer-Petris Act, Bay Plan, Coastal Zone Management Act. BCDC jurisdiction, include the bay and 100-foot shoreline band.	• Chapter 3, Plans and Policies
	BCDC permits required for construction, dredging, dredged material disposal, fill placement, and substantial changes within its jurisdiction.	• Chapter 2, Project Description, under Permits and Approvals
	BCDC will require information on the proposed bay fill and how the fill would be consistent with applicable requirements. This would apply to the proposed fishing pier, floating dock, outfall, and shoreline protection.	• Chapter 2, Project Description • Chapter 4, Section J, Hydrology and Water Quality
	BCDC permits required for Pacific Gas and Electric Company (PG&E) remediation, any associated dredging activities, remediation cap or revetment.	• Chapter 2, Project Description, under Existing Site Conditions • Chapter 4, Section K, Hazards and Hazardous Materials
	Mitigation measures for adverse impacts, including bay fill.	• Chapter 4, Section I, Biological Resources • Chapter 4, Section J, Hydrology and Water Quality
	Consistency with the San Francisco Bay Plan policies on shoreline protection. Information should include cross-sections of the shoreline protection that shows the elevation of the 100-year flood plus the projected sea level rise for the expected life of the project.	• Chapter 3, Plans and Policies • Chapter 2, Project Description

TABLE 1-1 (CONTINUED) SUMMARY OF SCOPING COMMENTS

Commenter	Summary of Comment	EIR Section where Comment is Addressed
Federal and State Agencies (cont.)		
Tinya Hoang, Coastal Program Analyst, San Francisco Bay Conservation and Development Commission (BCDC) (cont.)		
	Public access, consistency with McAteer-Petris Act. BCDC will require an estimate of the anticipated capacity of the site for residents, workers, and visitors. A delay in providing public access benefit may not be consistent with maximum feasible public access. BCDC staff recommends constructing a connection between the proposed project and the Pier 70 Mixed-Use District project prior to Phase 3.	• Chapter 3, Plans and Policies • Initial Study
	Public access, description. In addition to the locations of public access, BCDC will need to know if there are areas that would not be available to public at all time for active and passive recreation due to other uses, such as private events.	• Chapter 2, Project Description
	Compatibility of adjacent uses with public access uses, including potential conflicts with pedestrian and bicycle access adjacent to truck traffic.	• Chapter 4, Section E, Transportation and Circulation
	Suitability and public safety of remediation in public access areas.	• Chapter 4, Section K, Hazards and Hazardous Materials
	Type of anticipated water activities and whether the site would meet water quality criteria for human contact related to fishing, kayaking and swimming.	• Chapter 2, Project Description • Chapter 4, Section J, Hydrology and Water Quality
	BCDC permit application and review of project by the BCDC Design Review Board for the public access components.	• Chapter 2, Project Description, under Permits and Approvals
	Appearance, design, and scenic views, consistency with San Francisco Bay Plan policies. The project design should consider view corridors across the site to minimize visual impacts and enhance views to the bay and shoreline.	• Chapter 3, Plans and Policies
	Sea level rise. Information is needed on the resilience and adaptability of all public access and open space areas and any structures in the bay that could be subject to flooding throughout the life of the project.	• Chapter 2, Project Description • Chapter 4, Section J, Hydrology and Water Quality
Non-Governmental Organizations		
Paula C. Kirlin, Holland & Knight, representing FC Pier 70 LLC		
	Pier 70 Mixed-Use District project assumptions.	• Chapter 4, Section A, Impact Overview
	We anticipate that the Pier 70 Mixed-Use District project will be under construction and that residents, employees, and visitors to the Pier 70 Mixed-Use District project will be impacted by construction and operation of the project.	• Chapter 4, Environmental Setting, Impacts, and Mitigation Measures, under relevant resource topics
	Traffic/transportation. We anticipate that the EIR will analyze impacts associated with vehicle, pedestrian, and bicycle trips from the project that will travel via 22nd Street, and that appropriate mitigation and improvement measures be identified to address such impacts.	• Chapter 4, Section E, Transportation and Circulation

TABLE 1-1 (CONTINUED)
SUMMARY OF SCOPING COMMENTS

Commenter	Summary of Comment	EIR Section where Comment is Addressed
Non-Governmental Organizations (cont.)		
Paula C. Kirlin, Holland & Knight, representing FC Pier 70 LLC (cont.)		
	Transit. We anticipate that the project will consider project and cumulative impacts to Muni routes (T-Third, 22 Fillmore, 48 Quintara/24th Street lines) and that appropriate mitigation measures be identified.	• Chapter 4, Section E, Transportation and Circulation
	Utilities. We anticipate that the EIR's analysis of utilities impacts (water supply, wastewater, stormwater) will account for the Pier 70 Mixed-Use District project and that appropriate mitigation and improvement measure be identified.	• Initial Study
	Air Quality. We anticipate that the EIR and health risk assessment will carefully identify the location of sensitive receptors located within the Pier 70 Mixed-Use District project to ensure that air quality and health risk impacts associated with project construction and operation are identified, and appropriate mitigation and improvement measures are identified. We also anticipate that the air quality impacts will be quantified consistent with the methodology used to identify air quality impacts in the Pier 70 Mixed-Use District project EIR.	• Chapter 4, Section G, Air Quality
	Noise. We anticipate that construction-related noise and vibration could impact sensitive receptors and historic structures located with the Pier 70 Mixed-Use District project. Project construction would include pile driving to bedrock adjacent or in proximity to Pier 70 Mixed-Use District parcels that may contain residential buildings that could be occupied. Pile driving would also occur in close proximity to historic buildings on the Pier 70 Mixed-Use District site.	• Chapter 4, Section F, Noise and Vibration
	Hazards. How the EIR will analyze and mitigate offsite impacts associated with site remediation or management of soils during project implementation. We trust offsite impacts both project specific and cumulative will be addressed in the EIR.	• Chapter 4, Section K, Hazards and Hazardous Materials
	Shadow. The project could have shadow impacts on publicly accessible open spaces and/or outdoor recreation facilities located within the Pier 70 Mixed-Use District project.	• Chapter 4, Section H, Wind and Shadow
	Wind. The project's wind impacts could potentially affect the Pier 70 Mixed-Use District project. We anticipate that the wind analysis would include existing and baseline buildings within the Pier 70 Mixed-Use District project site to determine whether the project would alter wind in a manner that substantially affects public areas on an interim basis and at buildout.	• Chapter 4, Section H, Wind and Shadow
	Land Use. Analysis of flex land uses on the project parcels abutting Pier 70 Mixed-Use District may be one way to ensure compatibility of land uses along the shared project boundary.	• Chapter 4, Section B, Land Use
Allison Heath, Grow Potrero Responsibly		
	Alternatives. The EIR should study a reduced height and density alternative.	• Chapter 6, Alternatives
	Shadow and Wind. The EIR should study shadow and wind impacts on existing and proposed open and recreation space, including the shoreline and the bay. Include the project's contribution to cumulative shadow on Irish Hill and playground.	• Chapter 4, Section H, Wind and Shadow

TABLE 1-1 (CONTINUED)
SUMMARY OF SCOPING COMMENTS

Commenter	Summary of Comment	EIR Section where Comment is Addressed
Non-Governmental Organizations (cont.)		
Allison Heath, Grow Potrero Responsibly (cont.)		
	The EIR should study jobs/housing balance of the project to impacts on transportation, traffic, air quality, pedestrian and bike safety, and noise with respect to neighboring areas, throughout San Francisco, and greater Bay Area. VMT analysis should look at neighborhood, local, and regional conditions. Transportation analysis must use accurate mode analysis reflecting current data. Analysis of impacts of specific commercial uses must be considered in detail.	• Chapter 4, Section C, Population and Housing • Chapter 4, Section E, Transportation and Circulation • Chapter 4, Section G, Air Quality • Chapter 4, Section F, Noise
	Historic Resources. Existing buildings should be considered together as a cultural landscape representing the city's history and industrial heritage. The analysis should consider mitigation of impacts through adaptive reuse.	• Chapter 4, Section D, Historic Architectural Resources • Chapter 6, Alternatives
	Sea Level Rise. The EIR should focus on impacts of more realistic sea level rise projections of 8 to 11 feet of sea level rise and storm surge by 2100.	• Chapter 4, Section J, Hydrology and Water Quality
Peter Linenthal, Potrero Hill Archives Project		
	The destruction of these historic structures (Meter House, Compressor House, Station A, and the Gate House) would be a huge mistake. Station A, built in 1911, is the only structure which gives a sense of the impressive collection of big brick industrial buildings once clustered there. Station A and the other 19 buildings slated for destruction are irreplaceable and historic. Their preservation and possibilities for reuse should be carefully considered.	• Chapter 4, Section D, Historic Architectural Resources • Chapter 6, Alternatives
	Concerned that brick buildings will not be retained. Recommends creative re-use to transform and preserve historic structures.	• Chapter 4, Section D, Historic Architectural Resources • Chapter 6, Alternatives
Individuals		
Janet Carpinelli		
	Proposed height and density in historic waterfront area. The heights should not exceed those granted to the Pier 70 project, particularly the proposed 300 foot tower or any new building over 70 feet.	• Chapter 4, Section D, Historic Architectural Resources
	All or most of the historic buildings should be preserved, restored and reused.	• Chapter 4, Section D, Historic Architectural Resources • Chapter 6, Alternatives
	More affordable and middle income housing should be provided at a rate of at least 30% affordable, 30% middle income, and 30% market rate.	• Chapter 4, Section C, Population and Housing
	No more office space/retail, unbalance exists today of more jobs than housing, and we do not have reliable or adequate public transportation.	• Chapter 4, Section C, Population and Housing • Chapter 4, Section E, Transportation and Circulation

TABLE 1-1 (CONTINUED)
SUMMARY OF SCOPING COMMENTS

Commenter	Summary of Comment	EIR Section where Comment is Addressed
Individuals (cont.)		
Yoram Meroz		
	Job Balance. Increase in permanent jobs, direct and indirect, and associated housing. Highly paid employees will live nearby and lower-paid employees will commute from further away.	• Chapter 4, Section C, Population and Housing
	The EIR needs to estimate the number of employees in various income brackets, and model their expected mode of commute and its effect on VMT and transit.	• Chapter 4, Section E, Transportation and Circulation
	The traffic analysis must account for current trends in San Francisco Municipal Transportation Agency and Caltrain decreasing ridership as well as current trends in increasing traffic on freeways.	• Chapter 4, Section E, Transportation and Circulation
	The EIR must evaluate the traffic effects with an alternative eliminating most private car parking spots.	• Chapter 4, Section E, Transportation and Circulation
	The EIR should consider a variety of different PDR components within the project.	• Chapter 2, Project Description
	Housing/jobs balance. San Francisco is suffering from a lack of housing. A no-office, no-hotel alternative has to be evaluated. A metric of net gain or loss of housing space needs to accompany all the project alternatives.	• Chapter 4, Section C, Population and Housing • Chapter 6, Alternatives
	Traffic. The EIR should compare the effect on traffic of services and retail catering to local residents, as opposed to businesses aimed at outside traffic, such as destination shopping or a hotel.	• Chapter 4, Section E, Transportation and Circulation
	The effect on shorebird populations should be evaluated.	• Chapter 4, Section I, Biological Resources
	The project should accommodate future sea level rise while providing habitat for wildlife. The EIR should consider a graded artificial marsh at the shoreline.	• Chapter 4, Section J, Hydrology and Water Quality • Chapter 4, Section I, Biological Resources
	The EIR should include at least a low-elevation (no height rezoning) alternative, with mixed-use limited to residences, PDRs, and local-servicing businesses, with minimal private parking.	• Chapter 6, Alternatives
Rodney Minott		
	Historic resources. The City and project sponsor should commit to preserving and rehabilitating all four of the historic buildings proposed to be demolished.	• Chapter 4, Section D, Historic Architectural Resources
	Sea level rise. Impacts of sea level rise should address levels beyond the stated 3 to 7 feet.	• Chapter 4, Section J, Hydrology and Water Quality
	The EIR should analyze the visual impact of a 300-foot high building in the context of a historically and culturally significant area of the San Francisco waterfront.	• Chapter 2, Section 4A, Impact Overview • Chapter 4, Section D, Historic Architectural Resources
Public Scoping Meeting		
Peter Linenthal, Director of the Potrero Hill Archive Project		
	The brick buildings on the project site represent an important history because there are not many structures from that period of power generation following the 1906 earthquake, and the EIR should consider these buildings as they are older than the Stack and Unit 3.	• Chapter 6, Alternatives • Chapter 4, Section D, Historic Architectural Resources

1.D.3 Assembly Bill 900

The project sponsor has filed an application with the Governor's Office of Planning and Research for certification of the proposed project as an environmental leadership development project under the Jobs and Economic Improvement through Environmental Leadership Act of 2011 (Assembly Bill 900 or AB 900, as updated to comply with Senate Bill 734 and Assembly Bill 246). The application is available online, and was subject to public review from July 18, 2018 through August 16, 2018.[3]

AB 900[4] provides streamlining benefits under CEQA for environmental leadership development projects and defines an environmental leadership development project as the following:

- the project is residential, retail, commercial, sports, cultural, entertainment, or recreational in nature;
- the project, upon completion, will qualify for LEED gold certification or better;
- the project will achieve at least 15 percent greater transportation efficiency than comparable projects;
- the project is located on an infill site and in an urbanized area; and
- for projects within a metropolitan planning organization's jurisdiction for which a sustainable communities strategy or alternative planning strategy is in effect, the infill project is consistent with the general use designation, density, building intensity and applicable policies specified for the project area in either a sustainable communities strategy or an alternative planning strategy, for which the California Air Resources Board has accepted that the strategy would achieve the greenhouse gas emission reduction targets.[5]

In order for the Governor to certify a leadership project, the project (or project applicant) must: (1) result in a minimum investment of $100 million dollars in California upon completion of construction; (2) create high-wage, highly skilled jobs that pay prevailing wages and living wages and provide construction jobs and permanent jobs for Californians, and help reduce unemployment; (3) not result in any net additional greenhouse gas emissions; (4) comply with requirements for commercial and organic waste recycling; (5) have a binding agreement with the lead agency establishing the requirements set forth in Public Resources Code sections 21183(e) and

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[3] Governor's Office of Planning and Research, California Jobs (AB 900), *Submitted Applications, 2017112005, Potrero Power Station Mixed-use Project, http://opr.ca.gov/ceqa/california-jobs.html*, accessed September 6, 2018. This document (and all other documents cited in this report, unless otherwise noted) is available for review at 1650 Mission Street, Suite 400, San Francisco, CA, as part of Case No. 2017-011878ENV.

[4] California Public Resources Code 21178 et. seq. and Governor's Office of Planning and Research, California Jobs (AB 900), *Governor's Guidelines for Streamlining Judicial Review Under the California Environmental Quality Act Pursuant to AB 900, Updated to Comply with Senate Bill 734 and Assembly Bill 246.* Available online at http://opr.ca.gov/ceqa/california-jobs.html, accessed September 6, 2018.

[5] California Public Resources Code section 21180(b).

(g); and (6) agree to pay the costs of the Court of Appeal in hearing and deciding any case.[6,7] Multifamily residential projects certified as environmental development leadership projects are also required to provide unbundled parking, such that private vehicle parking spaces are priced and rented or purchased separately from dwelling units.

On August 31, 2018, the California Air Resources Board determined the proposed project would not result in any net additional greenhouse gas emissions for purposes of certification under AB 900.[8]

In accordance with the requirements of AB 900, the planning department has provided a record of proceedings for the proposed project that can be accessed and downloaded from the following website: **http://www.PPSmixeduse.com**. The record of proceedings includes the EIR and all other documents and materials submitted to, or relied upon by, the lead agency in the preparation of the EIR or the approval of the project. In addition, a document prepared by the lead agency or submitted by the applicant after the date of the release of the Draft EIR that is a part of the record of proceedings, and comments received on the Draft EIR, will be made available to the public on this same website in a readily accessible electronic format within the timeframes specified by this act. Comments on this Draft EIR should be emailed to **CPC.PotreroPowerStation@sfgov.org**.

Within 10 days of the governor certifying the proposed project as an environmental leadership development project, the planning department is required to issue a public notice stating that the applicant has elected to proceed under Chapter 6.5 (commencing with section 21178) of the Public Resources Code, which provides, among other things, that any judicial action challenging the certification of the EIR or the approval of the project described in the EIR is subject to the procedures set forth in sections 21185 to 21186, inclusive, of the Public Resources Code.

As required by Section 21185 of the Public Resources Code, the Judicial Council adopted rules of court that establish procedures applicable to actions or proceedings brought to attack, review, set aside, void, or annul the certification of the environmental impact report for an environmental leadership development project (certified by the governor pursuant to this act) or the granting of any project approvals that require the actions or proceedings, including any potential appeals therefrom, be resolved, to the extent feasible within 270 days of the filing of the certified record of proceedings with the court. This creates an accelerated timeframe for CEQA litigation. The procedures can be found in California Rules of Court rules 3.2220 to 3.2231.

The provisions of AB 900 apply to projects that have been certified by the governor as environmental leadership development projects by January 1, 2020. This act remains in effect until January 1, 2021.

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[6] California Public Resources Code section 21183.

[7] California Barrel Company, LLC, July 2018. AB900 Application, Potrero Power Station Mixed-use Project. Attachment 5, Letter dated June 20, 2018 from Enrique Landa, California Barrel Company, LLC to John S. Rahaim, Planning Director, San Francisco Planning Department, regarding Potrero Power Station Mixed-Use Project, Acknowledgment of Obligations under Public Resources Code sections 21183(d), (e), and (f).

[8] California Air Resources Board, *Executive Order G-18-080 Relating to Determination of No Net Additional Greenhouse Gas Emissions Under Public Resources Code section 21183, subdivision (c) for Potrero Power Station Mixed-Use Project*. August 31, 2018

1.D.4 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 EIR and its appendices, including the initial study (Appendix B), throughout the environmental review process. 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 public review period for the Draft EIR and initial study is from October 4, 2018, through November 19, 2018. The planning commission will hold a public hearing on the Draft EIR and initial study during the 45-day public review and comment period to solicit public comment on the information presented in the Draft EIR and initial study. The public hearing will be held on November 8, 2018, at City Hall, Dr. Carlton B. Goodlett Place, Room 400, San Francisco, California, beginning at **12:00 p.m. or later** (call 415.588.6422 the week of the hearing for a recorded message giving a more specific time).

The EIR and all attachments (including the initial study, Appendix B) are available on the San Francisco Planning Department's Negative Declarations and EIRs web page (http://sf-planning.org/environmental-impact-reports-negative-declarations). CDs and paper copies are also available at the Planning Information Center counter on the first floor of 1660 Mission Street, San Francisco. Documents referenced in this EIR are available for review at the Planning Department's office on the fourth floor of 1650 Mission Street in Case File No. 2017-011878ENV (call 415.575.9028), as well as online at http://www.PPSmixeduse.com.

Governmental agencies, interested organizations, and other members of the public are invited to submit written comments on 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: Rachel Schuett, PPS EIR Coordinator
1650 Mission Street, Suite 400
San Francisco, CA 94103

or by email to:

CPC.PotreroPowerStation@sfgov.org

Members of the public are not required to provide personal identifying information when they communicate with the San Francisco 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.D.5 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 Comment document will constitute the Final EIR. Not less than ten 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 any board(s), commission(s) or department(s) that will carry out or approve the proposed project. 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 proposed project; and (3) reflects the lead agency's independent judgment and analysis.

CEQA requires that 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.

At the time of project approval, CEQA and the CEQA Guidelines require lead agencies to adopt a mitigation monitoring or reporting program that it has made a condition of project approval in order to mitigate or avoid significant impacts on the environment (CEQA Guidelines section 21081.6; CEQA Guidelines section 15097). This EIR identifies and presents the project-specific mitigation and improvement measures that if the proposed project is approved, would be included in the Mitigation Monitoring and Reporting Program for the Potrero Power Station Mixed-Use Development project as a condition of project approval.

1.E Contents and Organization of this EIR

Consistent with CEQA Guidelines section 15120 to 15132, this EIR describes the proposed project, required approvals, and existing land use plans and policies applicable to the proposed project; identifies potential environmental impacts of the proposed project, mitigation measures where those impacts are significant, and cumulative adverse impacts to which the proposed project could make a substantial contribution; discusses growth-inducing and significant unavoidable effects of the project; and evaluates alternatives to the project that could avoid or reduce significant impacts while still meeting most of the project's objectives.

This EIR is organized as follows:

- **Chapter S, Summary.** This chapter summarizes the contents of the entire EIR, including an overview of the project description and, in a tabular format, a summary of the environmental impacts that would result from project implementation and the mitigation measures identified to reduce or avoid significant impacts. It also briefly describes the alternatives to the proposed project and the areas of controversy.
- **Chapter 1, Introduction.** This chapter describes the purpose of the EIR, the environmental review process, the public and agency comments received on the scope of the EIR, and the organization of the EIR.
- **Chapter 2, Project Description.** This chapter provides a detailed description of the proposed project—including project background, objectives, location, existing site land use characteristics, project components and characteristics, development schedule (including anticipated construction activities)—and identifies required project approvals.
- **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 proposed project and identifies if the proposed project would be inconsistent with any of those plans and policies.
- **Chapter 4, Environmental Setting, Impacts and Mitigation Measures.** This chapter covers a comprehensive range of environmental resource topics that have a potential for significant adverse impacts and/or known sensitivity. Each environmental topic is discussed in a separate section within this chapter, and each section describes the existing and/or baseline conditions relative to that resource; applicable regulatory framework; significance criteria used to assess the severity of the impacts; approach to and methodologies used in the impact analysis; and individually numbered impact statements and associated discussion of project-specific and cumulative impacts of the proposed project and a determination of the significance of each impact. For impacts determined to be significant, mitigation measures that would reduce or avoid those impacts are presented. This chapter contains the following sub-sections and environmental resource topics:

  A. Impact Overview
  B. Land Use and Land Use Planning
  C. Population and Housing
  D. Cultural Resources
  E. Transportation and Circulation
  F. Noise and Vibration
  G. Air Quality
  H. Wind and Shadow
  I. Biological Resources
  J. Hydrology and Water Quality
  K. Hazards and Hazardous Materials

- **Chapter 5, Other CEQA Issues.** Pursuant to section 15126.2 of the CEQA Guidelines, this chapter summarizes any growth-inducing impacts that could result from the proposed project, irreversible changes to the environment, and significant and unavoidable environmental impacts, and this chapter presents areas of controversy to be resolved.
- **Chapter 6, Alternatives.** This chapter presents and evaluates alternatives to the proposed project that could feasibly attain most of the project objectives as well as reduce identified significant adverse impacts of the project. It also identifies the environmentally superior alternative and describes other alternatives that were considered but rejected. Alternatives evaluated in this chapter include the following:

  - Alternative A: No Project Alternative/Code Compliant Alternative
  - Alternative B: Full Preservation Alternative/Reduced Program Alternative
  - Alternative C: Full Preservation/Similar Program Alternative
  - Alternative D: Partial Preservation 1 Alternative
  - Alternative E: Partial Preservation 2 Alternative
  - Alternative F: Partial Preservation 3 Alternative
  - Alternative G: Partial Preservation 4 Alternative

- **Chapter 7, Report Preparers.** This chapter lists the EIR authors and consultants; project sponsor and consultants; and agencies and persons consulted.

- **Appendices.** The appendices include the Notice of Preparation, the initial study, and supporting technical information for the EIR. The following appendices are included in this EIR:

  - Appendix A: Notice of Preparation and Scoping Comments
  - Appendix B: Initial Study (includes analysis of: archeological resources, human remains, and tribal resources; greenhouse gas emissions; recreation; utilities and service systems; public services; geology and soils; mineral and energy resources; and agriculture and forest resources)
  - Appendix C: Transportation Supporting Information
  - Appendix D: Noise Supporting Information
  - Appendix E: Air Quality Supporting Information
  - Appendix F: Wind and Shadow Supporting Information
  - Appendix G: Biological Resources
  - Appendix H: Water Supply Assessment
  - Appendix I: Cultural Resources Supporting Information

CHAPTER 2
Project Description

2.A Project Overview

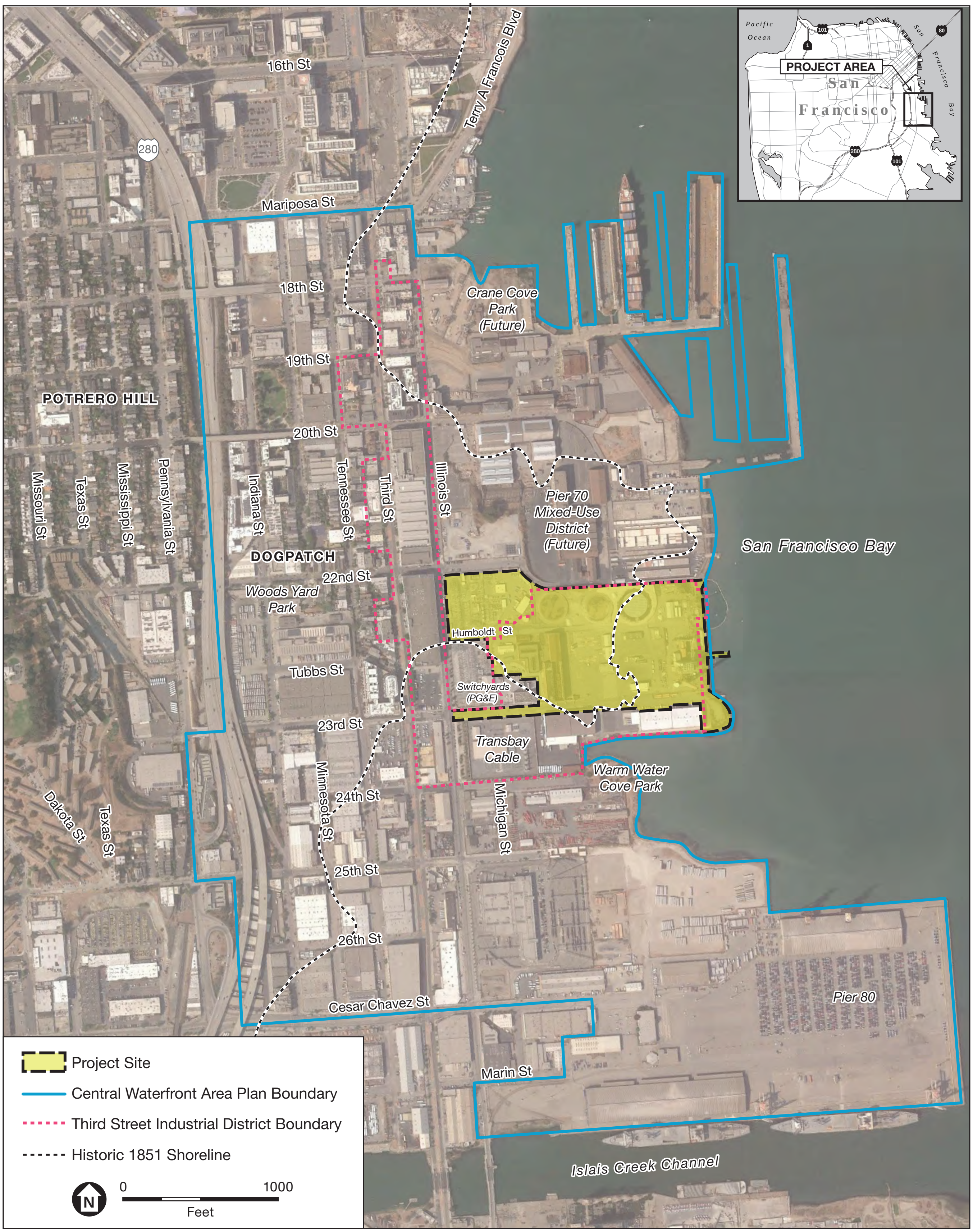
The Potrero Power Station Mixed-Use Development project (proposed project) is located on an approximately 29-acre site along San Francisco's central waterfront, encompassing the site of the former Potrero Power Plant that closed in 2011. California Barrel Company LLC, the project sponsor, seeks to redevelop the site for a proposed multi-phased, mixed-use development and to activate a new waterfront open space.

The proposed project would rezone the site, establish land use controls, develop design standards, and provide for development of residential, commercial [including office, research and development (R&D)/life science, retail, hotel, entertainment/assembly, and production, distribution, and repair (PDR)], parking, community facilities, and open space land uses. **Figure 2-1**, **Project Location**, shows the project location.

The proposed project would include amendments to the San Francisco General Plan, potentially including the Central Waterfront area plan, and San Francisco Planning Code, creating a new Potrero Power Station Special Use District (SUD). The proposed rezoning would modify the existing height limits of 40 and 65 feet to various heights ranging from 65 to 300 feet.

Overall, the proposed project would construct up to approximately 5.4 million gross square feet (gsf), of uses, including between approximately 2.4 and 3.0 million gsf of residential uses (about 2,400 to 3,000 dwelling units), between approximately 1.2 and 1.9 million gsf of commercial uses (office, R&D/life science, retail, hotel, and PDR), approximately 922,000 gsf of parking, approximately 100,000 gsf of community facilities, and approximately 25,000 gsf of entertainment/assembly uses. Most new buildings would range in height from 65 to 180 feet, with one building at 300 feet. Approximately 6.2 acres would be devoted to publicly accessible open space. A more detailed breakdown of proposed land uses is described below under "Project Characteristics and Components," p. 2-12.

The proposed project would include transportation and circulation improvements, shoreline improvements, and utilities infrastructure improvements. Transportation and circulation improvements would include: a continuous street network, connection to the planned Pier 70 Mixed-Use District project directly north of the project site; a new bus stop and shuttle service; and the installation of traffic signals at the intersections of Illinois Street at 23rd and Humboldt streets. The roadway network would be accessible for all modes of transportation and would include vehicular, bicycle and pedestrian improvements. In addition to the development of waterfront parks, proposed



SOURCE: Google Earth, 2017; ESA, 2018

Potrero Power Station Mixed-Use Development Project

Figure 2-1
Project Location

shoreline improvements would include construction of a floating dock extending out and above the tidal zone to provide access from the site to the bay for fishing and suitable recreational vessels, and stormwater drainage outfalls. The proposed project would construct infrastructure and utilities improvements to serve the proposed development, including potable, non-potable, and emergency water facilities; wastewater and stormwater collection and conveyance; and natural gas and electricity distribution.

Project construction would likely occur in seven overlapping phases (Phases 0 through 6), with each phase lasting approximately three to five years. Following the initial demolition, site preparation and rough grading for the entire site, the first phase of construction is anticipated to start on the southeast portion of the site and the last phase of construction would end in the northwest portion of the site. Construction is estimated to occur over a 15-year period, beginning in 2020 and ending in 2034, but could occur over a longer or shorter period depending on market conditions and permitting requirements. Each phase would construct a portion of the transportation and circulation improvements, utilities infrastructure improvements, open space improvements, and other aspects of the project (including bicycle and automobile parking), in conjunction with the construction of new buildings within each phase. The project characteristics presented below (including the total number of residential units, square footage of commercial use, acres of open space, bicycle and automobile spaces) are totals based on the completion of full buildout of all phases of the proposed project.

The project sponsor has filed an application for the proposed project to be certified as an environmental leadership development project by the Governor of California. The approval of this application would make the project subject to streamlined judicial review under the Jobs and Economic Improvement Through Environmental Leadership Act of 2011 (California Public Resources Code section 21178 *et seq*.) (see Chapter 1, Section 1.D.3, Assembly Bill 900, p. 1-9, for further description). Pursuant to the requirements of this act, the San Francisco Planning Department has provided a record of proceedings for the proposed project that can be accessed and downloaded from the following website: http://www.PPSmixeduse.com. The record of proceedings contains all reference documents and other materials submitted to, or relied upon by, the lead agency in the preparation of this EIR.

2.B Project Objectives

The sponsor seeks to achieve the following objectives by undertaking the proposed project:

- Redevelop the former power plant site to provide a mix of residential, retail, office, Production, Distribution, and Repair (PDR), R&D space, a hotel, and activated waterfront open spaces to support a daytime population in a vibrant neighborhood retail district and to provide employment opportunities within walking distance to residents of the surrounding neighborhood.
- Provide access to San Francisco Bay and create a pedestrian- and bicycle- friendly environment along the waterfront, by opening the eastern shore of the site to the public and extending the Bay Trail and the Blue Greenway.

- Provide active open space uses such as playing fields and a playground to improve access to sports, recreational, and playground facilities in the Dogpatch, Potrero Hill, and Bayview-Hunters Point neighborhoods and complement other nearby passive open space uses and parks in the Central Waterfront.
- Increase the city's supply of housing to contribute to meeting the San Francisco General Plan Housing Element goals, and the Association of Bay Area Governments' Regional Housing Needs Allocation for San Francisco by optimizing the number of dwelling units, particularly housing near transit.
- Attract a diversity of household types by providing dense, mixed-income housing, including below-market rate units.
- If Pacific Gas and Electric Company (PG&E) relocates its facilities in the PG&E sub-area, it would be redeveloped with community facilities, PDR, and housing in a fashion that provides continuity with the remainder of the project site and vicinity.
- Build a neighborhood resilient to projected levels of sea level rise and earthquakes.
- Incorporate the project and the anticipated adjacent Pier 70 Mixed-Use District project into a single neighborhood, by creating a network of streets and pedestrian pathways that connect to the street and pedestrian network.
- Create an iconic addition to the city's skyline as part of the Dogpatch neighborhood and the Central Waterfront.
- Provide opportunities for outdoor dining and gathering and create an active waterfront in the evening hours by encouraging ground floor retail and restaurant uses with outdoor seating along the waterfront.
- Build adequate parking and vehicular and loading access to serve the needs of project residents, workers, and visitors.
- Construct a substantial increment of new PDR uses in order to provide a diverse array of commercial and industrial opportunities in a dynamic mixed use environment.
- Create a circulation and transportation system that emphasizes transit-oriented development and promotes the use of public transportation and car-sharing through an innovative and comprehensive demand management program.
- Demonstrate leadership in sustainable development by constructing improvements intended to reduce the neighborhood's per capita consumption of electricity, natural gas, and potable water, and generation of wastewater.
- Create a development that is financially feasible and that can fund the project's capital costs and on-going operation and maintenance costs relating to the redevelopment and long-term operation of the property.
- Construct a waterfront hotel use in order to provide both daytime and nighttime activity on the waterfront promenade.

2.C Project Location

The project site is generally bounded by 22nd Street to the north, the San Francisco Bay to the east, 23rd Street to the south, and Illinois Street to the west. The approximately 29.0-acre site is comprised of the following five sub-areas, shown in **Figure 2-2**, **Project Site Sub-Areas and Ownership**, and described below. The sub-areas are designated based on current ownership and control.

- ***Power Station sub-area***—approximately 21.0 acres, consisting of Assessor's Block 4175/Lot 002 and Lot 017, and Block 4232/Lot 001 and Lot 006; currently owned by the project sponsor. This sub-area includes a large portion of the site of the former power station formerly owned and operated by PG&E and by NRG Potrero LLC and their predecessors.

- ***PG&E sub-area***—approximately 4.8 acres, consisting of a portion of Assessor's Block 4175/Lot 018 and owned by PG&E, located in the northwest corner of the project site, and also a portion of the site of the former power station.

- ***Port sub-area***—approximately 2.9 acres owned by the City and County of San Francisco (the City) through the Port of San Francisco (Port), consisting of three noncontiguous areas. The largest area is 1.6 acres located between the Power Station sub-area and the bay, and also includes the area of the proposed recreational dock; the second largest is 1.3 acres, located along 23rd Street between the Power Station sub-area and Illinois Street; and the smallest piece is less than one tenth of an acre, located on the northeast corner of the site next to the bay.[1]

- ***Southern sub-area***—approximately 0.2 acres consisting of a portion of Assessor's Block 4232/Lot 010 and owned by Harrigan Weidenmuller Company, located south of the Power Station sub-area along 23rd Street.

- ***City sub-area***—The City owns a triangular-shaped area less than one tenth of an acre between the Power Station and Port sub-areas along 23rd Street.

Note that currently the project sponsor is only able to control the development of the Power Station sub-area because the other sub-areas are owned and controlled by different entities. The project sponsor is seeking approval by the Port as part of the proposed project to construct open space and street improvements on the Port sub-area. The project sponsor has received letters of authorization from the Port, PG&E, and Harrigan Weidenmuller Company to study the proposed project on their respective properties, but those entities have not determined whether to develop their properties as part of the project. In particular, PG&E has not determined the feasibility of relocating the utility facilities in the PG&E sub-area, or whether PG&E will sell the PG&E sub-area to any other entity to be redeveloped. PG&E's decision regarding relocating facilities and a possible sale will require regulatory review and approval by the California Public Utilities Commission and Federal Energy Regulatory Commission. This document, and the description of development within the PG&E sub-area contained herein, reflects a blueprint for potential development that provides continuity across the entire project site and analyzes the potential environmental impacts of the project as a whole as required under CEQA.

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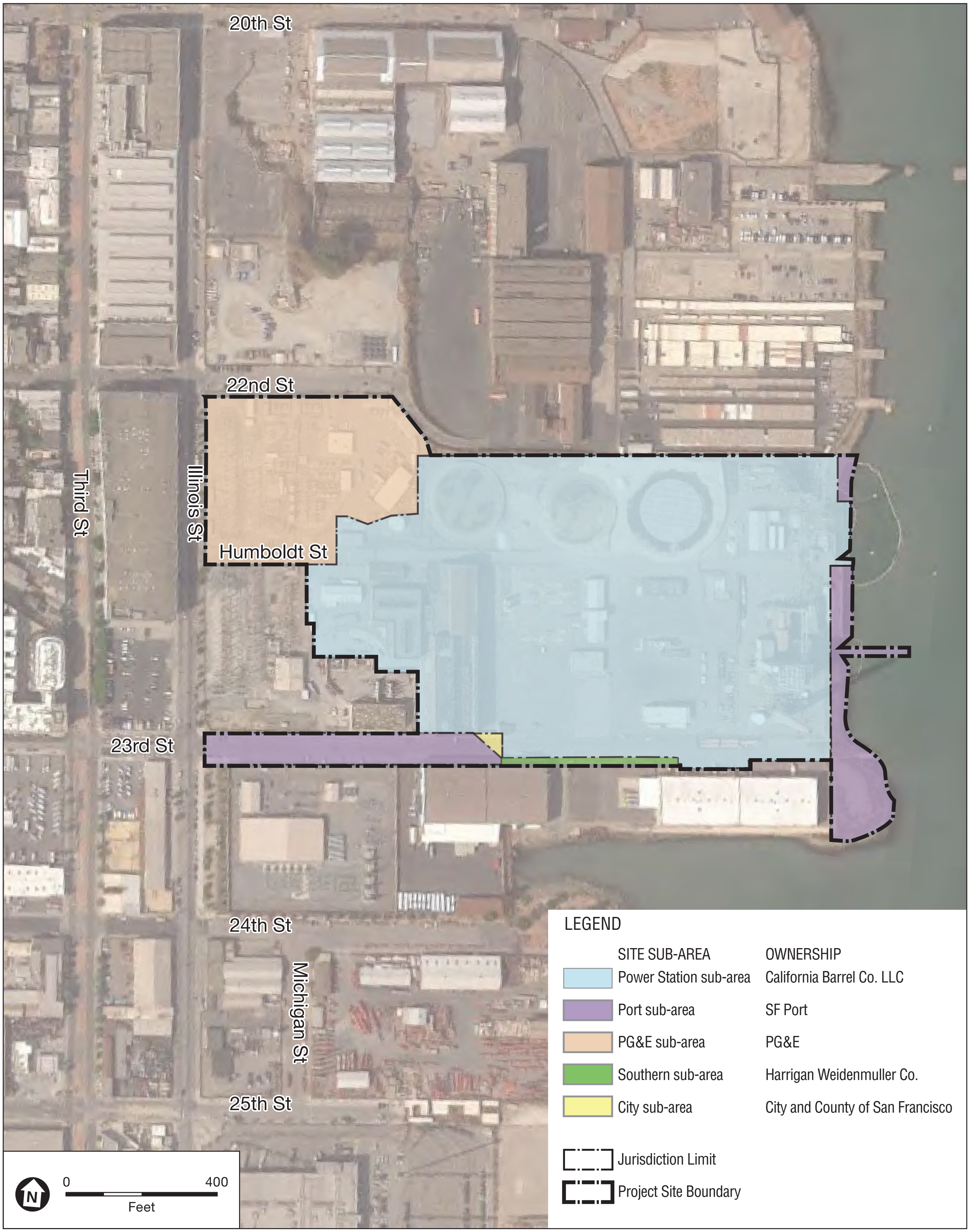
[1] The Port sub-area, and City sub-area described below, are not assessed properties, and therefore do not have assigned Assessor's Block numbers.



SOURCE: Perkins+Will 2017; Google Earth, 2017; ESA, 2018

Potrero Power Station Mixed-Use Development Project

Figure 2-2
Project Site Sub-Areas and Ownership

2.D Existing Land Uses and Site History

2.D.1 Existing Site Characteristics and Site History

Existing structures at the project site consist primarily of vacant buildings and facilities, as shown in **Figure 2-3**, **Existing Structures on Project Site**. The project site currently has little vegetation other than occasional ruderal weeds, unmaintained vegetation, and a row of street trees along Illinois Street at the western boundary of the site and on a short segment of the north side of 23rd Street (recently planted as part of PG&E's substation work on 23rd Street). Current uses on the Power Station sub-area include warehouses, parking, vehicle storage, and office space. Twenty-four structures remain on the site, all are associated with the former power plant. The most visually prominent of these are: (1) the Unit 3 Power Block (including a 128-foot tall steel frame boiler structure [highest point is 143 feet at the top of the elevator shaft] and 40-foot tall turbine-generator-condenser structure, see Figure 2-3, Building Key No. 25) and the four-story concrete control room building (Key No. 22); (2) the adjacent 300-foot tall concrete boiler exhaust stack (referred to herein as either the "Stack" or "Boiler Stack" – Key No. 23); and (3) the Station A buildings (including the four-story, unreinforced masonry turbine hall building, see Key No. 16) and adjoining concrete with brick façade switching center building (see Key No. 15). Please see discussion of existing historic resources on the project site below under "Historic Resources," p. 2-11 below.

Three large fuel oil storage tanks in the Power Station sub-area (see Key No. 6) were demolished and removed in mid-2017. PG&E is currently performing remediation of contaminants at the Power Station sub-area, as discussed further below under "Summary of Site Conditions," p. 2-9 below.

PG&E is currently using the PG&E sub-area for storage, offices, as a headquarters for San Francisco utility maintenance operations, gas and electric transmission, and an electrical transmission substation. The sections of the Port sub-area on the east side of the project site consist primarily of vacant land with unmaintained landscaping surrounded by a fence, rip rap,[2] and some shoreline improvements. The sections of the Port and City sub-areas in the southern portion of the project site, and the privately owned Southern sub-area, are currently part of 23rd Street, a public right-of-way, and are paved.

The project site is located within the Central Waterfront neighborhood.[3] Adjacent land uses in the general vicinity of the project site feature industrial and warehouse uses, many of which are vacant. Directly to the north of the project site is the 35-acre Pier 70 Mixed-Use District project site; a portion of this recently approved project commenced construction in May 2018. This area consists of historic shipyard property being used for a variety of temporary uses, including event venues, artist studios, storage, warehouse, parking, recycling yard, and office space. The Pier 70 Mixed-Use District project has been approved for development of up to approximately 4.2 million gsf of residential, commercial, retail/arts/light-industrial, and open space uses and improvements to existing structures; construction is planned to occur over several development phases from 2018 through 2029. San Francisco Bay lies directly east of the project site. To the south of the project site,

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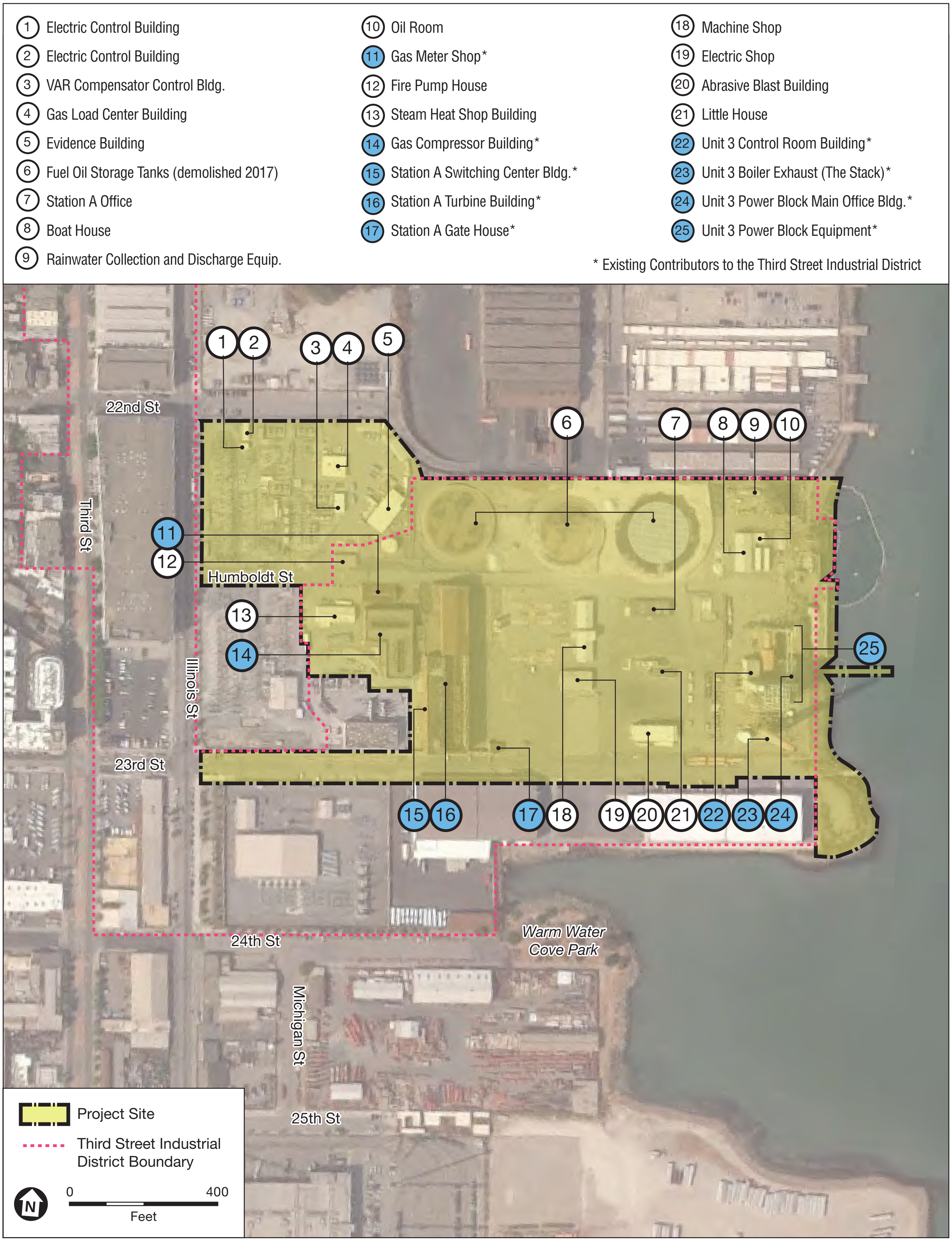
[2] Rip rap is rock or chunks of concrete placed along the shoreline to prevent erosion.

[3] The Central Waterfront neighborhood includes the entire Dogpatch neighborhood and the eastern portion of the Potrero Hill neighborhood.



SOURCE: Perkins+Will 2017; Google Earth, 2017; ESA, 2018

Potrero Power Station Mixed-Use Development Project

Figure 2-3
Existing Structures on Project Site

across 23rd Street, are commercial warehouses housing DHL Express and SF Storage, among other tenants, and the PG&E Transbay Cable converter station. Farther to the south along the bay shore is Warm Water Cove Park. To the west of the project site, across Illinois Street from the PG&E sub-area, is the American Industrial Center, a large, multi-tenant light industrial building. Adjacent to the project site to the west of the Power Station sub-area is PG&E's Potrero Substation, a functioning high-voltage transmission substation serving San Francisco. Farther west, beyond the American Industrial Center, are the residential areas of the Potrero Hill and Dogpatch neighborhoods. The nearest existing residential uses are located on Third Street, approximately 600 feet west of the project site.

2.D.2 Zoning and Land Use Designations

Zoning

Figure 2-4, **Existing Zoning on Project Site**, shows the existing zoning designations for the project site. The Power Station sub-area is zoned M-2 (Heavy Industrial) and is located in a 40-X Height and Bulk District. The portions of the Port sub-area along the shoreline are zoned M-2 (Heavy Industrial) and PDR-1-G (Production, Distribution and Repair – General) and are located in a 40-X Height and Bulk District. The PG&E sub-area is zoned M-2 (Heavy Industrial) and is located in the 40-X and 65-X Height and Bulk districts. The City and Southern sub-areas and the portion of the Port sub-area on 23rd Street consist of rights-of-way and, consequently are not within zoning or height and bulk districts.

General Plan Land Use Designations

The project site is centrally located within the eastern portion of the Central Waterfront Area Plan area (shown on Figure 2-1), which is one of the five plan areas included in the Eastern Neighborhoods Area Plan, adopted in 2009.

Port Waterfront Land Use Plan

The waterfront portion of the Port sub-area is located within the southern waterfront in the Port's Waterfront Land Use Plan, which was adopted in 1997 and is currently being updated.

2.D.3 Summary of Site Conditions

The project site has been used for various power producing and industrial activities since the mid-1800s.[4] Starting in the 1870s and continuing until the 1930s, PG&E and its predecessors used the northeastern portion of the site for manufactured gas plant operations. Around 1910, PG&E began operating a power plant on the site, which continued to be operated by NRG Potrero LLC and its predecessors after PG&E sold the site in 1999. The power plant ceased operations in 2011. Hazardous materials from these and other industrial operations have been identified in the soils and groundwater at the project site. When PG&E sold the power station (Power Station sub-area),

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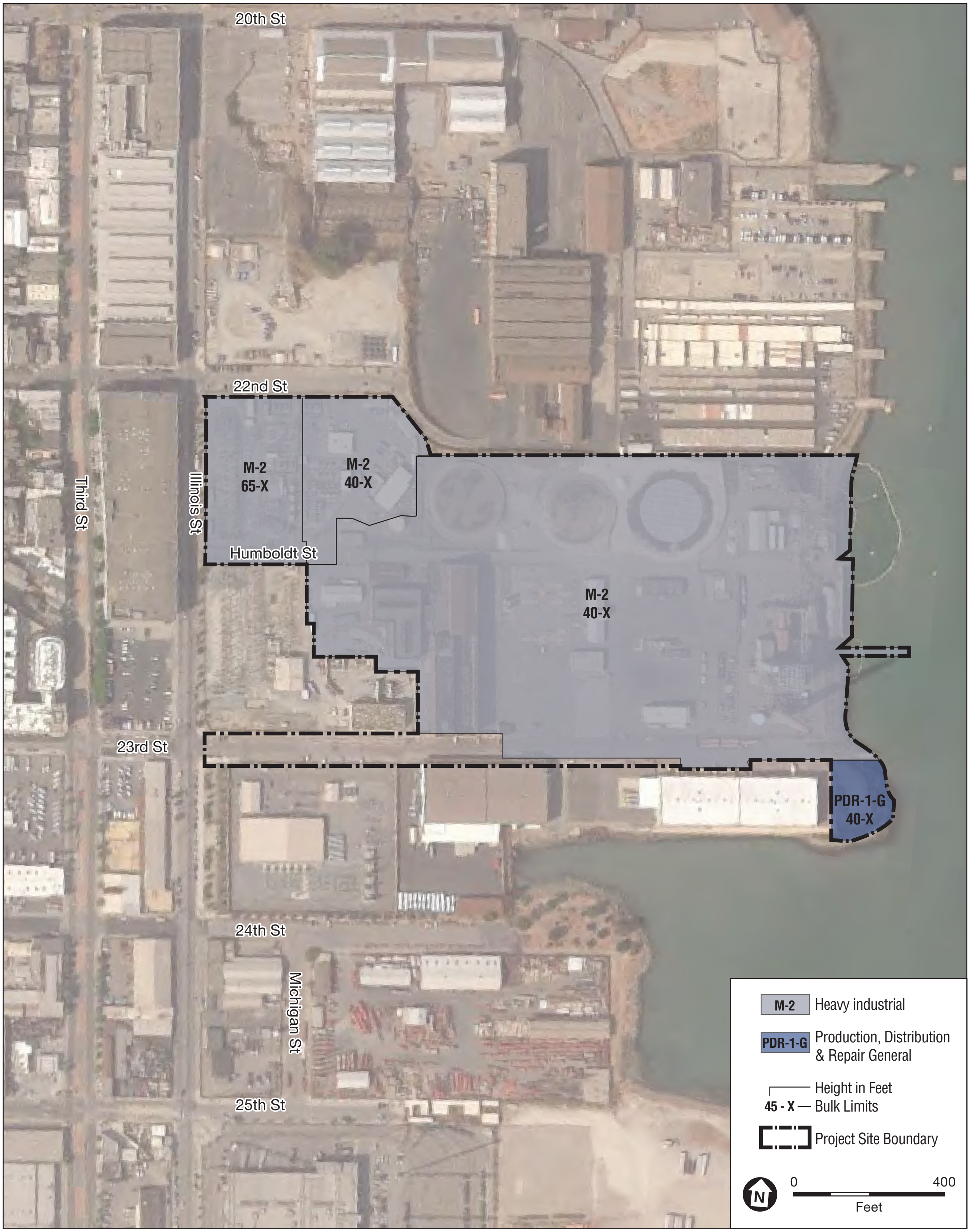
[4] Geosyntec Consultants, *Phase I Environmental Site Assessment, Former Potrero Power Plant, San Francisco, California*, August 19, 2016. This document (and all other documents cited in this report, unless otherwise noted) is available for review at 1650 Mission Street, Suite 400, San Francisco, CA, as part of Case No. 2017-011878ENV.



SOURCE: Perkins+Will 2017; Google Earth, 2017; ESA, 2018

Potrero Power Station Mixed-Use Development Project

Figure 2-4
Existing Zoning on Project Site

it retained the responsibility to characterize and remediate soil, soil vapors, and groundwater to a commercial/industrial use standard. Remediation of a majority of that property has been completed to allow commercial/industrial uses, and remediation of the remainder is currently underway under the oversight of the San Francisco Regional Water Quality Control Board. PG&E has completed remediation of the portion of the project site still under PG&E ownership (PG&E sub-area). Other areas immediately adjacent to the project site that have been or will be subject to remediation by PG&E include the PG&E switchyards to the west between Humboldt and 22nd streets, property within the Pier 70 Mixed-Use District project site to the north, and an offshore area immediately east of the project site. The remediation by PG&E of all areas on and adjacent to the project site is being conducted as directed by the regional board, irrespective and independent of the proposed project.

The remediation process for each of these areas includes conducting sampling; preparing a risk assessment; implementing appropriate remediation measures; preparing a risk management plan; and executing deed restrictions for current and future land owners. In general, PG&E's remediation plans involve removal of affected soils in some areas, in-place stabilization with cement mix of other areas where affected soils are deeper, and installation of a durable cover across the site. PG&E is undertaking environmental remediation activities to achieve a commercial/industrial land use standard at the project site, as required by the regional board. If PG&E finds that its utility facilities can feasibly be relocated and the California Public Utilities Commission and Federal Energy Regulatory Commission both approve of any such relocation, then additional onsite remediation may be required to be implemented by the project sponsor as part of the project to accommodate proposed residential uses, and/or to address previously unknown contaminants that may potentially be discovered during the course of project construction. Please see Section 2.F, Project Construction, p. 2-50 below, for a description of potential additional remediation activities that would be part of the proposed project.

The remaining portions of the project site that are not currently or previously owned by PG&E (i.e., the Port, City, and Southern sub-areas) are not subject to remediation by PG&E. However, the entire project site is subject to the conditions of Articles 21 and 22 of the San Francisco Health Code (including the Maher Ordinance), and other regulations governing handling hazardous materials and wastes. Please see Chapter 4, Section 4.K, Hazards and Hazardous Materials, for additional detail.

2.D.4 Historic Resources

A large portion of the project site is located within the Third Street Industrial District, which is eligible as an historic district on the California Register of Historical Resources, as identified in the Central Waterfront Historic Resources Survey Summary Report in 2008. This district, shown on Figure 2-1, encompasses the highest concentration of light industrial and processing properties remaining in the Central Waterfront District. The district is significant for association with the San Francisco's industrial development and includes good examples of the late 19th and early 20th century American industrial design.[5]

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[5] Page & Turnbull, 2017, *Potrero Power Station Historic Resource Evaluation—Part One. San Francisco, CA. Prepared for Associate Capital*, February 8, 2018. See Appendix I.

The project site contains six buildings determined to be contributors to the Third Street Industrial District. Station A (ca. 1901-02; 1930-31), the Meter House (ca. 1902) and the Compressor House (ca. 1924) were determined to be individually eligible for the California Register based on their associations with the PG&E gas manufacturing facility and their significance in the history of gas manufacturing in Northern California. The Gate House (ca. 1901) was also determined to be a contributor to the Third Street Industrial District, but this building was found not to be an individual resource due to its impacted integrity. These buildings were primarily constructed of brick in the American Commercial style. The Unit 3 Power Block (ca. 1965) and the Boiler Stack (ca. 1965) were also determined to be contributors to the Third Street Industrial District because they contribute to the industrial history of the Third Street area and they are prominent industrial features and visual icons of the Central Waterfront Area. Neither the Unit 3 Power Block nor the Boiler Stack is considered to be individually significant.

No buildings on the project site are listed in the National Register of Historic Places. Please see additional discussion of existing historic resources on the project site, below, in Chapter 4, Section 4.D, Cultural Resources.

2.E Project Characteristics and Components

The Potrero Power Station Mixed-Use Development project would rezone and establish development controls for a multi-phased, mixed-use development at the project site. The project would include amendments to the general plan, potentially including the Central Waterfront area plan, and planning code and create a new Potrero Power Station SUD. The SUD would establish land use controls for the project site and incorporate design standards and guidelines in a new Potrero Power Station Design for Development document (D for D). The Zoning Maps would be amended to change the current zoning to the proposed SUD zoning. These amendments would also modify the existing height limits on the portions of the project site not owned by the Port. The proposed project would include market-rate and affordable residential uses, commercial mixed uses, community facilities uses, and parking. Commercial uses could include office, research and development/life science, retail, hotel, entertainment/assembly, or PDR uses. The proposed project would also include public access areas and open space, playing fields and other active open space uses, shoreline improvements, an internal grid of public streets, shared public ways, and utilities infrastructure. Overall, the proposed project could construct up to approximately 5.4 million gsf of development. The project would pursue LEED Gold certification for each proposed building.[6]

The proposed project incorporates several options associated with four of the project elements. First, as further described under Section 2.E.1, Proposed Land Use Plan, in the next section below, the proposed project incorporates a flexible land use program in which certain blocks on the project site are designated for either residential or commercial uses (referred to as "flex blocks"), where future market conditions would ultimately determine the type and amount of land uses to be developed on

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[6] Leadership in Energy and Environmental Design (LEED) is a green building certification program developed by U.S. Green Building Council (USGBC). LEED v4 is the newest version of the program. LEED uses a green building rating system designed to reduce the negative environmental impacts of buildings and improve occupant health and well-being. Building projects satisfy prerequisites and earn points to achieve different levels of certification. Based on the number of points achieved, a project then earns one of four LEED rating levels: Certified, Silver, Gold or Platinum.

those blocks. Second, the existing Unit 3 Power Block could be repurposed through conversion to a hotel or it could be demolished and the site would be developed as a hotel or residential uses. Third, there are different options for the location of the proposed district parking garage and the soccer field that would be located on the parking garage rooftop. Fourth, as described below under Section 2.E.9, Infrastructure and Utilities, p. 2-33, there are two options for graywater treatment at the project site. Fifth, also as described below under Section 2.E.9, Infrastructure and Utilities, there are two options for wastewater and stormwater collection at the project site. Sixth, also as described below under Section 2.E.9, Infrastructure and Utilities, there is an option for a thermal energy system to serve the project. Lastly, as described below under Section 2.E.8, Transportation and Circulation Plan, p. 2-24, there are different possible widths for Humboldt Street under the proposed project, depending on when the PG&E sub-area is developed. Please refer to Chapter 4, Section 4.A, Impact Overview, for how this EIR analyzes the project option(s) that would reflect the worst-case impact analysis for each affected resource.

This EIR project description defines the “preferred project” amongst these proposed project options, as summarized below.

- Preferred Project Residential and Commercial Development: 2.7 million gsf of residential uses (2,682 residential units), and approximately 1.6 million square feet of commercial uses;
- Preferred Project Use for Unit 3: Repurpose and convert the Unit 3 Power Block into a hotel;
- Preferred Project District Parking Garage Location: The preferred location of the district parking garage, and the soccer field that would be located on the parking garage rooftop, would be on Block 5;
- Preferred Project Graywater Diversion, Treatment, and Reuse System: System would provide non-potable water to the project site;
- Preferred Project Wastewater/Storm Water Collection System: Dual system (combined sewer/separated sewer) option for the project site; and
- Preferred Project Humboldt Street Width: Expand the width of Humboldt Street from 26 to 70 feet along its entire extent across the project site.

In this project description and throughout the EIR, the term “proposed project” is used interchangeably with “preferred project” when describing project features, as outlined above, except where one of the possible project options is explicitly discussed.

Table 2-1, Potrero Power Station Mixed-Use Development Preferred Project Characteristics, summarizes the preferred project’s characteristics, including a description of the types and amounts of proposed land uses, details regarding proposed dwelling units, building heights, vehicle and bicycle parking, and other features. As shown in Table 2-1, the preferred project includes approximately 2.7 million gsf of residential uses (2,682 residential units), and approximately 1.6 million square feet of commercial uses. In addition, approximately 922,000 gsf parking, approximately 100,000 gsf of community facilities, approximately 25,000 gsf of entertainment/ assembly uses and approximately 6.2 acres of open space would be provided. Approximately 20 existing structures on the project site would be demolished; please see further discussion under Section 2.E.1, Proposed Land Use Plan, below.

TABLE 2-1
POTRERO POWER STATION MIXED-USE DEVELOPMENT PREFERRED PROJECT CHARACTERISTICS[a]

Project Characteristic	Metric	
Project Site Size and Shape	***Dimensions***	
Area	29.0 acres	
Maximum Length and Width	Approximately 1,650 feet by 950 feet	
Proposed Land Use Program[b]	***Area (gsf)***	
Residential	2,682,427	
Commercial (Retail)	107,439	
Commercial (Office)	597,723	
Commercial (R&D/life science)	645,738	
Commercial (Hotel)	241,574[c]	
Commercial (PDR)	45,040	
Community Facilities	100,938	
Entertainment/Assembly	25,000	
Parking	921,981	
Total Building Area	**5,367,860 gsf**	
Proposed Dwelling Units	***Number***	***Percentage (approximate)***
Studio	388	14.5%
1-Bedroom	1,159	43.2%
2-Bedroom	867	32.3%
3-Bedroom	268	10.0%
Total Dwelling Units	**2,682**	100%
Proposed Parking	***Number***	
Vehicle Parking Spaces[d]	**2,622**	
Car Share Spaces	38	
Bicycle Parking[e]		
Bicycle Parking class 1	1,577	
Bicycle Parking class 2	373	
Total Bicycle Parking	**1,950**	
Open Space	***Area (gsf)***	
Publicly Accessible Open Space	Approximately 6.2 acres	
Private Open Space	36 square feet per unit if located on balcony, or 48 square feet per unit if commonly accessible to residents	
Building Characteristics	***Area (gsf)***	
Stories	5 to 30 stories	
Height	65 to 180 feet; one building at 300 feet	
Ground Floor	All blocks would include ground floor active/retail/production space	
Basements	All development blocks would allow but not require one below-grade level of vehicle parking spaces[f]	

NOTES: gsf = gross square feet; R&D = research and development; PDR = production, distribution, and repair

[a] All numbers in this table are approximate.

[b] The proposed project includes a number of flex blocks, for which either residential or certain commercial uses may ultimately be selected. The numbers shown in this table show the anticipated development of the flex blocks, assuming a targeted amount/type of residential and commercial development at each flex block. The EIR addresses the potential for variation in the total amount of residential and amount and type of commercial development on the flex blocks.

[c] The hotel would have 220 hotel rooms.

[d] Per the proposed Design for Development document, the number of vehicle parking spaces is based on 0.6 space per residential unit; one space per 1,500 square feet of commercial office, R&D/life science, or PDR uses; three spaces per 1,000 square feet of grocery store use; and one space per each 16 hotel guest rooms. Dedicated car share spaces would be as required by planning code section 166. The number of car share spaces is based on one car share space per residential building with 50 to 200 dwelling units; for residential buildings with over 200 dwelling units, two car share spaces plus one for every 200 dwelling units over 200; for non-residential buildings, providing between 25 and 49 parking spaces, one car share space; for non-residential buildings providing 50 or more parking spaces, one car share space plus one for every 50 parking spaces over 50.

[e] Per the proposed D for D, the number of bicycle parking spaces reflects Planning Code requirements, as follows.

- Residential: One class 1 bicycle parking space for each dwelling unit up to 100 plus one space for every four units in excess of 100; one class 2 bicycle parking space for every 20 dwelling units.
- Office: One class 1 bicycle parking space for every 5,000 square feet of occupied floor area; two class 2 bicycle parking spaces up to 5,000 square feet of OFA plus one for each 50,000 square feet of OFA in excess of 5,000 square feet.
- PDR, R&D/life science: One class 1 bicycle parking space for every 12,000 square feet of OFA; two class 2 bicycle parking spaces up to 50,000 square feet of OFA, and an additional two for spaces in excess of 50,000 square feet of OFA.
- Retail: One class 1 bicycle parking space per 7,500 square feet of OFA; minimum two class 2 bicycle parking spaces with a rate of one per 2,500 square feet up to 50,000 square feet and an additional space for each additional 10,000 square feet.
- Hotel: One class 1 space per 30 rooms; one class 2 space per 30 rooms and one class 1 space per 5,000 square feet of conference space.

[f] Basement parking is accounted for in the above line item for parking.

SOURCE: California Barrel Company, EEA PPA Application Package, Potrero Power Station Mixed Use Development, October 2017, with 2018 updates

2.E.1 Proposed Land Use Plan

Figure 2-5, **Proposed Land Use Plan**, presents the proposed land use plan that identifies the general layout of proposed land uses. As the plan shows, the project site would be divided into 14 development blocks, numbered 1 through 14, with general land use types identified for each block. Blocks 1, 6, 7, 8 and 13 would have a "Residential" land use designation. Blocks 2 and 3 would have an "R&D" land use designation. Blocks 10 and 11 would have an "Office and/or R&D" land use designation. Block 5 would be designated as "Residential and District Parking Garage." The remaining blocks (Blocks 4, 9, 12 and 14) would be flex blocks. As shown in Figure 2-5, Blocks 4 and 12 would have a "Flex Residential or R&D or Office" land use designation, Block 9 would have a "Flex Hotel or Residential" land use designation, and Block 14 would be designated as "Flex Residential or Office" (see additional detail on flex blocks, below). Future market conditions would ultimately determine the type and amount of land uses to be developed on these flex blocks. Accordingly, the proposed project could include between approximately 2.4 and 3.0 million gsf of residential uses (between about 2,400 and 3,000 dwelling units), and between approximately 1.2 and 1.9 million gsf of commercial uses. Areas designated "Publicly Accessible Open Space" would be located along east-west and north-south axes within the interior of the project site and along the waterfront, adjacent to the bay.

Development of land uses within the PG&E sub-area, or some portion thereof, would only occur when and if PG&E determines it is feasible to relocate the existing utility infrastructure and operations, and then receives the necessary regulatory approvals to allow for any such relocation. Once the facilities are relocated, then PG&E would be able to seek regulatory approvals to divest the PG&E sub-area for development. Within the PG&E sub-area are a portion of Block 1, the entirety of Blocks 13 and 14, the proposed new Georgia Street and the proposed improvements along the westernmost segment of Humboldt Street. To the extent the project would seek to install or expand utility, transportation, and/or other infrastructure and improvements within the PG&E sub-area, this would require agreement(s) from PG&E as well as any necessary regulatory approvals.

The proposed "R&D" land use designation is envisioned to accommodate a range of life science, laboratory, and research and development uses, consistent with those allowed under Planning Code sections 102, 890.52 and 890.53.[7] The proposed entertainment/assembly space is expected to include uses that would fall under the Entertainment, Arts and Recreation land use category, including both

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[7] Consistent with planning code 890.52, life science uses involve the integration of natural and engineering sciences and advanced biological techniques using organisms, cells, and parts thereof for products and services. This includes the creation of products and services used to analyze and detect various illnesses, the design of products that cure illnesses, and/or the provision of capital goods and services, machinery, instruments, software, and reagents related to research and production. Life Science uses may utilize office, laboratory, light manufacturing, or other types of space. As a subset of Life Science uses, Life Science laboratories typically include biological laboratories and animal facilities or vivaria, as described in the Laboratory definition.

Consistent with planning code 890.53, laboratory uses are uses intended or primarily suitable for scientific research. The space requirements of uses within this category include specialized facilities and/or built accommodations that distinguish the space from Office uses, Light Manufacturing, or Heavy Manufacturing. Examples of laboratories include the following: (a) Chemistry, biochemistry, or analytical laboratory; (b) Engineering laboratory; (c) Development laboratory; (d) Biological laboratories including those classified by the Centers for Disease Control (CDC) and National Institutes of Health (NIH) as Biosafety level 1, Biosafety level 2, or Biosafety level 3; (e) Animal facility or vivarium, including laboratories classified by the CDC/NIH as Animal Biosafety level 1, Animal Biosafety level 2, or Animal Biosafety level 3; (f) Support laboratory; (g) Quality assurance/Quality control laboratory; and (h) Core laboratory.

SOURCE: Perkins+Will, 2018

Potrero Power Station Mixed-Use Development Project

Figure 2-5
Proposed Land Use Plan

General Entertainment and Nighttime Entertainment as defined by Planning Code section 102. The use would include musical, dramatic and artistic performances; meeting / conference room(s); and a bona fide eating place.[8] The proposed community facilities would contain a variety of community-serving uses; however, they are largely anticipated to have recreation and community center-type facilities. Other community facility uses could include a library and childcare facilities.

The proposed project would demolish about 20 existing structures on the project site, including three historic buildings in the Power Station sub-area—Station A, the Meter House, and the Compressor House—which as discussed above have been identified as eligible for the California Register. One other historic property in the Power Station sub-area—the Gate House—would also be demolished as part of the proposed project; as discussed above, this property has been identified as a contributor to the historic Third Street Industrial District but is not considered an individual resource because of its lack of integrity.

The Unit 3 Power Block and the Boiler Stack have also been identified as contributors to the Third Street Industrial District although they are not individual resources. Under the preferred project land use program, the project would repurpose and convert the Unit 3 Power Block into a hotel, which would involve the removal of obsolete mechanical equipment, including the boiler.[9] The repurposed structure would not exceed the existing height of the 143-foot concrete elevator shaft, although two additional floors would be added, creating a 10-story building. In some areas, the building envelope would grow to create a floor plate suitable for a hotel. However, under the proposed flexible land use program, a residential land use or new hotel could be developed on Block 9 instead of a hotel in the repurposed structure, in which case the Unit 3 Power Block would be demolished or repurposed differently. In either case, the Boiler Stack would be retained and repurposed as a ground floor retail space occupying approximately 1,000 square feet.[10] Proposed improvements to the Boiler Stack include perforations for a secondary means of egress and interior enclosures to provide a roof and any necessary structural support. Seismic retrofit or other necessary improvement of the Boiler Stack may obstruct the hollow flue.[11]

Figure 2-6, **Proposed Ground Floor Land Use Plan**, presents the proposed ground floor use plan at the project site. Ground floor frontages along Illinois and 23rd streets would host predominantly PDR uses. The waterfront-facing side of Block 4 and portions of Humboldt Street would contain primarily retail ground floor uses. All other blocks would contain predominantly active ground floor uses (e.g., neighborhood retail or residential units). Block 5 is a potential location for a grocery store, as are Blocks 1 and 13. Select building corners on Humboldt, 22nd, 23rd, Georgia, Maryland, Delaware, and Illinois streets could include retail/cultural/community facility frontages. All development blocks could include one below-grade level of vehicle parking. As shown in Table 2-1, the proposed project could provide up to approximately 2,622 accessory off-street vehicle parking spaces, some portion of which would be located in these below-grade parking areas.

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[8] Consistent with planning code section 102, a "bona fide eating place" is regularly and in a bona fide manner used and kept open for the service of meals to guests for compensation and that has suitable kitchen facilities connected therewith, containing conveniences for cooking of an assortment of foods that may be required for ordinary meals.

[9] Given the potential to create new openings in the outer walls of the Boiler Stack, restoration of the Boiler Stack is not assumed to be consistent with the *Secretary of the Interior's Standards for the Treatment of Historic Properties*.

[10] Allowable uses for the Boiler Stack include retail and entertainment, arts and recreation uses.

[11] Given the potential to create new openings in the outer walls of the Boiler Stack, rehabilitation of the Boiler Stack is not assumed to be consistent with the *Secretary of the Interior's Standards for the Treatment of Historic Properties*.

SOURCE: Perkins+Will, 2018

Potrero Power Station Mixed-Use Development Project

Figure 2-6
Proposed Ground Floor Land Use Plan

There is the potential for rooftop uses on all project blocks. These could include enclosed recreational spaces up to 16 feet in height on the rooftops of residential buildings. One square foot of privately-owned public open spaces (POPOS) would be provided for each square foot of enclosed rooftop space on non-residential buildings. In addition, enclosed Retail Sales and Service Use and Entertainment, Arts and Recreation uses (examples of uses include bars/restaurant, spa, yoga studio, entertainment venue, or childcare facility) up to 16 feet in height, not-to-exceed 5,000 square feet each, would be allowed on the rooftops on non-residential buildings. The proposed hotel on Block 9 is proposed to have rooftop bar/restaurant and hotel amenity uses, and would not be subject to the POPOS requirement. See also the proposed outdoor soccer field on a portion of the roof of the parking structure on Block 5, described under Section 2.E.5, "Open Space Improvements," p. 2-22 below. There would be the potential for outdoor amplified noise sources at rooftop commercial uses.

The district parking garage proposed on Block 5 would likely be occupied by visitors to the district's office buildings during business hours, and in the evenings the parking garage would function as a public parking garage, open to residents and visitors of the district. Alternate locations for the district parking garage, in order of preference, are Block 13 and Block 1. Because vehicular access to a district parking garage on Block 1 or 13 would be directly from the adjacent streets, the design of the garage at either location would include two separate access points from different streets with two entry lanes and two entry control mechanisms. At each access point the entry control equipment would be set back into the garage by a minimum of 40 feet to accommodate at least two vehicles queuing within the garage at each entry lane.

The project proposes 15-foot building setbacks on Blocks 1 through 4 from the southern site boundary of the Pier 70 Mixed-Use District project. The Pier 70 Mixed-Use District project Design for Development requires that the Pier 70 project also create a 15-foot setback from the Potrero Power Station project along these blocks, resulting in a minimum 30-foot setback between buildings on the two project sites. This area would be improved by the proposed Craig Lane between Blocks 1 and 14. Block 13 would be separated from the Pier 70 site by 22nd Street. On the northeast side of Block 14, where there is no intervening street between the project site and the Pier 70 project site, there could be no setback between buildings on the two project sites.

The proposed project includes a dock to be used for recreational vessel berthing and fishing. Please see additional detail for this project element under "Infrastructure and Utilities, Proposed Dock," p. 2-44 below.

2.E.2 Building Heights

Figure 2-7, **Proposed Height District Plan**, presents the proposed height district plan. The proposed project would amend the Zoning Map (except with respect to portions of the project site owned by the Port) to modify the existing height limits of 40 and 65 feet to heights ranging from 65 to 300 feet. As shown in Figure 2-7, proposed height limits would generally step up from east to west across the project site and then step down again towards Illinois Street. Block 9 and the eastern portion of Block 4 would each have a proposed height limit of 65 feet. The western portion of Block 1, and Blocks 5 and 7 would have height limits of 180 feet, and Block 6 would have a 300-foot height limit. Several of the project site blocks (No. 1, 5, 6, and 7) would allow for podium structures with

SOURCE: Perkins+Will, 2018

Figure 2-7
Proposed Height District Plan

height limits (65 to 85 feet) lower than the upper level heights[12]; and other blocks (1, 4, and 8) would have split height limits.[13]

2.E.3 Project Wind Attenuating Features

The project model tested in the wind tunnel evolved through an iterative process in which various building layouts and setbacks were tested to identify a scenario that met the project sponsor's overall goal for development envelope and also resulted in no adverse effects on pedestrian winds. The testing began with an initial massing concept consistent with the proposed height and bulk map and including basic building setbacks above a base height, generally 65 or 85 feet. Based on the tunnel test results for the massing concept, features were incorporated to ameliorate adverse pedestrian wind conditions at specific locations on the project site. The features included in the final wind-tunnel model were a canopy between buildings on Blocks 6 and 10 and a porous wind screen surrounding the proposed rooftop soccer field on Block 5.

2.E.4 Design for Development

The proposed SUD that would establish land use controls for the project site and would also incorporate design standards and guidelines in the Design for Development document (D for D). The D for D would set forth the underlying vision, standards, and guidelines for development of the project site and would be adopted as part of the proposed SUD. The standards and guidelines would cover building design, land coverage, density, setbacks, open space character, and the public realm, along with other design controls for development. In addition, the architectural detail and surface treatments of the buildings would be guided by the D for D. Certain massing and architecture requirements would apply project-wide and others would be location-specific. The D for D would require street trees to be planted in appropriate locations with grasses and other plantings to create a new landscape compatible with the proposed project.

Standards in the D for D would be mandatory, measurable, and quantitative design specifications. Guidelines in the D for D would be more qualitative and flexible. The proposed planning code amendments (included in the SUD) and the D for D would, together, guide and control all development within the SUD after project entitlements are obtained. Subsequent submittals of proposed building designs would be evaluated for consistency with both the SUD and the D for D.

The D for D would establish controls for bulk restriction, articulation and modulation, building materials and treatment, building frontage utilization, design parameters for open space, streets, and parking and loading standards.

The proposed D for D would include chapters that set forth controls and guidance with respect to land use, open space, the street network and character of project streets, and building design and massing. The chapters on buildings includes subsections on site-wide massing and architecture,

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[12] Blocks No. 6, 7 and 8 would have height limits for the podium structure, and a separate height limit for the tower that rises above the podium; both height limits are measured from finished grade.

[13] Blocks No. 1, 4 and 5 would have split zoning heights, where one half of each block would be subject to a separate height limit (or height limits, in the case of a podium structure plus tower above).

architectural character, and parking and loading. With respect to historic architectural resources, the proposed D for D would include both site-wide standards and guidelines, applicable to the entire project site, as well as certain location-specific standards and guidelines that would be applicable to new construction adjacent to historical resources on the project site (i.e., internal portions of the project site facing the Boiler Stack and, if it is retained, the Unit 3 Power Block) and other such location-specific standards and guidelines for new construction facing offsite portions of the Third Street Industrial District. The proposed D for D also includes both site-wide and location-specific standards and guidelines applicable to project sustainability.

2.E.5 Open Space Improvements

As shown in **Figure 2-8**, **Proposed Park and Open Space Plan**, the proposed project would provide approximately 6.2 acres of publicly accessible open space. These improvements are intended to complement the planned Pier 70 Mixed-Use District project waterfront improvements; extend the Blue Greenway and Bay Trail through the project site; and create an urban waterfront space, activated by the proposed uses in the buildings adjacent to the waterfront-facing open spaces. Key components of the open space program area are described below:

- ***Waterfront Park.*** This proposed approximately 3.6-acre waterfront park would extend the Blue Greenway and Bay Trail from the Pier 70 Mixed-Use District project through the project site, and provide spill-out spaces for retail, quiet spaces, and waterfront viewing terraces and recreational area. Additional amenities could include trellis structures, a recreational dock, and public art.

- ***Louisiana Paseo.*** This proposed 0.7-acre plaza-type open space adjacent to Blocks 6 and 10 could have gardens, wind canopy/trellis structures, and seating areas.

- ***Power Station Park.*** This proposed 1.22-acre central green space would extend east-west through the interior of the project site and connect the Louisiana Paseo to the waterfront. This park could contain play or fitness structures, art, trellis structures, barbecues, and outdoor dining areas. The eastern portion of the park would contain a flexible lawn area suitable to accommodate two U-6 soccer fields.[14]. The western portion of the park between the Louisiana Paseo and Maryland Street is intended for community-centered activities and active recreation.

- ***Rooftop Soccer Field.*** A public open space is proposed on a portion of the roof of the parking structure on Block 5. This rooftop open space would include a screened 0.68-acre U-10 soccer field.[15]

Temporary events would be allowed in all open spaces on site. Events could include movie nights in the park, farmers markets, fairs, performances, food trucks, block parties, and weddings, any of which would be allowed in all open space areas.

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[14] U-6 soccer fields refer to soccer fields for children under six years old, and generally measure approximately 20 yards in width by 30 yards in length.

[15] U-10 soccer fields refer to soccer fields for children under 10 years old, and generally measure approximately 40 yards in width by 60 yards in length.

SOURCE: Perkins+Will, 2018

Potrero Power Station Mixed-Use Development Project

Figure 2-8
Proposed Park and Open Space Plan

2.E.6 Vehicle Parking and Loading

Figure 2-9, **Potential Off-street Parking Supply**, illustrates the proposed locations of off-street parking.[16] As shown in Table 2-1, the proposed project would provide a total of approximately 2,622 off-street vehicle parking spaces.[17] A centralized parking facility would be located at the intersection of Humboldt Street and Georgia Street and would contain approximately 819 parking spaces. The remaining 1,803 off-street parking spaces would be dispersed in below-grade or podium-level parking structures on other development blocks. All parking would be accessory to principal uses. No off-street parking would be provided for proposed retail uses on the project site. Approximately 25 on-street passenger loading spaces would be provided along the internal streets and approximately 54 commercial vehicle loading spaces would be provided, either through in-building loading docks or on-street loading zones along the internal streets. Additionally, the project would be designed with about 55 on-street parking spaces, including 11 Americans with Disabilities Act (ADA) accessible parking spaces.

All development blocks would allow—but not require—parking one level below-grade or parking within above-grade podium levels wrapped with active uses. The proposed project would include car-share parking spaces as required by the planning code, located off-street in buildings with podium/underground parking and in the proposed centralized parking facility.

2.E.7 Bicycle Parking

At least 1,577 class *1* bicycle parking spaces would be located either on the ground floor of each building or in the first sub-grade level of each building, in locations compliant with Planning Code section 155.1(a). The proposed project would include at least 373 class *2* bicycle parking spaces, all of which would be located in the right-of-way adjacent to each building or in the publicly accessible open space.[18,19]

2.E.8 Transportation and Circulation Plan

Figure 2-10, **Proposed Street Type Plan**, shows the proposed street plan. The primary east-west streets would be Humboldt and 23rd streets, which would provide access between Illinois Street to the west and Delaware Street to the east. The primary north-south streets would include Georgia, Maryland, and Delaware streets. Georgia Street would connect to 22nd Street to the north. Maryland Street would connect at grade to a planned extension of Maryland Street within the planned Pier 70 Mixed-Use District project to the north. Louisiana Street would extend north from Humboldt Street, and may or may not ultimately continue into the Pier 70 Mixed-Use District project. Louisiana and Delaware streets would connect to Craig Lane - a proposed one-way westbound service lane along the north boundary of the project site, straddling the property line with the Pier 70 Mixed-Use District project. To the south, Georgia Lane and Maryland and Delaware streets would connect to, and terminate at, 23rd Street.

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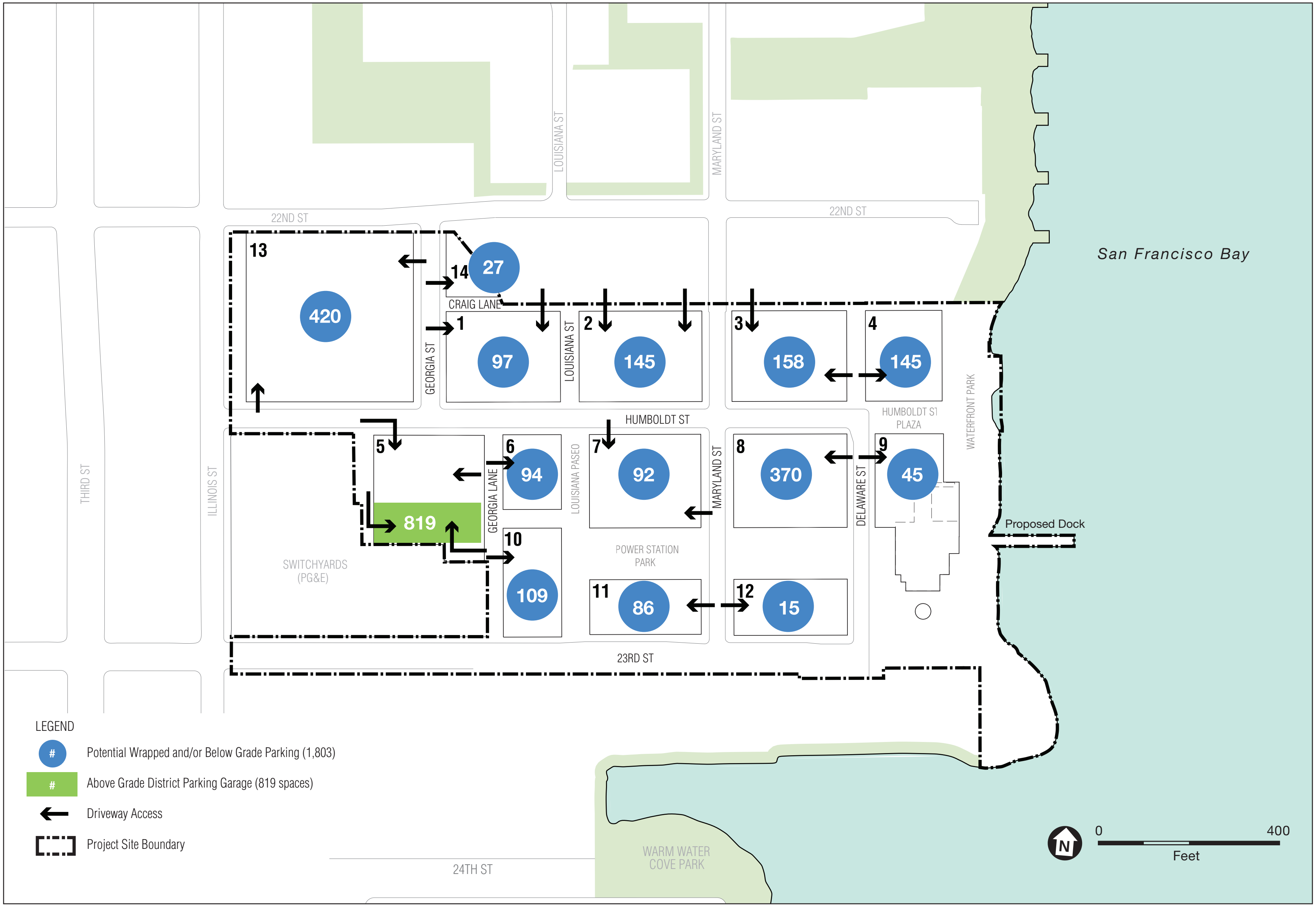
[16] Figure 2-9 shows the potential number of parking spaces per block for illustrative purposes.

[17] The actual number of off-street parking spaces would vary based on the selected use of each flex block.

[18] The actual number of bicycle parking spaces would vary based on the selected use of each flex block.

[19] Section 155.1(a) of the planning code defines class 1 bicycle spaces as "spaces in secure, weather-protected facilities intended for use as long-term, overnight, and work-day bicycle storage by dwelling unit residents, nonresidential occupants, and employees" and defines class 2 bicycle spaces as "spaces located in a publicly accessible, highly visible location intended for transient or short-term use by visitors, guests, and patrons to the building or use."



SOURCE: Perkins+Will, 2018

Potrero Power Station Mixed-Use Development Project

Figure 2-9
Potential Off-Street Parking Supply

SOURCE: Perkins+Will, 2018

Figure 2-10
Proposed Street Type Plan

As shown in Figure 2-10, Humboldt Street, Maryland Street, Delaware Street south of Humboldt Street, and Georgia Street north of Humboldt Street are proposed as neighborhood commercial streets; and 23rd Street is proposed as a mixed-use street. Louisiana Street and Delaware Street north of Humboldt Street are proposed as shared streets or alleys. Georgia Lane and Craig Lane are proposed as alleys. These proposed street types are consistent with the corresponding street types included in the San Francisco Better Streets Plan.[20]

The preferred project would expand the width of Humboldt Street from 26 to 70 feet along its entire extent across the project site. If, however, PG&E finds that it is not feasible to relocate utility facilities and/or PG&E is unable to obtain the necessary regulatory approvals for any such relocation, then the roadway would remain in its existing condition along this westernmost segment.

The proposed connection of the project street improvements to the planned development in the Pier 70 Mixed-Use District project would create a continuous street network in the Central Waterfront area. Similarly, the planned extended Blue Greenway and Bay Trail would provide pedestrian and bicycle access along the waterfront between the Pier 70 Mixed-Use District project and the project site. See also Pedestrian and Bicycle Network, below.

The proposed new streets would provide access for emergency vehicles, on-street parking, on- and off-street passenger and commercial vehicle loading. Humboldt, 23rd, and Delaware streets would be designed as primary on-street loading corridors.

The proposed project would reconstruct the sidewalk along the east side of Illinois Street between Humboldt Street and 22nd Street, improving the pedestrian experience and aesthetics of the Illinois Street corridor along the project frontage. See also discussion of Illinois Street tree changes on under “Street Tree Plan,” p. 2-30 below.

Additionally, traffic signals would be installed at the intersections of Illinois Street/23rd Street and Illinois Street/Humboldt Street, and would include pedestrian countdown signals and pedestrian crosswalks consistent with the continental design.[21] Accessible ramps would be provided at each corner of these intersections.

Pedestrian and Bicycle Network

The proposed project would include a pedestrian and bicycle network. As shown in **Figure 2-11**, **Proposed Bicycle Facilities Plan**, the proposed bicycle circulation plan includes *class I, II, III and IV* bicycle facilities.[22] *Class I* bike lanes are proposed on the Bay Trail multi-use path that would extend through Waterfront Park. *Class II* bike lanes are proposed on Georgia Lane and Maryland Street. *Class III* facilities (signed routes) are proposed on Humboldt, Georgia, and Delaware streets. The north side of 23rd Street would include a *Class IV* parking-protected bike lane.

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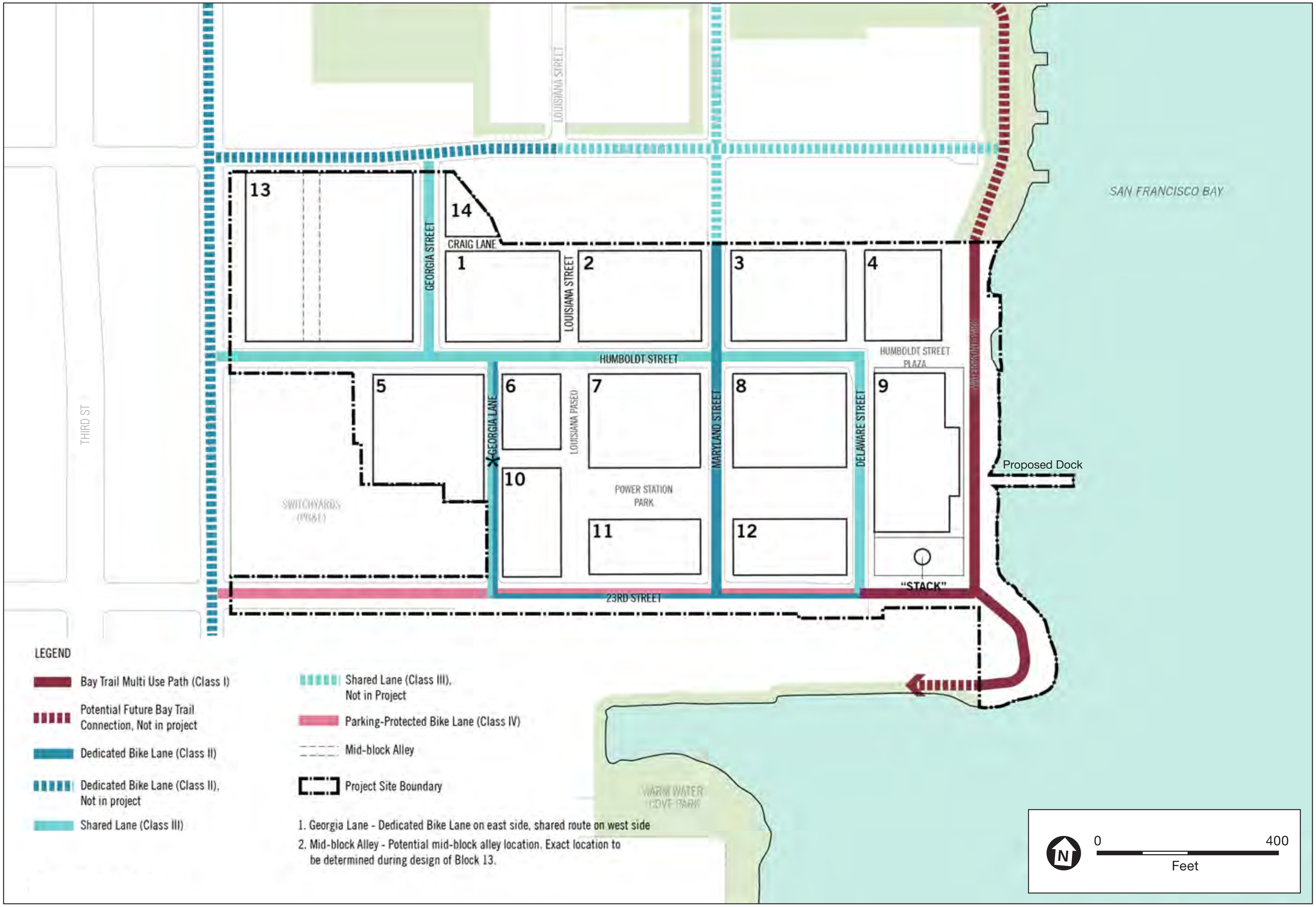
[20] San Francisco Better Streets Plan, adopted December 2010.

[21] Crosswalks with a continental design have parallel markings that are the most visible to drivers.

[22] Class I bikeways are bike paths with exclusive right-of-way for use by bicyclists. Class II bikeways are bike lanes striped within the paved areas of roadways and established for the preferential use of bicycles. Class III bikeways are signed bike routes that allow bicycles to share the travel lane with vehicles. Class IV bikeways, often referred to as cycle tracks, are for the exclusive use of bicycles, physically separated from motor traffic with a vertical feature. The separation may include, but is not limited to, grade separation, flexible posts, inflexible barriers, or on-street parking.



1. Georgia Lane - Dedicated Bike Lane on east side, shared route on west side
2. Mid-block Alley - Potential mid-block alley location. Exact location to be determined during design of Block 13.

SOURCE: Perkins+Will, 2018

Figure 2-11
Proposed Bicycle Facilities Plan

Figure 2-12, **Proposed Pedestrian Network**, illustrates the proposed pedestrian network. All proposed streets and open space areas would include pedestrian walkways. These facilities would contribute to the continuous Blue Greenway/Bay Trail to provide continuous waterfront access from the Embarcadero, including Crane Cove Park, Slipways Commons, and Warm Water Cove.

Transit

Bus service into the project site is not proposed as part of the project, however, the project could accommodate future bus service on Maryland, Humboldt, Delaware and 23rd Streets. **Figure 2-13**, **Potential Future Transit Service**, presents the proposed plan to accommodate the potential expansion of a SFMTA bus route into the project site. A bus layover would be provided at the north curb of 23rd Street east of Maryland Street. The proposed bus layover would accommodate two, 40-foot-long buses and would provide a bathroom facility for drivers. The potential SFMTA bus route is currently envisioned to enter the project site on Maryland Street from the Pier 70 Mixed-Use District project, and could leave the site via 23rd Street or loop back into the Pier 70 project site. A variant of this potential route extension could include interim service to the project site via 23rd Street, depending on actual buildout of the transportation network and development within the project site and the Pier 70 project site.

As part of the proposed Transportation Demand Management Plan (TDM) for the project, a shuttle service program would be provided as part of the proposed project. The shuttle would run during peak periods 7 a.m. to 8 p.m. on weekdays and at a minimum frequency of 15-minute intervals during weekday morning and evening peak periods. The shuttle would provide access to the 16th Street Bay Area Rapid Transit (BART) station and the 22nd Street Caltrain station. The shuttle service may or may not connect with the shuttle service to be provided under the Pier 70 Mixed-Use District project. **Figure 2-14**, **Proposed Transit Shuttle Plan**, presents the proposed shuttle route on and near the project site. See additional discussion of the TDM plan below, and in Section 4.E, Transportation and Circulation.

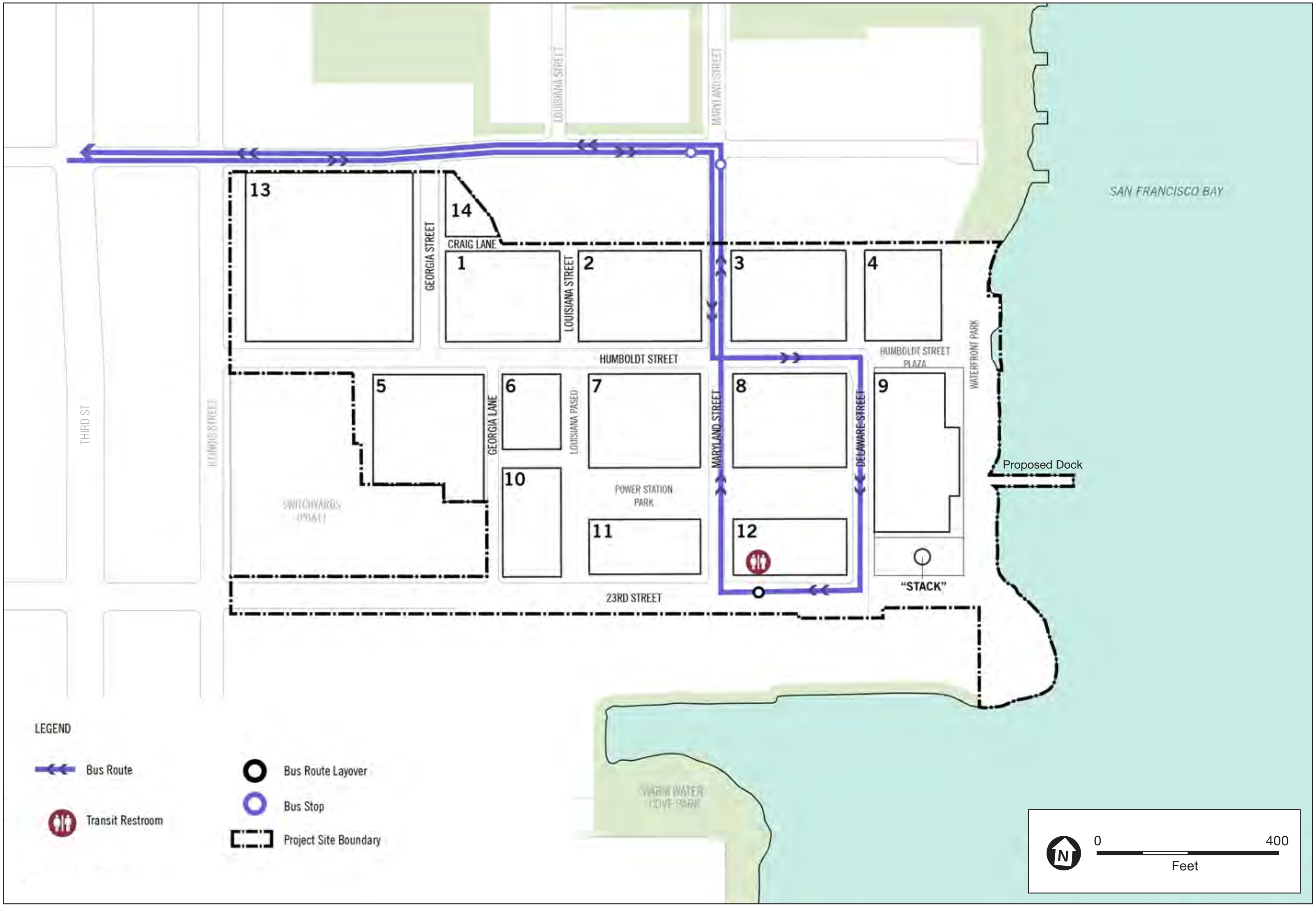
Transportation Demand Management Plan

The project sponsor has developed a proposed Transportation Demand Management (TDM) plan to support sustainable land use development, and would implement a final approved TDM plan. It would prioritize pedestrian and bicycle access and implement measures to encourage alternative modes of transportation and to support a dense, walkable, mixed-use, transit-oriented development that prioritizes safety, especially for bicyclists and pedestrians.

Key strategies in the TDM plan include improved walking conditions and bike lanes, unbundled parking, car-share parking, and other approaches to discourage use of single-occupant private vehicles. The proposed project would implement amenities and education strategies regarding transportation choices, including real-time transportation information displays and production of brochures and newsletters. See additional discussion of the TDM plan in Section 4.E, Transportation and Circulation.

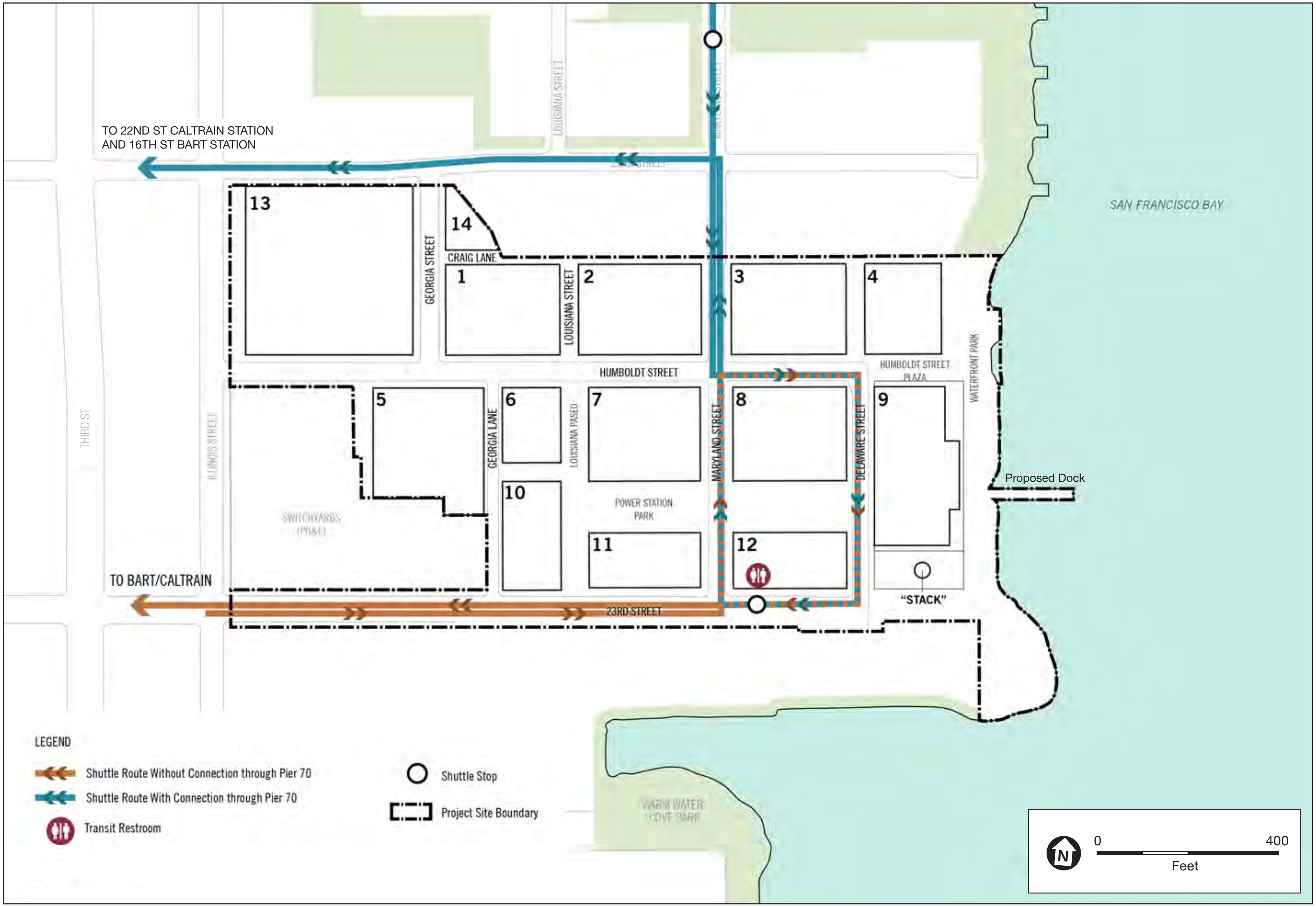
SOURCE: Perkins+Will, 2018

Figure 2-12
Proposed Pedestrian Network



SOURCE: Perkins+Will, 2018

Figure 2-13
Preliminarily Proposed Transit Bus Plan



SOURCE: Perkins+Will, 2018

Figure 2-14
Proposed Transit Shuttle Plan

As discussed under "Transit," p. 2-29 above, the proposed TDM Plan includes a shuttle service program.

Street Tree Plan

Figure 2-15, Proposed Street Tree Plan, illustrates the proposed street tree plan. As illustrated in Figure 2-15, depending on street type and location, deciduous, semi-deciduous or evergreen trees of varying heights (ranging from 40 to 50 feet tall at maturity) would be planted along pedestrian walkways.

As discussed above, there is currently a row of street trees along the east side of Illinois Street at the western boundary of the site between Humboldt Street and 22nd Street, and on a short segment of the north side of 23rd Street. As shown in Figure 2-15, the existing street trees on Illinois Street adjacent to the project would be removed outside of the nesting season and replaced. The short segment of existing trees on the north side of 23rd Street would be retained under the project.[23]

2.E.9 Infrastructure and Utilities

The proposed project would include upgrades to infrastructure and utility systems to support the proposed uses.

Potable Water

Figure 2-16, **Proposed Potable Water Plan**, illustrates the proposed onsite potable water[24] distribution system that would serve the project from the City's existing water supply system. As shown in Figure 2-16, the project would construct new potable water distribution pipelines within Humboldt, Georgia, Maryland, and Delaware streets, and Georgia Lane, and realign an existing potable water pipeline in 23rd Street, if needed. The potable water lines in Humboldt and 23rd streets would connect to an existing offsite potable water line in Illinois Street.

The potable water line in Georgia Street would connect either to an existing or new offsite potable water line in 22nd Street, depending on timing of development of the adjacent Pier 70 Mixed-Use District project.[25] The potable water line in Maryland Street would extend north to a planned new potable water line in the adjacent Pier 70 Mixed-Use District project. To reduce potable water demand, high-efficiency fixtures and appliances would be installed in all new buildings.

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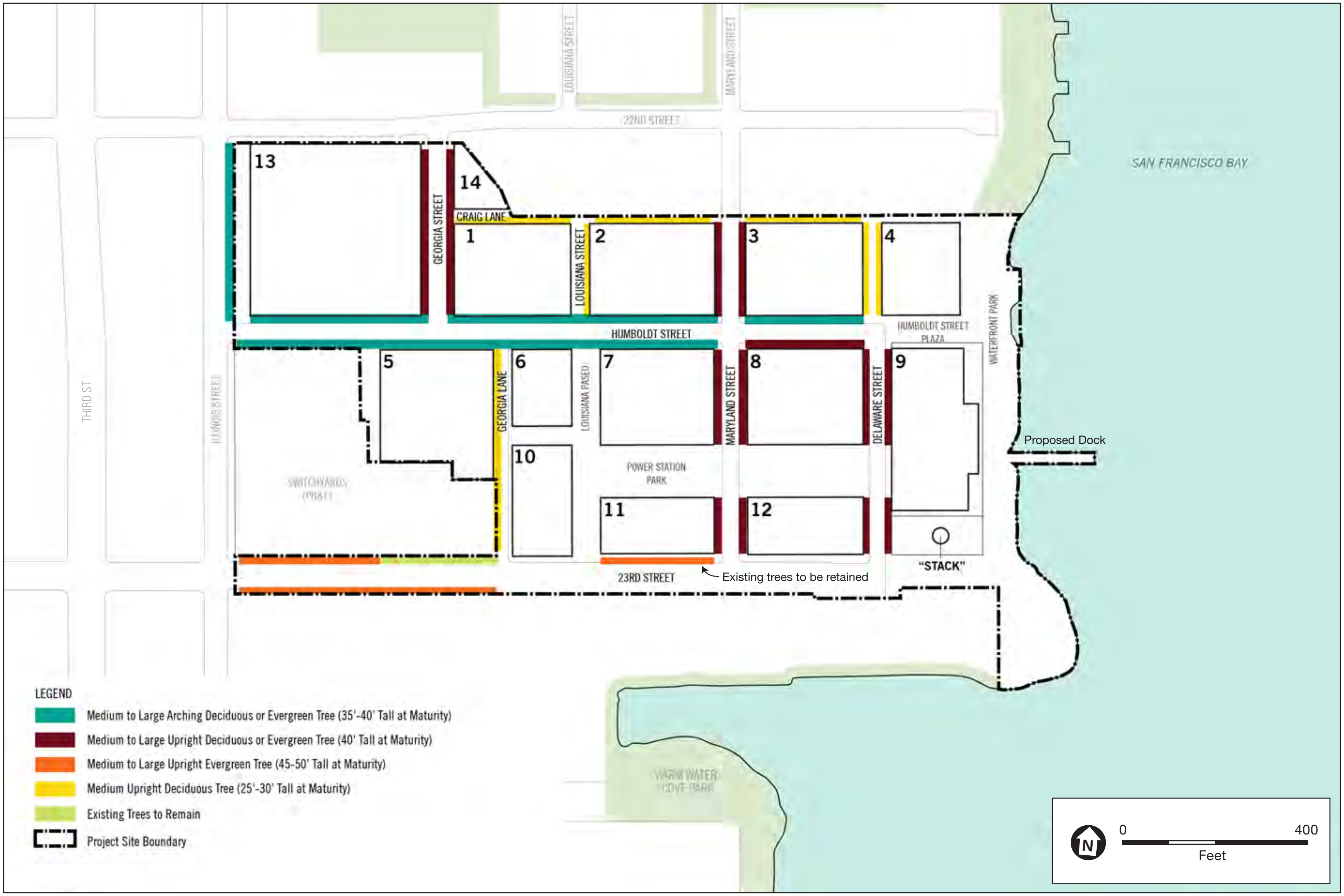
[23] If PG&E finds that it is feasible to relocate its utility facilities; it obtains the necessary regulatory approvals for any such relocation; and then once the facilities are relocated and PG&E receives regulatory approval to divest the PG&E sub-area for future development on its property along 23rd Street, then PG&E (or the new property owner, as may be applicable) would be responsible for landscaping and maintaining that project's frontage.

[24] Potable water is water that is safe for drinking or for food preparation.

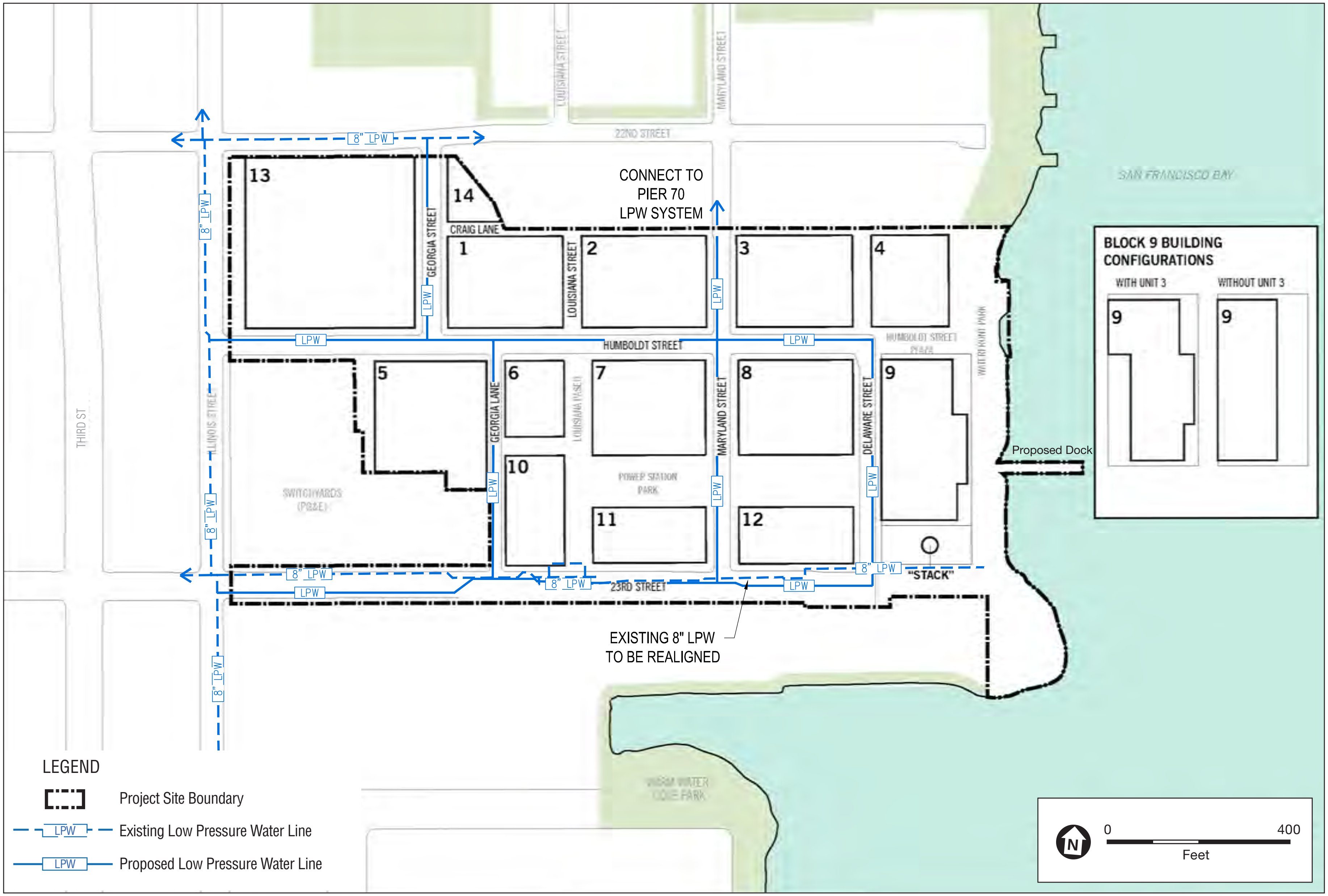
[25] If the adjacent Pier 70 project precedes this project and has already established a potable water distribution line in 22nd Street, then the proposed project would connect to that line.



SOURCE: Perkins+Will, 2018

Potrero Power Station Mixed-Use Development Project

Figure 2-15
Proposed Street Tree Plan



SOURCE: Perkins+Will, 2018

Figure 2-16
Proposed Potable Water Plan

Non-Potable Water

As shown in **Figure 2-17**, **Proposed Non-Potable Water Plan**, the preferred project includes a graywater[26] diversion, treatment, and reuse system that would provide non-potable water to the project. Blocks 1, 5, 6, 7, and 8 would include localized graywater collection (e.g., from showers and washing machines), storage and treatment facilities that would distribute the treated graywater via pressurized non-potable water distribution lines to all project site buildings for toilet and urinal flushing, irrigation in landscaped areas and potentially cooling towers and other non-potable uses. It is anticipated that each block providing a graywater treatment system would include approximately 500 square feet of space to accommodate a proposed graywater treatment unit, two 25,000-gallon graywater collection tanks, booster pumps and associated equipment. The graywater treatment systems would be fully enclosed and use mechanical filtration, minimizing potential for odor. All waste from the graywater treatment system would be flushed directly to the combined sewer system. As shown in Figure 2-17, non-potable water distribution lines are proposed within Humboldt, Georgia, Maryland, and Delaware streets, and Georgia Lane.

The project would pursue one of the following two options for complying with the City's Non-Potable Water Ordinance:[27]

- Graywater collection and treatment plants, as described above; or
- In the event the City constructs a regional non-potable water facility that provides non- potable water to the project site, the proposed project may elect to connect to this system, delivering non-potable water to development parcels through a new public non-potable water distribution system within the public right-of-way. In this case, the project would not construct a separate graywater diversion, treatment and reuse systems on private parcels.

Auxiliary Water Supply System Plan

Figure 2-18, **Proposed Auxiliary Water Supply System Plan**, illustrates the proposed high pressure auxiliary water supply system (AWSS) distribution lines that would serve the project primarily for firefighting and other emergency uses. As shown in Figure 2-18, the proposed project would include the extension of the AWSS distribution line to the project site by connecting to an existing 14-inch AWSS line in Third Street at its intersection with 23rd Street. The line would be installed in 23rd Street east of the intersection with Maryland Street, and hence northerly in Maryland Street, and connect to the offsite AWSS system planned within the Pier 70 Mixed-Use District project.

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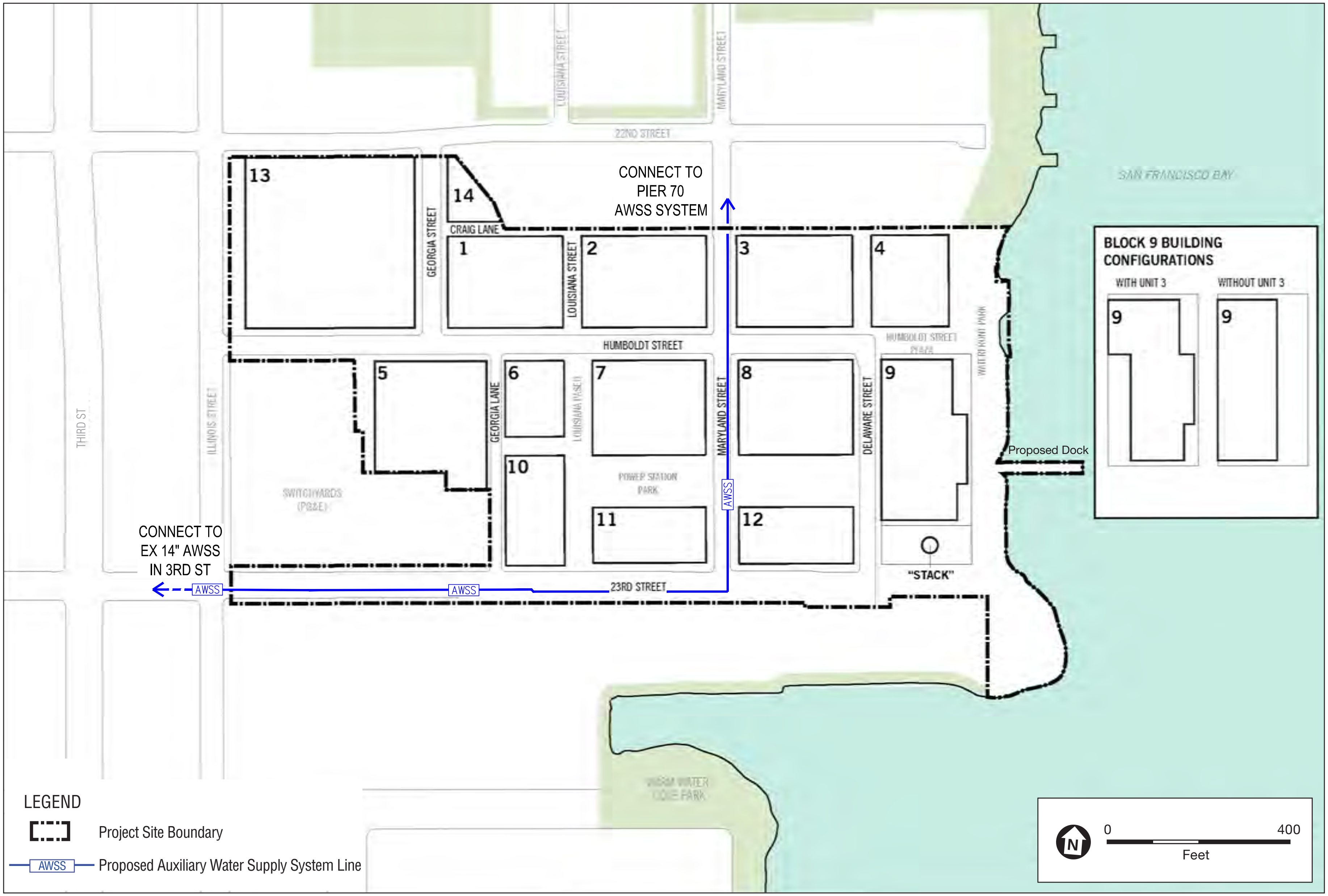
[26] Graywater is wastewater generated from wastewater sources, excluding toilets, which can be diverted, treated and reused for non-potable water purposes; please see examples provided.

[27] Article 12C of the San Francisco Health Code.

SOURCE: Perkins+Will, 2018

Potrero Power Station Mixed-Use Development Project

Figure 2-17
Proposed Non-Potable Water Plan



SOURCE: Perkins+Will, 2018

Potrero Power Station Mixed-Use Development Project

Figure 2-18
Proposed Auxiliary Water Supply System Plan

Wastewater (Sanitary Sewer) and Stormwater Plan

The proposed project is considering two options for wastewater and stormwater collection at the project site: 1) a dual system [combined sewer (i.e., combined sanitary sewage plus storm water flows)/separated sewer (i.e., separated sanitary sewage and storm flows) system] configured to maintain existing drainage patterns (preferred option), and 2) a project-wide combined sewer system. The dual system option is part of the preferred project. Each option is described below:

Dual System (Combined Sewer/Separated Sewer) Option (Preferred Project)

As shown in **Figure 2-19**, **Dual System (Combined Sewer/Separated Sewer) Option (Preferred Project),** under the preferred dual system (combined sewer/separated sewer) option, new combined sewer system pipelines would be installed in the portions of the streets within the western watershed of the project site and new separate sanitary sewer and storm drain lines would be installed within the remainder of the project site in the eastern watershed.

The proposed site grading would maintain existing drainage patterns and provide a clear differentiation of the two watersheds within the project site to protect from any potential overflow discharges from the combined sewer system to the bay.

Sanitary sewer flows from the eastern watershed of the project site would be collected by a proposed separated sewer system and conveyed to a proposed 3.5 cubic-foot-per-second (cfs) sanitary sewer pump station with backup emergency generator to be installed onsite near the Unit 3 Power Block. The sanitary sewer pump station would convey these sanitary sewer flows via a force main[28] in Delaware and 23rd streets to an existing combined sewer system line in the west side of 23rd Street,[29] and hence offsite to the existing combined sewer system line in Illinois Street. Project sanitary sewer flows collected from Block 10 would be conveyed directly to the 12-inch combined sewer system line in 23rd Street, and then similarly offsite to the combined sewer system line in Illinois Street. Stormwater flows from the eastern watershed would be collected by new onsite separated storm drain pipelines. Storm flows collected by this system would be conveyed to a new outfall located on the east side of the project in the vicinity of the former Unit 3 Power Block intake, and then discharged to the bay.

Stormwater runoff and sanitary flows from the western watershed would be collected by the proposed combined sewer pipelines and conveyed to the existing combined facilities in Illinois Street, 22nd Street, and 23rd Street. This would include Block 5, Block 10, and the western portions of Block 13. Additionally, flows from the segment of Georgia Street north of Craig Lane and Block 14 would be conveyed to the combined sewer system in 22nd Street proposed by the Pier 70 project. All project-generated sanitary sewage would be conveyed to and treated at the existing Southeast Water Pollution Control Plant.

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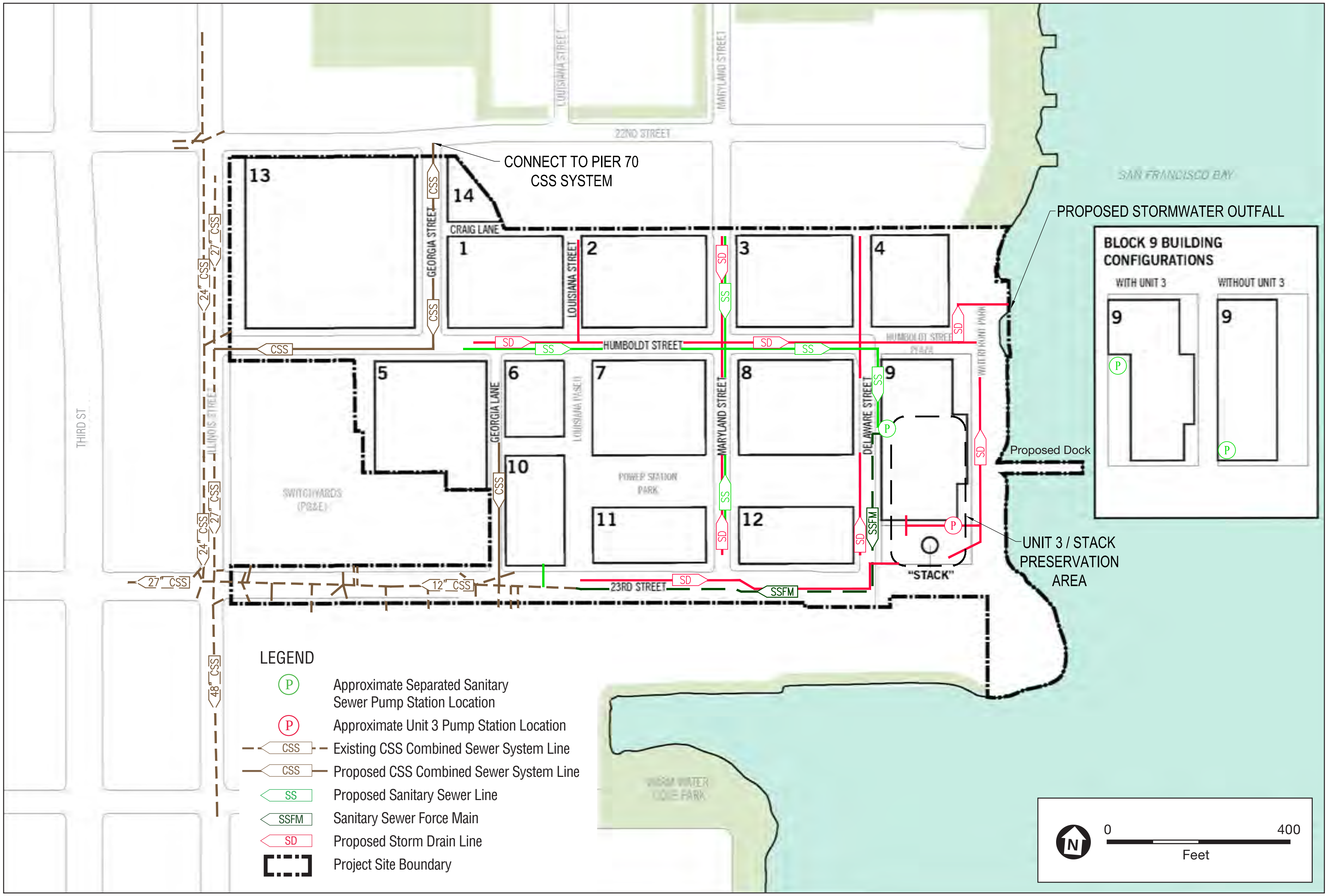
[28] Force mains move wastewater under pressure; in this case from pressure from the proposed pump station.

[29] This existing 12-inch sewer line is planned to be replaced by the San Francisco Public Utilities Commission as part of its ongoing pavement renovation and sewer replacement project.



SOURCE: Perkins+Will, 2018

Potrero Power Station Mixed-Use Development Project

Figure 2-19
Dual System (Combined Sewer / Separated Sewer) Option (Preferred Project)

Project-Wide Combined Sewer System Option

As shown in **Figure 2-20**, **Project-Wide Combined Sewer System Option**, under the project-wide combined sewer system option, new combined sewer system lines would be installed throughout the project site within the public street network. The combined sewer system option would maintain the existing drainage patterns of the project site. Project-generated combined sewer flows within the eastern watershed would be collected and conveyed to a proposed combined sewer pump station[30] to be installed along Delaware Street near the Unit 3 Power Block. The pump station facility would be connected to storage facilities, consisting of either pipelines or a vault, located near the pump station to accommodate the infrequent peak storm flows and prevent overflow discharges to the bay. The combined sewer storage facilities would be installed underground adjacent to the pump station, in the open space between Delaware Street and Unit 3 Power Block, and would provide approximately 65,000 cubic feet of active storage.

The combined sewer pump station would convey these combined sewer flows via a force main to the 12-inch combined sewer system line in Delaware and 23rd streets, then to an existing combined sewer system line in the west side of 23rd Street, and hence offsite to the existing combined sewer system line in Illinois Street. The existing 12-inch combined sewer system line in 23rd Street would need to be increased in size to accommodate the wastewater and stormwater flows from the entire project.

Project-generated combined sewer flows collected within the western watershed would be conveyed directly to the existing combined systems surrounding the project site. Flows from Blocks 5 and 10 would be conveyed directly to the combined sewer system line in 23rd Street, and then similarly offsite to the combined sewer system line in Illinois Street. Project-generated combined sewer flows collected from Block 13 would be conveyed directly offsite via a reconstructed connection to the combined sewer system line in Illinois Street. Other project combined sewer flows collected from the northwest portion of the project site would be collected and conveyed directly to a reconstructed combined sewer line in the west side of Humboldt Street, and hence offsite to the combined sewer system line in Illinois Street.

All project-generated combined stormwater/sewage would be conveyed to and treated at the existing Southeast Water Pollution Control Plant. The combined sewer flows from the portion of Georgia Street north of Craig Lane and from Block 14 would be conveyed to the combined sewer system in 22nd Street, which is to be constructed as part of the Pier 70 Mixed-Use District project.

Stormwater Management

Under either the dual system (combined sewer/separated sewer) or project-wide combined sewer option, the proposed project would include a stormwater management system that would comply with the City's stormwater management ordinance. The stormwater management system would incorporate low-impact design concepts, as follows: project buildings would incorporate rainwater harvesting and reuse systems, bio-filtration treatment flow-through planters, and use green roofs where feasible. Open space and waterfront areas would include bio-filtration treatment (including

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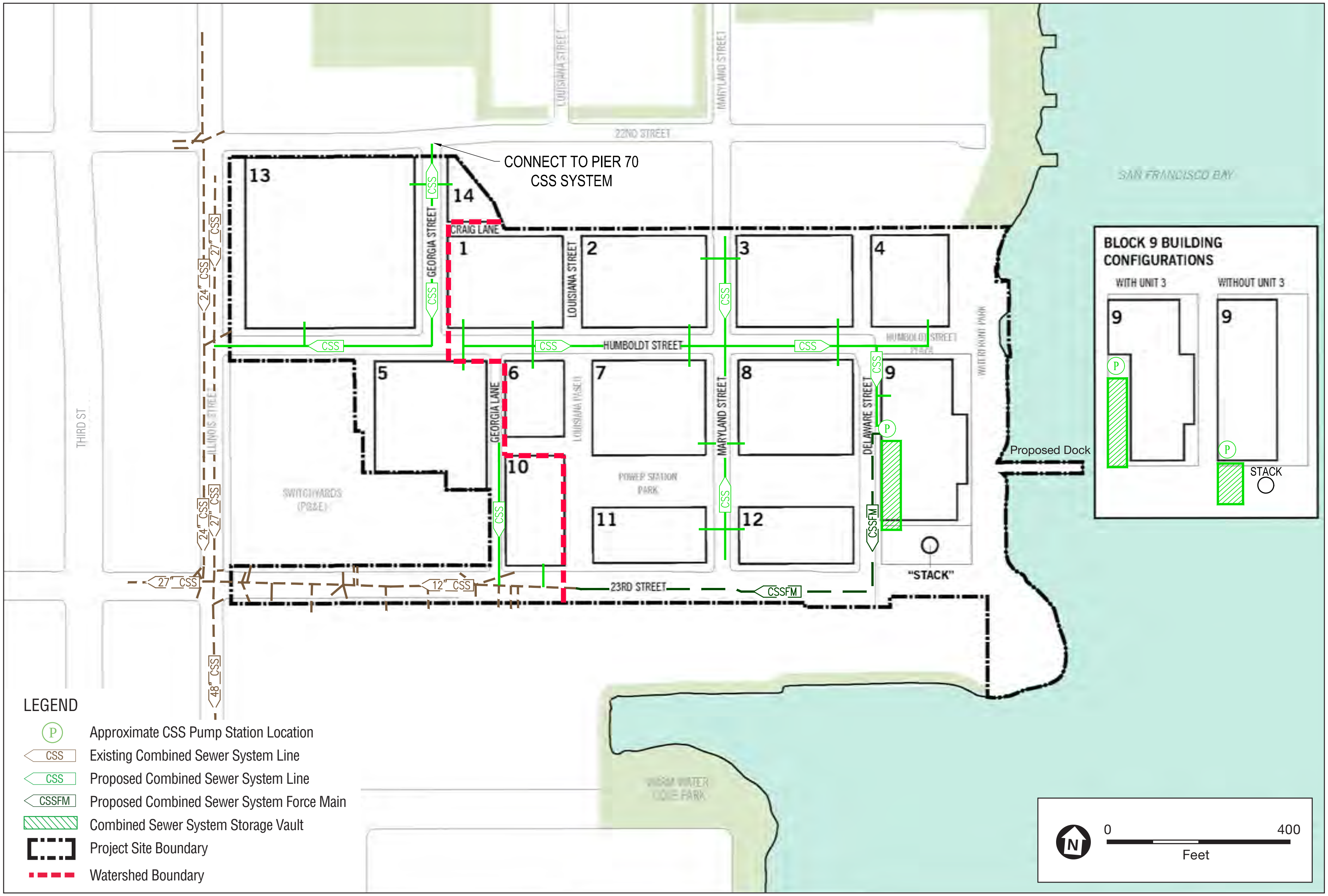
[30] The combined sewer pump station would be enclosed and include two pumps rated at 2,000 gpm each, an emergency generator, electrical and control panels, and odor control equipment.



SOURCE: Perkins+Will, 2018

Potrero Power Station Mixed-Use Development Project

Figure 2-20
Project-Wide Combined Sewer System Option

bioretention basins, rain gardens, and flow-through planters), rain water harvesting and reuse, and permeable surfaces. As required, proposed streets would also incorporate bio-filtration via bioretention planters and basins, and make use of permeable surfaces where feasible.

Electricity and Natural Gas

The project site has existing electrical service from overhead power lines adjacent to the site. The proposed project would extend underground electrical distribution lines to serve each proposed building. Other existing underground high voltage lines in 23rd Street would be retained. The existing electrical facilities along Illinois Street would also be retained. Existing electrical facilities that serve areas to the north bisect the project site near the planned alignment of Georgia Street. These facilities would be relocated. Other existing electrical facilities within the site would either be retained or relocated.

There is existing natural gas service to the project site in Humboldt Street. The proposed project would extend natural gas distribution lines throughout the project site, connecting to the existing facilities on both Illinois and 23rd streets.

Fourteen backup emergency generators are proposed to serve the building uses on Blocks 1 through 3, 5 through 12, and 14, in addition to the backup emergency generator proposed for the sewer pump station.

Optional Thermal Energy Plan

As illustrated in **Figure 2-21**, **Thermal Energy Plan**, a thermal energy system may serve the project. The thermal energy system would recover waste heat and utilize it for heating and cooling, further reducing the project energy demands and water demands for mechanical uses. The heat recovery equipment would consist of the use of heat recovery cooling equipment installed in the commercial buildings in Blocks 2, 3, 10, 11, and 12. Examples include the use of chiller systems with heat reclaiming capabilities that would generate cooling of water for use in the commercial buildings, but the systems would also recover hot water as a by-product of the chilled water system. The recovered hot water would then be pumped to adjacent residential buildings in Blocks 1, 4, 6, 7, and 8 for use in space heating and for domestic hot water. The system would not cross public rights of way. Because the thermal energy system may not be implemented (the system would be installed at the project sponsor's discretion), this EIR does not assume implementation of the thermal energy system for purposes of the air quality analysis or in calculating the proposed project's energy demands.

Sustainability Plan

The project sponsor is including sustainability elements within both the Design for Development and Infrastructure Plan documents addressing renewable energy considerations. The proposed project would, at minimum, comply with the state's Title 24 energy efficiency requirements, the San Francisco Green Building Requirements for renewable energy, the Better Roof Requirements for Renewable Energy Standards, and the City's Non-potable Water Ordinance, Recycled Water Ordinance and LEED Gold v4 certification for all buildings.

SOURCE: Perkins+Will, 2018

Figure 2-21
Thermal Energy System

Proposed Dock and Other Shoreline Features

The proposed project would include the construction of a dock along the shoreline in the vicinity of the Unit 3 Power Block, to be used for recreational vessel[31] berthing, and fishing. The facility would consist of a fixed wharf structure, gangway, and floating dock (see **Figure 2-22**, **Proposed Recreational Dock**).

A proposed pile-supported wharf would protrude from landside over the sloped bank and water. The wharf deck would be constructed of reinforced concrete, and measure approximately 65 feet in length (parallel to the shoreline) and 35 feet in width. The wharf would be supported on nine 24-inch concrete piles. The piles would be driven approximately 5 feet into the soil to the underlying rock formation. Three of the nine piles would be driven in water, while the other six piles would be on land above mean higher high water elevation (MHHW). The height of the wharf deck would be approximately 17.5 feet North American Vertical Datum of 1988 (NAVD88) to account for sea level rise in the future. Please also see discussion of "Proposed Improvements to Address Sea Level Rise," Section 2.E.10, p. 2-47 below.

A proposed gangway would span between the wharf and the floating dock, and measure approximately 80 feet in length by 3 feet in width. The prefabricated gangway would consist of an aluminum walkway deck, beams and handrails. The floating dock would be composed of composite boxes with foam infill or reinforced concrete and measure approximately 120 feet in length and 15 feet in width. The floating dock would be held in place by guide piles, consisting of either four 36-inch diameter steel piles, or 14 24-inch diameter concrete piles, extending approximately 70 feet into the soil. Please see also Section 2.F.1, "Construction Overview and Schedule, Construction Equipment," p. 2-50 below, for detail on construction equipment associated with the transport and installation of the wharf, gangway and floating dock.

The dock is proposed to be constructed on the shoreline just south of the existing Unit 3 Power Block outfall, at the south end of an existing seawall.

Preliminary evaluation by the sponsor indicates that the existing water depth at this location, even at extremely low tides, is sufficient to accommodate safe navigation and berthing of vessels of up to 45 feet in length at the proposed dock, without the need for initial dredging.[32,33] The dock would have a 100-foot wide navigation corridor. The northernmost boundary of the navigation corridor would be located a minimum of 10 feet to the south of the nearest offshore remediation cell (PG&E

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[31] Recreational vessels can be classified as two sub groups: powerboats and sailboats. Powerboats are all vessels that provide propulsion under their own power through a jet type engine or propeller. Sailboats are all crafts that require wind for propulsion.

[32] At this location of the Unit 3 Power Block outfall, the shoreline is relatively steep leading to a deep water channel that extends from the proposed berth area into a deep navigation channel in the Bay. It is believed that the deep channel was created by washing action from the outfall cooling water discharge when it was in operation (ceasing in 2011). Simpson Gumpertz & Heger, *Feasibility Assessment of Recreational Dock in the Potrero Power Plant Project*, November 7, 2017.

[33] The general water depth requirements for accommodating a 45-foot vessel (either a sailboat or a powerboat) is 6 feet. It is estimated that the proposed berthing area, and the navigation channel, should maintain a minimum 6-foot water depth at MLLW. The required navigation channel width to accommodate two-way vessel traffic would be 100 feet, in accordance with the Unified Facilities Criteria (UFC) 4-152-07 "Design: Small Craft Berthing Facilities," U.S. Department of Defense, September 2012. Simpson Gumpertz & Heger, *Feasibility Assessment of Recreational Dock in the Potrero Power Plant Project*, November 7, 2017.

SOURCE: Perkins+Will, 2018

Figure 2-22
Proposed Recreational Dock

Sediment Remediation Zone Cell 16) so as to avoid disturbance of the natural sediment cover in that cell. The minimum water depth at the berth and navigation corridor is 6 feet at the mean lower low water (MLLW) elevation.

However, occasional future maintenance dredging is anticipated to maintain the minimum water depth required for vessel access during project operation. Maintenance dredging is not expected to be required until 2050.

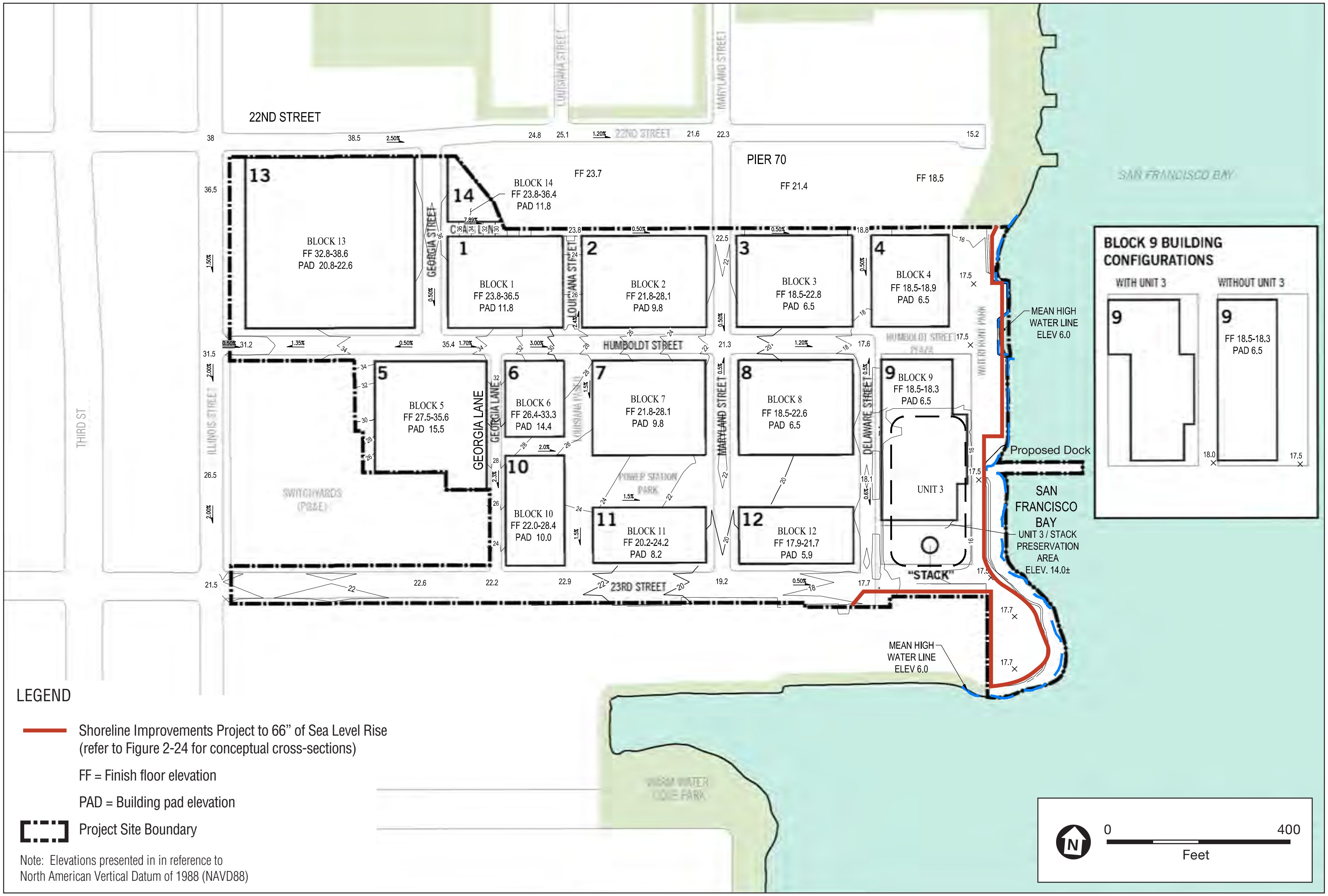
Construction of the dock and future maintenance dredging operations would take place during the approved work windows set forth by the appropriate regulatory agencies. Refer to "2.F.3, In-Water Construction Avoidance and Minimization Measures," p. 2-57 below, along with Section 4.I, Biological Resources, subsections "Project Features," p. 4.I-32, for additional information.

In addition to the dock, the proposed project may include in-water work related to the demolition, stabilization or structural improvement of the existing Unit 3 Power Block outfall structure, the cooling water intake structure (located approximately 250 feet north of the outfall structure), and the Station A intake structure (located to the south of the outfall structure). Also, as discussed under "Dual System (Combined Sewer/Separated Sewer) Option (Preferred Project)," above, under the preferred project, a stormwater outfall for discharging runoff from the project site would be installed in the vicinity of the existing Unit 3 Power Block intake structure. Removal of fill as mitigation for new bay fill created by the project would be provided.

2.E.10 Proposed Improvements to Address Sea Level Rise

To address the potential flooding due to future sea level rise in combination with storm and high tide conditions, the proposed project would make physical improvements to the shoreline, including rock slope revetments, berms and bulkheads; and grade elevation inland. **Figure 2-23**, **Proposed Grading Plan and Location of Shoreline Improvements**, presents the proposed grading plan and location of shoreline improvements. **Figure 2-24**, **Conceptual Shoreline Improvements Cross-sections**, presents conceptual waterfront cross-sections (at Block 4, Block 9, Unit 3 Power Block, and Waterfront Park) illustrating potential shoreline improvements.

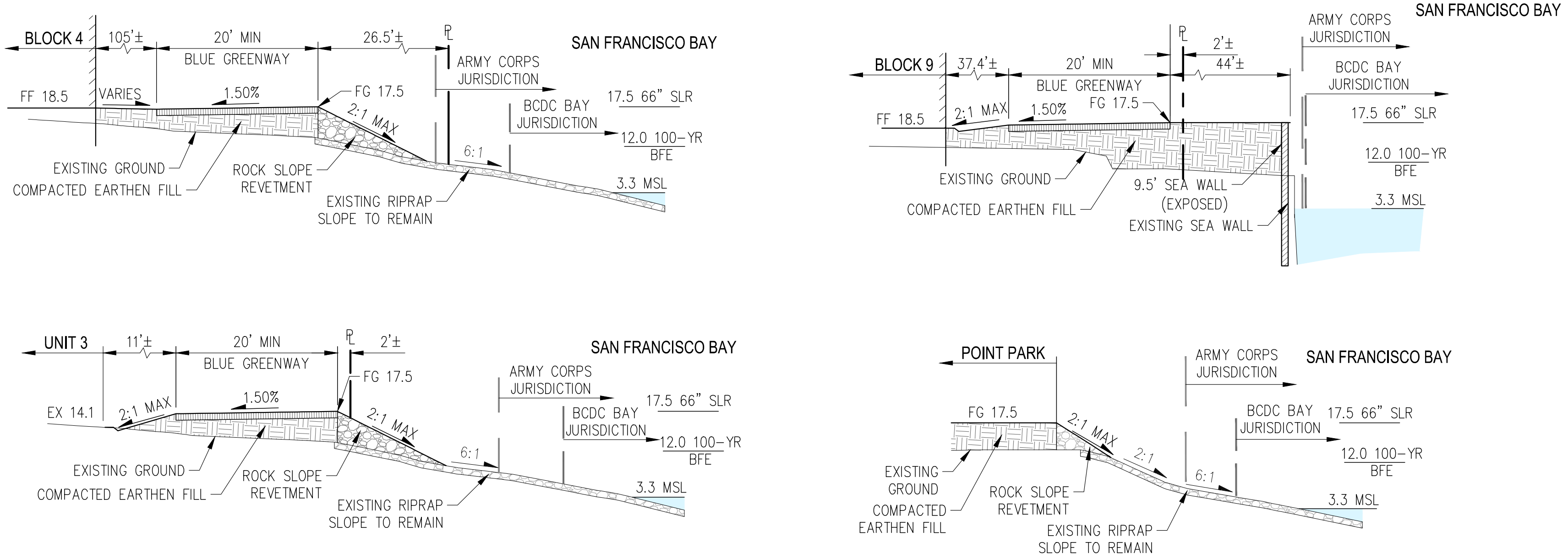
During Phase 1 of construction (see discussion of construction phases under 2.F, "Project Construction," below), elevations at the shoreline would be increased by approximately 3 to 7 feet to address flood risk due storms, extreme tides, and wave run-up. The finished floor elevations for the ground floors of buildings on Blocks 3, 4, 8 and 12 and Block 9 (with the exception of the ground floor area within the Unit 3 Power Block should it be repurposed), would be constructed at least 2 feet above the projected 100-year flood elevation with future sea level rise of up to 66 inches. If the Unit 3 Power Block is repurposed into a hotel, the finished floor elevation would stay at the existing elevation, which provides for approximately 24 to 30 inches of sea level rise protection. Additional flood and stormwater measures, including a pump and backflow, would be incorporated into the design of the Unit 3 Power Block to protect this low lying area in the case sea level rise exceeds 24 inches.



SOURCE: CBG, 2018

Potrero Power Station Mixed-Use Development Project

Figure 2-23
Proposed Grading Plan and Location of Shoreline Improvements



SOURCE: CBG, 2018

Potrero Power Station Mixed-Use Development Project

Figure 2-24
Conceptual Shoreline Improvements Cross-sections

2.E.11 Site Remediation

Another potential element of the proposed project is environmental remediation activities beyond those currently being conducted by PG&E, if deemed necessary by the Regional Water Quality Control Board. As stated above, PG&E is undertaking environmental remediation activities to achieve a commercial/industrial land use standard. Institutional controls[34] regulating the portions of the site where remediation has been completed specify that residential or other sensitive land uses are prohibited without prior approval from the regional board. The regional board-approved Risk Management Plan for these portions of the property includes a framework that must be followed to allow residential or other sensitive land uses on the site. The project sponsor would be required to implement the framework and obtain regional board approval to allow the residential and hotel components of the development as proposed. In considering its approval, the regional board may require that the project sponsor implement an additional human health risk evaluation, additional media-specific mitigation, and/or additional institutional and engineering controls, to ensure the health and safety of current and future site users, maintenance and construction workers, and the public. Additional mitigation and engineering controls may include localized soil excavation and offsite disposal, localized in-situ soil stabilization, soil vapor mitigation (e.g., sub-slab venting systems), more robust durable cover specifications, and/or more robust monitoring and maintenance activities. Such additional mitigation and engineering controls would be considered part of the proposed project.

2.F Project Construction

2.F.1 Construction Overview and Schedule

Figure 2-25, **Proposed Project Phasing Plan**, shows the proposed construction phasing on the project site, and **Table 2-2**, **Approximate Construction Schedule by Phase**, presents the anticipated approximate construction schedule for each phase. As shown in Table 2-2, construction of the proposed project is anticipated to occur in phases over the course of 15 years, from the beginning of 2020 to the end of 2034.

The initial phase of construction (Phase 0), from 2020 to approximately 2022,[35] would include demolition, site stabilization work (e.g., soil surcharging[36] and deep soil mixing[37]), site preparation and rough grading for the entire project site, including construction of interim surface parking improvements for use by construction vehicles and other site users prior to the construction of permanent parking facilities.

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[34] Institutional controls are administrative and legal controls, such as a land use covenant imposing land use or activity restrictions or a site management plan, that help minimize the potential for exposure to contamination and/or ensure the integrity of the remedial action over time.

[35] An exception would be in the location of the former tank farm area, which is subject to future remediation by PG&E (as may be required by applicable laws and regulations) that could extend beyond 2022.

[36] During surcharge programs, wick drains are installed in soft/compressible soil to accelerate drainage. A surcharge fill is then applied over the area of installed drains, and surface settlements and pore pressures within the soft/compressible material are monitored before additional soil surcharge is placed.

[37] Deep Soil Mixing (DSM) mixes soil, cement and water to create individual or overlapping columns of cement-treated soil with specified strengths and stiffness. A mixing rig with either single or multiple mixing augers is advanced to specified depths, and the cement and water are added during initial auger advancement, and also during auger withdrawal. DSM work will require use of a dry cement batch plant at the project site.

SOURCE: Perkins+Will, 2018

Potrero Power Station Mixed-Use Development Project

Figure 2-25
Proposed Project Phasing Plan

TABLE 2-2
APPROXIMATE CONSTRUCTION SCHEDULE BY PHASE[a]

Construction Phase	Start	Finish	Duration
Phase 0[b]	2020	2022	3 years
Phase 1	2022	2025	4 years
Phase 2	2024	2026	3 years
Phase 3	2025	2028	4 years
Phase 4	2027	2031	5 years
Phase 5	2030	2032	3years
Phase 6	2030	2034	5 years

[a] All start/finish dates in Table 2-2 are approximate and could be affected by market conditions, PG&E's remediation process (as may be required by applicable laws and regulations), the City's permitting process, among other factors.

[b] Phase 0 includes a subphase (Phase 0.1) that involves site preparation activities in the future PG&E remediation area (the "Tank Farm Area"). The schedule for Phase 0.1 is likely to extend beyond 2022, depending on the PG&E remediation schedule (as may be required by applicable laws and regulations).

SOURCE: California Barrel Company, 2018

After Phase 0, there would be six construction phases (Phases 1 through 6) corresponding to six areas on the project site, with each phase consisting of two to three blocks and associated areas for streets and open spaces. Within each of these phases, there would be subphases for land development, vertical construction, and open space improvements. Land development activities would include, but not be limited to, excavation activities to remove, relocate, or install utilities, site stabilization work, temporary utility improvements, and construction of streets and sidewalks. Vertical construction activities would include, but not be limited to, finish grading, excavation for subgrade parking, installation of foundation footings and pile supports, construction of building foundations and concrete podiums, building construction, and architectural coatings. Project-related site remediation may also occur during the land development and vertical construction phases to the extent required by the regional water board to approve residential use or to address previously unknown contaminants discovered during the course of development pursuant to the Risk Management Plan(s). Open space improvements would include hardscaping and landscaping improvements in open space areas.

Construction duration in each phase area would generally range from three to five years, with construction activities occurring up to seven days a week, including holidays, between 7 a.m. and 8 p.m., consistent with section 2908 of the San Francisco Police Code. Nighttime construction activities, between the hours of 8 p.m. and 3 a.m., would be limited to 23rd Street during Phase 1, before there is residential occupancy on the project site, and would only include operation of the types of equipment associated with the construction of 23rd Street, including utility installation and street improvements. Nighttime construction activities would not involve construction activities or equipment that could produce substantial noise and vibration, such as controlled rock fragmentation, impact or vibratory pile drivers, jackhammers, impact hammers, or rock drills.

As shown in Figure 2-25, the majority of the proposed project shoreline open space improvements would be constructed in Phase 1. A small subset of the shoreline improvements (between the proposed Bay Trail extension and Block 4) would be constructed in Phase 3 to allow for this portion of open space to be designed in conjunction with the design of Block 4. Since portions of Phase 5, and all of Phase 6, would be within the PG&E sub-area, construction within these areas and the adjacent street improvements would only occur when and if PG&E finds that it can feasibly relocate its utility facilities and obtains the necessary regulatory approvals for any such relocation. Once the facilities are relocated, then PG&E would be able to seek the necessary regulatory approvals to divest itself of the PG&E sub-area for redevelopment.

The following provides additional detail on project-related ground-disturbing activities during construction, including demolition; soil excavation, project remediation, and grading; blasting/ controlled rock fragmentation; building foundations; and dewatering.

Demolition

As noted above, the project would require demolishing about 20 structures, encompassing about 100,000 square feet. It is expected that there may be onsite recycling (crushing and reusing) of existing concrete materials during demolition and construction.

Soil Excavation, Project Remediation, and Grading

Soil excavation would occur during construction of the proposed project, including, but not limited to the installation of underground utility infrastructure and subgrade parking garages. In addition, site stabilization activities could include deep soil mixing, surcharge and placement of lightweight fill. Preliminary estimates indicate that up to 454,000 cubic yards of soil may be excavated, of which approximately 25,000 cubic yards would be re-used onsite; and an additional 21,000 cubic yards of new fill could be imported to the project site. The depth of excavation would range between 0 and approximately 25 feet below grade, with the maximum depth of excavation anticipated on Blocks 1 and 14.

As described in greater detail in above, under "Summary of Site Conditions," p. 2-9, PG&E has completed remediation of the PG&E sub-area, and a majority of the Power Station sub-area to a commercial/industrial use standard and is currently remediating the remainder of the Power Station sub-area to the same standard. PG&E's environmental remediation activities are independent of the project, but the project may require additional remediation activities to permit residential uses at the project site. This would include excavation by the project sponsor of contaminated soil and other remedial measures and engineering controls to the extent the regional board requires such activities to allow residential use or to address previously unknown contaminants discovered during the course of project construction. Soil excavation would also occur during construction of the proposed project, including, for example, to install utilities and allow construction of subterranean parking garages. Soil excavation, movement, stockpiling, and transportation for offsite disposal would be in accordance with the requirements specified in the Risk Management Plan(s) that apply to the project site. Such requirements include soil management protocols, dust control best management practices, stockpile management protocols, storm water pollution prevention best management practices, worker health and safety measures, field screening, and sampling/testing of soil samples. Following completion of the improvements, a durable cover would be re-established over the entire site in accordance with the Risk Management Plan(s).

The proposed grading plan is presented in Figure 2-23, above. The proposed grading plan would maintain the existing drainage patterns of the project site, with elevations sloping gently west to east toward the waterfront. The proposed elevations of the proposed buildings and public access areas along the waterfront, would include protection from sea level rise.

There is currently up to 14.5 feet of grade change between the project site and the Pier 70 Mixed-Use District project site. The Pier 70 Mixed-Use District project will be raising the grade along the property line between 7 and 10.5 feet. In order to match this future grade, the proposed project intends to lower grades up to 5 feet along the property line. This would allow for a contiguous north-south connecting street at Maryland Street and a shared east-west alley along the property line shared by the two projects.

Blasting/Controlled Rock Fragmentation

It is anticipated that the Greywacke bedrock underlying the project site, located primarily inland of the historic 1851 shoreline, as shown on Figure 2-25, may be resistant to earthwork equipment.[38] It is expected that most rock excavation, particularly in the upper 10 feet of the rock at the project site, would be achievable with conventional large excavators, but deeper excavations of rock may require blasting. An alternative to blasting that is being considered, where appropriate, is controlled rock fragmentation, by either injecting expansive materials[39] or pulse plasma injection.[40]

Building Foundations

Figure 2-26, **Proposed Foundation Type Plan**, illustrates the proposed foundation type plan for the project site. Construction of the proposed project would require deep foundations using piles for moderately to heavily loaded structures built in areas outside (bayward) of the historic 1851 shoreline, whereas shallow foundations made with spread footings with slab-on-grade or a structural mat foundation may be used inland of the historic 1851 shoreline. Structures in the vicinity of the historic 1851 shoreline may be founded on intermediate foundations (shallow foundations with ground improvement on the fill side), or a dual foundation system (shallow foundations on the bedrock side, and piles on the fill side). Deep foundations are anticipated during Phases 1 and 3. Phases 1, 3, and 4 may involve intermediate foundations. Shallow foundations are anticipated for Phases 2, 3, 4, 5 and 6.

As shown in Figure 2-26, deep foundations are proposed in Blocks 4, 8, and 9. Deep foundations would be comprised of steel pipe-piles driven to bedrock beneath these blocks. Pile driving operations would likely be performed over a maximum duration of six weeks per block, with about

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[38] Based on a study of rock hardness conducted in support of the adjacent Pier 70 project, where similar rock to the bedrock at the project site exists.

[39] Using controlled foam injection, a high-pressure foam is injected into a predrilled hole. Fracturing is achieved by controlling the pressure of the foam. This method produces almost no fly rock or airblast and the pressures needed to break rock with this method are substantially less than those needed for methods using small explosive or propellant charges.

[40] Pulse plasma rock fragmentation uses a pulsed electrical discharge to produce shocks or pressure waves. The blasting probe is placed into a water-filled cavity and the pulse propagates into the rock, leading to fracture. Compared with conventional blasting methods, pulse plasma rock fragmentation causes less vibration, noise, and dust, and uses no chemical substances.

SOURCE: Perkins+Will, 2018

Potrero Power Station Mixed-Use Development Project

Figure 2-26
Proposed Foundation Type Plan

two piles installed per hour, on average, and approximately 400 to 500 piles per block, for a total of 1,200 to 1,500 piles. The maximum pile length for the project is anticipated to be 70 feet, and pile diameters are anticipated to range from 14 to 16 inches in diameter. Intermediate foundations requiring piles on Block 3, 5, 10, and 12 would account for about 650 additional piles, with construction ranging between one and four weeks per block. In total, between 1,850 and 2,100 piles would be installed for foundations at the project site.

The proposed dock would also require piles; please see discussion of pile installation for this project feature under "Proposed Dock and Other Shoreline Features," p. 2-45 above.

Dewatering

Depending on excavation depths, water levels, and permeability of materials excavated, various measures by the contractor may be employed to lower groundwater to 3 feet below excavation depths. Dewatering during construction would likely be required for Blocks 3, 4, 8, 9, 12, and to a lesser extent, for Blocks 5 and 10. Dewatering may also be required during utility trenching/construction. (Please see Chapter 4, Section 4.J, Hydrology, Water Quality, and Sea Level Rise for additional detail.)

The project sponsor is also considering approaches to address potential long-term groundwater infiltration to proposed below grade facilities should they be located below or near static groundwater levels, including designing basement walls to accommodate hydrostatic pressures, and a permanent waterproofing design. Permanent waterproofing and hydrostatic pressures would be incorporated into the building design so that permanent dewatering would not be required.

Construction Employment

Table 2-3, **Project Daily Construction Workers**, **by Year**, summarizes the estimated project construction jobs. As shown in Table 2-3, the number of daily construction workers present onsite daily would vary over the course of construction, depending on the specific construction activities being performed, and overlap between construction phases.

TABLE 2-3
PROJECT DAILY CONSTRUCTION WORKERS, BY YEAR[a]

Year	Peak Number of Daily Workers	Year	Peak Number of Daily Workers
2020	102	2028	377
2021	228	2029	135
2022	282	2030	401
2023	180	2031	312
2024	317	2032	233
2025	398	2033	42
2026	200	2034	102
2027	149		

SOURCE: California Barrel Company, 2018

2.F.2 Construction Equipment

A variety of mobile and stationary construction equipment would be used at the project site during construction. It is expected that track-mounted cranes and pile hammer and/or drill rigs would be used at the project site for landside pile installation for the deep foundations. Track/tire-mounted cranes and/or tower cranes would also be used for building construction, including but not limited to, steel and precast erection, and building façades. Other mobile equipment such as excavators, graders, backhoes, loaders, dump trucks, compactors, pavers and forklifts would be used at the project site for a range of other construction tasks on the project site, including excavation, site clearing and grading, building construction, and/or hardscape and landscape materials installation. Project construction would also generate offsite truck trips for deliveries of concrete and other building materials, transportation of construction equipment to and from the site, hauling soils and debris from the site, and street sweepers. Miscellaneous stationary equipment would include generators, crushing and processing equipment and cement and mortar mixers. A variety of other, smaller, mechanical equipment would also be used at the project site during the construction period, such as jackhammers/pavement breakers, saw cutters, chopping saws, tile saws, stud impact guns, impact drills, torque wrenches, welding machines, and concrete boom pumps.

With respect to proposed in-water and overwater construction activities, a variety of landside and waterside equipment would be used. It is anticipated that a landside track-mounted crane with pile hammer and/or other appropriate installation device would be used to install the piles over the shoreline slope to support the proposed wharf. The proposed concrete wharf deck would be constructed over the piles by way of either a cast-in-place reinforced deck, or cast-in-place concrete pile caps with precast concrete deck panel and cast-in-place concrete overlay. The proposed prefabricated floating dock and gangway would be transported to the project site on barges towed by tugboats. A landside track-mounted crane would be used to lift the gangway off the barge and set it onto the pile-supported wharf and the floating dock, after which the gangway would be structurally connected. A track-mounted crane fitted with pile hammer and/or other appropriate installation device atop a deck barge (maneuvered by a tugboat) would be used to install the off-shore guide piles for the floating dock. See also proposed Section 2.F.3, "In-Water Construction Avoidance and Minimization Measures," below.

2.F.3 In-Water Construction Avoidance and Minimization Measures

The project sponsor would require that contractors employ general best management practices for pollution prevention and construction management during construction. In order to avoid and/or minimize potential impacts to jurisdictional waters and water quality, the following standard construction best management practices (BMPs) shall be included in the construction contract specifications for in-water construction. These measures would be subject to modification and additions based upon regulatory and resource agency review:

- In-water construction activities (i.e., dredging and pile installation) shall be restricted to the National Oceanic and Atmospheric Administration approved seasonal work window (June 1 to November 30), which encompasses the California Department of Fish and Wildlife seasonal work window for Pacific herring.

- No debris, rubbish, creosote-treated wood, soil, silt, sand, cement, concrete, or washings thereof, or other construction-related materials or wastes, oil, or petroleum products shall be allowed to enter into or placed where it would be subject to erosion by rain, wind, or waves and enter into jurisdictional waters.
- Protective measures, such as having designated secondary containment areas, shall be utilized to prevent accidental discharges to waters during fueling, cleaning, and maintenance.
- Floating booms shall be used to contain debris discharged into waters and any debris shall be removed as soon as possible, and no later than the end of each workday.
- Machinery or construction materials not essential for project improvements shall not be allowed at any time in the intertidal zone. The construction contractors shall be responsible for checking daily tide and current reports.
- The sponsor shall have a spill contingency plan for hazardous waste spills into the San Francisco Bay.

To reduce potential effects to biological resources, the following measures shall be implemented by the project for in-water construction, subject to agency review and approval:

- To reduce potential impacts from noise due to pile-driving, the contractor shall implement one or more of the following as needed:
  - Use vibratory methods for installation of steel piles to the extent practicable
  - Use cushion blocks between hammer and piles
  - Implement a "soft start" technique[41]

2.G Graphic Exhibits of Proposed Project

A number of graphic exhibits depicting the proposed project development are presented in **Figures 2-27** to **2-31** at the end of this chapter for informational purposes.

2.H Required Project Approvals

The proposed project is subject to review and approvals by several local, regional, state, and federal agencies. Certification of the Final EIR by the San Francisco Planning Commission, which would be appealable to the San Francisco Board of Supervisors, is required before any other discretionary approval or permits would be issued for the proposed project. The proposed project may require major project approvals and/or plan amendments from the agencies listed in the following sections.

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[41] Whereby the impact hammer contacts the pile by gravity alone, which allows marine mammals to safely vacate the work area prior to pressure-driven use of the hammer.

2.H.1 Federal Agencies

U.S. Army Corps of Engineers

- Possible Clean Water Act section 404/Rivers and Harbors Act section 10 permit
- Dredged Material Management Office Permit

U.S. Fish and Wildlife

- Approval and/or permits for potential impacts to federally listed species under the federal Endangered Species Act

National Marine Fisheries Service

- Possible Essential Fish Habitat consultation
- Possible Federal Endangered Species Act consultation

Federal Energy Regulatory Commission

- Approval(s) relating to the relocation of PG&E operations, including, without limitation, any required approvals with respect to cost, land conveyance, and benefit/necessity determination(s)

2.H.2 State and Regional Agencies

San Francisco Bay Conservation and Development Commission

- Approval of permits for improvements and activities within the commission's jurisdictions, including a major use permit

Regional Water Quality Control Board - San Francisco Bay Region

- Approval of section 401 water quality certification
- Approval of requests for residential or other sensitive uses in areas with a land use covenant restricting such uses without regional board approval
- Site-specific approval of soil disturbance activities under the applicable Risk Management Plan
- General Construction Stormwater Permit

Bay Area Air Quality Management District

- Approval of any necessary air quality permits (e.g., Authority to Construct and Permit to Operate) for individual air pollution sources, such as boilers and emergency diesel generators

California Public Utilities Commission

- Approval to evaluate the benefit to PG&E customers from relocating PG&E operations to proceed with the proposed project in the PG&E sub-area
- Approval of proposed cost and plan to relocate PG&E operations
- Approval of an easement on PG&E land to others
- Approval of property sale, including price, terms and benefit to rate payers.

California Department of Fish and Wildlife

- Approval and/or permits for potential impacts to state-listed and California Department of Fish and Wildlife managed species under the California Endangered Species Act

2.H.3 Local Agencies

San Francisco Board of Supervisors

- Approval of general plan amendments, potentially including the Central Waterfront Plan
- Approval of planning code amendments and associated zoning map amendments
- Approval of a development agreement
- Approval of final subdivision map
- Approval of street vacations, dedications and easements for public improvements, and acceptance (or delegation to Public Works Director to accept) of public improvements, as necessary

San Francisco Planning Commission

- Certification of the Final EIR
- Approval of "Proposition M" office allocation per San Francisco Planning Code section 321, to the extent applicable
- Approval of Design for Development
- Initiation and recommendation to the San Francisco Board of Supervisors to approve amendments to the San Francisco General Plan, potentially including the Central Waterfront Plan
- Initiation and recommendation to the San Francisco Board of Supervisors to approve planning code amendments adopting a special use district and associated zoning map amendments
- Recommendation to the San Francisco Board of Supervisors to approve a development agreement

San Francisco Port Commission

- Adoption of findings regarding public trust consistency, if applicable
- Consent to a development agreement and recommendation to the San Francisco Board of Supervisors to approve, if applicable
- Approval of project construction-related permits for property within Port of San Francisco jurisdiction
- Approval of Construction Site Stormwater Runoff Control Permit

San Francisco Department of Building Inspection

- Issuance of demolition, grading, and site construction permits

San Francisco Public Utilities Commission

- Consent to development agreement

- Approval of stormwater management plan
- Approvals of the landscape plan per the Water Efficient Irrigation Ordinance
- Water Budget Application, Water Use Calculator, and Non-potable Implementation Plan per the Non-potable Water Ordinance
- Use of dewatering wells per Article 12B of the San Francisco Health Code (joint approval with the San Francisco Department of Public Health)
- Approval of vacation of public service utility easements (if necessary)

San Francisco Public Works

- Review of subdivision maps and presentation to the San Francisco Board of Supervisors for approval
- Consent to development agreement
- Issuance of public works street vacation order, if applicable

San Francisco Municipal Transportation Agency

- Approval of transit improvements, public improvements and infrastructure, including certain roadway improvements, bicycle infrastructure and loading zones, to the extent included in the project, if any
- Consent to development agreement

San Francisco Fire Department

- Consent to development agreement

San Francisco Department of Public Health

- Oversee compliance with San Francisco Health Code Article 22A (Maher Ordinance)
- Permit to operate under the Non-Potable Water Ordinance

SOURCE: Steelblue LLC

Figure 2-27
Rendering Looking North Along Proposed Waterfront Park

SOURCE: Steelblue LLC

Figure 2-28
Rendering Looking North Along Proposed Waterfront Park
With Pier 70 Mixed-Use District Project (under construction), as Massing in Distance

SOURCE: Steelblue LLC

Potrero Power Station Mixed-Use Development Project

Figure 2-29
Rendering Looking East Along Proposed Power Station Park Towards Unit 3 Power Block, the Boiler Stack, and the Bay

SOURCE: Steelblue LLC

Potrero Power Station Mixed-Use Development Project

Figure 2-30
Rendering Looking East Along Proposed Humboldt Street Extension
Towards Proposed Humboldt Street Plaza and the Bay

SOURCE: Steelblue LLC

Potrero Power Station Mixed-Use Development Project

Figure 2-31
Rendering Looking North Along Improved 23rd Street
Towards Proposed Waterfront Park and the Bay

CHAPTER 3

Plans and Policies

3.A Introduction

This chapter describes any inconsistencies between the proposed project and applicable plans and policies, per CEQA Guidelines section 15125(d). This analysis evaluates the objectives and policies of the San Francisco General Plan, including the Central Waterfront Area Plan that includes the project site, and other applicable local and regional plans to determine if there would be any inconsistencies with implementing the proposed project or proposed open space and street network changes. This chapter also discusses the proposed project's compliance with the San Francisco Planning Code, which implements the general plan. Where inconsistencies are identified that could result in physical effects on the environment, those effects are analyzed in Chapter 4, Environmental Setting, Impacts, and Mitigation Measures, in the appropriate topic section. In particular, regional plans pertaining to air quality (e.g., the 2017 Bay Area Clean Air Plan) are discussed in Chapter 4, Section 4.G, Air Quality.

General plans and other such policy documents typically contain numerous objectives and policies emphasizing differing legislative goals, and an interpretation of consistency requires the balancing of all relevant policies. The San Francisco Planning Commission, San Francisco Board of Supervisors, and other decision-makers will review the proposed project for consistency with the objectives, policies and principles of the San Francisco General Plan, including the Central Waterfront Area Plan, and will consider possible amendments proposed to achieve general plan conformity. The staff reports and approval motions prepared for the decision-makers as part of the project approval process would include a comprehensive project analysis and findings regarding the consistency of the proposed project with applicable plans, policies, and regulations independent of the environmental review process. The specific policy inconsistencies identified in this environmental impact report (EIR) would also be referenced in the staff reports prepared in conjunction with the proposed project's approval documentation. Plans and policies addressed in this chapter include:

- San Francisco General Plan, including the Central Waterfront Area Plan
- Port of San Francisco's Waterfront Land Use Plan
- San Francisco Bicycle Plan
- Better Streets Plan
- Transit-First policy
- San Francisco Planning Code

- Accountable Planning Initiative
- Plan Bay Area 2040
- San Francisco Bay Plan
- San Francisco Waterfront Special Area Plan
- Public Trust Doctrine

Chapter 4, Sections 4.B, Historical Architectural Resources, 4.E, Transportation and Circulation, and 4.G, Air Quality, of this EIR describe pertinent resource-specific plans and regulations in the environmental topical area analysis. In addition, specific approval requirements, as they relate to plans or policies, are described in Chapter 2, Project Description (Section 2.H, Required Project Approvals), p. 2-58.

3.B Local Plans and Policies

3.B.1 San Francisco General Plan

The San Francisco General Plan, adopted by the planning commission and the board of supervisors, is both a strategic and long-term document, broad in scope and specific in nature. The general plan is the embodiment of the City's collective vision for the future of San Francisco, and comprises a series of elements, each of which deal with a particular topic, that applies citywide. The general plan contains ten elements (Housing, Commerce and Industry, Recreation and Open Space, Community Facilities, Urban Design, Environmental Protection, Transportation, Air Quality, Community Safety, and Arts) that provide goals, policies, and objectives for the physical development of the city. In addition, a land use index cross-references the policies related to land use located throughout the general plan.

The general plan also includes area plans that outline goals and objectives for specific geographic planning areas. Among these is the Central Waterfront Area Plan, which encompasses the project site. In an area plan, "the more general policies in the General Plan elements are made more precise as they relate to specific parts of the city" (San Francisco General Plan, Introduction). The area plans contain specific policies and objectives that address land use and planning issues in the local context. As described in Chapter 2, Project Description, the project sponsor would seek amendments to the general plan, potentially including the central waterfront plan, to allow for approval of the proposed project.

Pursuant to CEQA Guidelines section 15125(d), potential conflicts with general plan policies are discussed below. A conflict between a proposed project and a general plan policy does not, in itself, indicate a significant effect on the environment within the context of CEQA. Any physical environmental impacts that could result from a conflict with general plan policies are analyzed in this EIR. In general, potential conflicts with the general plan are considered by the decision-makers (in the case of a general plan amendment, the planning commission and board of supervisors) independently of the environmental review process. Thus, in addition to considering inconsistencies that affect environmental issues, the decision-makers consider other potential inconsistencies with the general plan as part of the decision to approve or disapprove a proposed project. Any potential conflict not identified in this environmental document would be considered in that context and would not alter the physical environmental effects of the project and proposed street network changes and open space improvements that are analyzed in this EIR.

This chapter is not intended to provide a comprehensive analysis of general plan consistency; in particular, this section is not intended to, and does not, identify policies that the proposed project would support. Staff report(s) for planning commission and board of supervisors action(s) on the proposed project will contain a complete analysis of general plan consistency.

As discussed in detail in Chapter 4, Section 4.A, pursuant to CEQA section 21099, aesthetic impacts of a residential or mixed-use residential project on an in-fill site in a transit priority area shall not be considered significant impacts on the environment. Therefore, insofar as impacts resulting from the proposed project's conflict with the General Plan Urban Design Element are premised on underlying aesthetic concerns (such as impacts on visual and scenic resources, public views, urban design, and visual character and quality), such conflicts are not considered significant impacts for the purposes of CEQA.

Central Waterfront Area Plan

The Central Waterfront Area Plan is one of four area plans adopted in 2008 as part of the Eastern Neighborhoods Rezoning and Area Plans project. One of the primary goals of the Eastern Neighborhoods planning effort was to find a balance between growth of housing and office uses and preservation of production, distribution, and repair (PDR) uses. Toward that end, the introduction to the Central Waterfront Area Plan envisions a neighborhood that would "accommodate both new housing and neighborhood commercial services while maintaining its role as an area of important economic activity … a neighborhood of well designed, mixed-use buildings that take advantage of transit and a place where new, cutting-edge businesses have appeared next door to more traditional light industrial uses … better connected to the rest of the city, with an improved public realm, welcoming streets, and well preserved historic structures, providing glimpses into the area's past" (Central Waterfront Area Plan, Introduction). The following six "community-driven" goals are articulated in the Central Waterfront Area Plan:

- Encourage development that builds on the Central Waterfront's established character as a mixed-use, working neighborhood.
- Foster the Central Waterfront's role in the city's economy by supporting existing and future production, distribution, repair, and maritime activities.
- Increase housing in the Central Waterfront without impinging on or creating conflicts with identified existing or planned areas of production, [distribution,] and repair activities.
- Establish a land use pattern that supports and encourages transit use, walking, and biking.
- Better integrate the Central Waterfront with the surrounding neighborhoods and improve its connections to Port land and the water's edge.
- Improve the public realm so that it better supports new development and the residential and working population of the neighborhood.

With respect to land use, the Central Waterfront Area Plan encourages "the transition of portions of the Central Waterfront to a more mixed-use character, while protecting the neighborhood's core PDR uses as well as the historic Dogpatch neighborhood" (Central Waterfront Plan, Objective 1.1). The Central Waterfront Area Plan identifies a "core PDR area," generally south of 23rd Street (i.e., south of the project site) where land use controls would "protect and promote PDR activities, as well as the arts, by prohibiting construction of new housing and limiting the amount of office and retail uses that can be introduced" (Central Waterfront Area Plan, Policy 1.1.1). North of 23rd Street and generally west of Illinois Street, the Central Waterfront Area Plan calls for revised land use controls "to create new mixed use areas, allowing mixed-income housing as a principal use, as well as limited amounts of retail, office, and research and development, while protecting against the wholesale displacement of PDR uses" (Central Waterfront Area Plan, Policy 1.1.2).

With respect to the project site, the Central Waterfront Area Plan assumes that the site would continue in industrial use for the foreseeable future, pending any site-specific planning efforts, such as those now being undertaken for the project site.[1] Central Waterfront Area Plan Policy 1.1.8 calls for the power plant site, part of the project site, as potentially a location "for reuse for larger-scale commercial and research establishments." The Central Waterfront Area Plan assumes that subsurface contamination would preclude the introduction of residential uses to the power plant site. Thus, the proposed project may be inconsistent with this aspect of the Central Waterfront Area Plan. However, as discussed in Chapter 4, Section 4.K, Hazards and Hazardous Materials, remediation undertaken to date, along with additional remediation as deemed appropriate by the Regional Water Quality Control Board, would allow for residential development as part of the proposed project, thus avoiding any physical effects of the potential plan inconsistency.

The proposed project would generally be consistent with Central Waterfront Area Plan land use objectives and policies regarding maximizing development potential in areas where housing and mixed-use development is encouraged; support for "Knowledge Sector" employment; and retention of PDR uses. However, the proposed project could conflict with the following Central Waterfront Area Plan land use objective with respect to noise:

- **Objective 1.5:** Minimize the impact of noise on affected areas and ensure General Plan noise requirements are met.

This is because, as described in Chapter 4, Section 4.F, Noise and Vibration, proposed project construction activity would cause significant effects, even with mitigation, with respect to construction-generated noise levels at both offsite and onsite receptors (primarily residences but also, potentially, childcare uses). Additionally, project and cumulative traffic volumes could cause substantial permanent increases in ambient noise levels along some streets in the project vicinity.

With respect to air quality, the proposed project could conflict with the following Central Waterfront Area Plan land use objective and policy:

- **Objective 1.6:** Improve indoor air quality for sensitive land uses in the Central Waterfront.

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[1] One rezoning option evaluated in the Eastern Neighborhoods EIR assumed that housing could eventually be developed at or near the site, in anticipation that the then-extant power plant would ultimately cease operation.

- **Policy 1.6.1:** Minimize exposure to air pollutants from existing traffic sources for new residential developments, schools, daycare and medical facilities.

This is because, as described in Chapter 4, Section 4.G, Air Quality, emissions of criteria air pollutants from proposed project construction activity and project operation—primarily emissions from vehicular traffic and consumer products—would result in significant impacts, even with mitigation.

The Central Waterfront Area Plan also contains objectives and policies related to transportation. The proposed project would include a number of features responding to these objectives and policies, including:

- a new on-site pedestrian and bicycle network,
- accommodation of Muni buses anticipated to serve the site,
- shuttle service to Bay Area Rapid Transit (BART) and Caltrain,
- development of an open space network that includes public access to San Francisco Bay and extension of the planned Bay Trail through the project site,
- centralized parking in a district parking garage,
- freight loading spaces both on- and off-street, and
- a transportation demand management plan with the goal of reducing vehicle trip generation relative to existing neighborhood travel characteristics.

With the inclusion of the features enumerated above, the project would generally be consistent with Central Waterfront Area Plan objectives and policies calling for improved public transit; increasing transit ridership; improving safety for transit passengers; supporting circulation needs of PDR uses; use of streets as a multi-modal network; extending the street grid, especially to the bay, and the sidewalk network; support of walking and improvement of pedestrian safety and pedestrian and bicycle infrastructure, including the Bay Trail and Blue Greenway; and encouraging alternatives to car ownership and the reduction of private vehicle trips.

However, inasmuch as the proposed project would result in a significant impact due to project-generated transit ridership that could not be accommodated by nearby Muni transit capacity (specifically on the 22 Fillmore and the 48 Quintara Muni lines) and would result in a substantial increase in transit delay on line 22, the project could conflict with the following Central Waterfront Area Plan objective (see detailed discussion under Impacts TR-4 and TR-5 in Chapter 4, Section 4.E, Transportation and Circulation):

- **Objective 4.1:** Improve public transit to better serve existing and new development in Central Waterfront.

Mitigation for the above-noted impact would require that the San Francisco Municipal Transportation Agency add additional buses to the 22 Fillmore and the 48 Quintara, increase the capacity of buses on these lines and/or add additional Muni service, and the project sponsor to reduce vehicle trips generated by the project to reduce transit delay; however, as stated in Chapter 4, Section 4.E, Transportation and Circulation, the feasibility of these mitigation strategies is unknown, and thus the impact on Muni capacity and service delay would remain significant even with mitigation.

The project's open space plan would also generally be consistent with Central Waterfront Area Plan objectives and policies that call for provision of public parks and open spaces that meet the needs of residents, workers and visitors; ensuring that new development includes high quality private open space; encouraging publicly accessible open space as part of new development; and ensuring that quality open space is provided in flexible and creative ways.

It is noted that much of the Central Waterfront Area Plan's policy language is geared toward areas west of Illinois Street. Moreover, the former power plant site—which comprises the largest portion of the project site—has historically been set off from the rest of the Central Waterfront area. Additionally, the proposed project would create a substantial amount of new housing, along with new jobs, in a mixed-use project that would include amenities such as open space and ground-floor retail uses while maintaining the iconic Boiler Stack. For all of these reasons, the project would, in general, not conflict with the Central Waterfront Area Plan's vision of a neighborhood with both new housing and neighborhood commercial services, along with important economic activity. However, because it would demolish several historical resources, the proposed project would result in a significant effect, even with mitigation, with respect to historic architectural resources and would be at least partially inconsistent with the following objective and policy in the Central Waterfront Area Plan:

- **Objective 8.2:** Protect, preserve, and reuse historic resources within the Central Waterfront area plan.
- **Policy 8.2.1:** Protect individually significant historic and cultural resources and historic districts in the Central Waterfront area plan from demolition or adverse alteration, particularly those elements of the Maritime and Industrial Area east of Illinois Street.

Conversely, the proposed project would be consistent with Area Plan Policy 3.1.9, which calls for, among other things preservation of "features that provide continuity with past development," because the Boiler Stack and possibly the Unit 3 Power Block would be retained as part of the project. Also, by opening this portion of the waterfront, the proposed project could "foster public awareness and appreciation" of certain historic and cultural resources, such as the Boiler Stack and the Unit 3 Power Block. This would be consistent with Area Plan Objective 8.6.

3.B.2 Other San Francisco Plans

Waterfront Land Use Plan

The Port of San Francisco's Waterfront Land Use Plan is a land use policy document governing property under the jurisdiction of the Port of San Francisco (Port), generally from Fisherman's Wharf to India Basin. It was adopted in 1997 and the Port is currently updating the plan.

Within the project site, the Waterfront Land Use Plan applies only to the waterfront portion of the Port sub-area. This consists of 1.6 acres located between the Potrero Power Station sub-area and the bay (i.e., most of the site's bay frontage), and includes the area of the project's proposed recreational dock. The entirety of this area is proposed as publicly accessible park land, including most of the bay shoreline within the project's proposed Waterfront Park and the project's proposed Potrero Point Park, near the foot of 23rd Street and adjacent to Warm Water Cove. The plan identifies recreational boating and water use, open space, and public access as acceptable land uses, within the portion of the Southern Waterfront sub-area defined as Warm Water Cove/Pier 72. Accordingly, the proposed project would not conflict with the land use guidance in the Waterfront Land Use Plan.

The Port is working with other City agencies and the non-profit San Francisco Parks Alliance to develop the Blue Greenway, which is a project to complete the regional Bay Trail in the southern portion of San Francisco, from Mission Creek south to the county line. Planning for the Blue Greenway began in 2003, and much of the route is anticipated to be on Port property. Accordingly, the Port is actively participating in implementation of the Blue Greenway, which is anticipated to be incorporated into the update of the plan. Because the proposed project would develop a new shoreline Bay Trail/Blue Greenway route from the Pier 70 Mixed-Use District project to Warm Water Cove, it would be consistent with planning for the Blue Greenway.

San Francisco Bicycle Plan

The San Francisco Bicycle Plan includes a citywide bicycle transportation plan that describes how bicycle improvement projects identified in the plan would be implemented. The plan also includes objectives and identifies policy changes to enhance the city's bike-ability. It also describes the existing bicycle route network (a series of interconnected streets in which bicycling is encouraged), and identifies gaps within the network that require improvement. The Final EIR for the San Francisco Bicycle Plan assessed a total of 56 short-term and long-term bicycle improvement projects, including bicycle lanes on Illinois Street in the project site vicinity. These bike lanes have since been created. No other San Francisco Bicycle Plan projects are anticipated near the project site.

As described in Chapter 2, Project Description and illustrated on Figure 2-10, p. 2-26, the project proposes a network of bicycle lanes and bicycle routes within and across the project site, including a multi-use path with a bike lane along the site's bay frontage. The project would also provide both off-street and on-street bicycle parking. Therefore, the proposed project would not conflict with the San Francisco Bicycle Plan.

Better Streets Plan

The 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. It includes the Streetscape Master Plan and the Pedestrian Transportation Master Plan. Major project concepts applicable to the

San Francisco Better Streets Plan include (1) pedestrian safety and accessibility features, such as enhanced pedestrian crossings, corner or midblock curb extensions, pedestrian countdown and priority signals, and other traffic calming features; (2) universal pedestrian-oriented streetscape design with incorporation of street trees, sidewalk plantings, streetscape furnishing, street lighting, efficient utility location for unobstructed sidewalks, shared single surface for small streets/alleys, and sidewalk/median pocket parks; and (3) integrated pedestrian/transit functions using bus bulb-outs and boarding islands (bus stops located in medians within the street). All such streetscape improvements would require coordination with other relevant City departments, such as the San Francisco Public Utilities Commission, San Francisco Public Works, and San Francisco Fire Department, to ensure no disruption of service provision.

As described in Chapter 2, Project Description, proposed streets within the project site would comply with the Better Streets Plan. Figure 2-10, p. 2-26, depicts the project's proposed street network, including the street typologies consistent with the plan. Given the foregoing, the proposed project would not conflict with the San Francisco Better Streets Plan.

Transit First Policy

The City's Transit First policy, adopted by the Board of Supervisors in 1973, was developed in response to the damaging impacts of freeways on the city's urban character. The policy is aimed at restoring balance to a transportation system long dominated by the automobile and improving overall mobility for residents and visitors while decreasing principal reliance on the automobile. It encourages multi-modalism and the use of transit and other alternatives to the single-occupant vehicle, and gives priority to maintaining and expanding the local transit system and improving regional transit coordination.

As described in Chapter 2, Project Description, the proposed project would develop a mix of land uses (market-rate and affordable residential units; non-residential uses potentially including office, retail, restaurant, research and development, hotel, entertainment/assembly, and PDR); community facilities; publicly accessible open space; and parking (motor vehicle and bicycle). Additionally, the project would create a pedestrian and bicycle network within the project site, construct a bus layover to accommodate Muni buses anticipated to serve the site, and include a shuttle service program, anticipated to provide service 7 a.m. to 8 p.m. on weekdays and at 15-minute intervals during peak times, and provide access to the 16th Street BART station and the 22nd Street Caltrain station.[2] These project components would encourage the use of transit and other non-auto transportation modes and would be expected to help minimize single-person auto travel in the future, which would be consistent with the intent of the Transit First Policy.

As noted above in the discussion of Central Waterfront Area Plan transportation policies, project-generated transit demand would not be fully accommodated by existing Muni service and would result in a substantial increase in transit delay on the 22 Fillmore, which would result in a significant impact. Mitigation would require that San Francisco Municipal Transportation Agency increase transit capacity and/or add additional Muni service, and the project sponsor reduce

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[2] The shuttle may also connect with a similar shuttle to be operated in connection with the adjacent Pier 70 Mixed-Use District project.

vehicle trips generated by the project to reduce transit delay, but the feasibility of this mitigation is uncertain. Therefore, the proposed project would be at least partially inconsistent with the Transit First Policy.

3.B.3 San Francisco Planning Code

The San Francisco Planning Code governs land uses, densities and the configuration of buildings within San Francisco. Permits to construct new buildings or to alter or demolish existing ones may not be issued unless a project conforms to the planning code or an exception is available under the code.

Use Districts

Nearly the entirety of the project site is within a M-2 (Heavy Industrial) Use District. The southeastern most tip of the project site, which is within the Port sub-area, is within a PDR-1-G (General Production, Distribution, and Repair) Use District, while the 23rd Street right-of-way, also within the Port sub-area, has no zoning designation, as is the case for nearly all streets in San Francisco. As described in Chapter 2, Project Description, the proposed project includes amendments to the planning code and the City's zoning maps which are incorporated within it, creating a new Potrero Power Station Special Use District (SUD). If approved by the planning commission and board of supervisors, the SUD would establish land use controls for the project site and incorporate design standards and guidelines in a new Potrero Power Station Design for Development (D for D) document. While certain uses proposed under the project are not permitted under existing zoning (for example, residential use is prohibited in the PDR-1-G Use District and is permitted by Conditional Use authorization in the M-2 district), if the rezoning is approved, project uses would be permitted on the site.

Height and Bulk Districts

Most of the project site is within a 40-X Height and Bulk District (40-foot height limit, with exceptions for certain rooftop projections such as mechanical equipment and screening; no bulk limit). The western portions of the project site, along Illinois Street are within a 65-X Height and Bulk District (65-foot height limit, no bulk limit). Building heights under the proposed project are inconsistent with the existing height limits on the project site. The proposed project would amend the height and bulk map within the zoning map to change the existing height limits of 40 and 65 feet to height limits ranging from 65 to 300 feet. If the rezoning is approved with respect to height limits, building heights under the proposed project would be consistent with the revised Height and Bulk Districts applicable to the project site.

3.B.4 Accountable Planning Initiative

In November 1986, the voters of San Francisco approved Proposition M, the Accountable Planning Initiative, which added section 101.1 to the San Francisco Planning Code to establish eight Priority Policies. These policies are: (1) preservation and enhancement of neighborhood-serving retail uses; (2) protection of neighborhood character; (3) preservation and enhancement of affordable housing (discussed in Chapter 4, Section 4.C, Population and Housing); (4) discouragement of commuter automobiles (discussed in Chapter 4, Section 4.E, Transportation and Circulation); (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 (discussed in Appendix B, Initial Study; Section E.14, Geology and Soils, Questions 14a through 14d); (7) landmark and historic building preservation (discussed in Chapter 4, Section 4.D, Cultural Resources); and (8) protection of open space (discussed in Appendix B, Initial Study; Section E.10, Recreation, Questions 10a and 10c). The Priority Policies, which provide general policies and objectives to guide certain land use decisions, contain some policies that relate to physical environmental issues.

Prior to issuing a permit for any project that requires an initial study under CEQA, and prior to issuing a permit for any demolition, conversion, or change of use, and prior to taking any action that requires a finding of consistency with the general plan, the City must find that the proposed project or legislation is consistent with the Priority Policies. In evaluating general plan consistency of the proposed project, the planning commission and/or planning department would make the necessary findings of consistency with the Priority Policies. The staff report for the planning commission will analyze the proposed project's consistency with general plan policies and zoning, and will discuss in detail any modifications required in connection with plan adoption.

3.C Regional Plans

3.C.1 Plan Bay Area 2040

Plan Bay Area 2040 is the Bay Area's long-range transportation and land use/housing strategy and was approved jointly by the Association of Bay Area Governments and the Metropolitan Transportation Commission. Plan Bay Area 2040 has a horizon year of 2040. The plan is the Bay Area's Sustainable Communities Strategy pursuant to Senate Bill 375 of 2008, which requires each of the state's 18 metropolitan planning areas to develop such a strategy to accommodate future population growth and reduce vehicular greenhouse gas emissions.

Since 2002, the Association of Bay Area Governments' (and now both its and the Metropolitan Transportation Commission's) regional population, household, and job forecast has been "policy-based," meaning that it promotes growth near transit and in existing urban areas. Plan Bay Area 2040 refers to such targeted growth locales as Priority Development Areas (PDAs). A PDA is an infill location of at least 100 acres served by transit that is designated for compact land development, along with investments in community improvements and infrastructure.

The project site is primarily located within the Eastern Neighborhoods PDA (which includes East SoMa, Western SoMa, the Mission District, Showplace Square and Potrero Hill, and the Central Waterfront), as well as partially within the Port of San Francisco PDA, which includes approximately 678 acres of public waterfront lands and stretches 7.5 miles from Fisherman's Wharf to India Basin. These PDAs are two of 12 PDAs in San Francisco, in which a large share of new housing production and population growth is expected to take place. Accordingly, the proposed project would be consistent with the goals and objectives of Plan Bay Area 2040 by promoting growth in a PDA.

3.C.2 Bay Conservation and Development Commission

San Francisco Bay Plan

The San Francisco Bay Conservation and Development Commission (BCDC) is the state's coastal management agency for San Francisco Bay. The San Francisco Bay Plan, as amended through 2011, guides the protection and use of the bay and its shoreline. The commission has permit jurisdiction over portions of the nine Bay Area counties subject to tidal action up to the mean high tide line, including sloughs, tidelands, submerged lands, and certain marshlands, as well as over land lying within a 100-foot-wide shoreline band upland from the bay shoreline. The commission has permit authority over the placement of fill, extraction of materials, and substantial changes in use of land, water, or structures within its jurisdiction, and to enforce policies aimed at protecting the bay and its shoreline, as well as maximizing public access to the bay.

At the project site, the shoreline band under BCDC jurisdiction encompasses an area within 100 feet inland of the mean high tide line. The proposed project would require commission approval of activities within this shoreline band. Because only recreational, open space, and public access are proposed for the portions of the project site within the shoreline band, the project does not appear to conflict with the San Francisco Bay Plan or BCDC regulations. However, the commission will make the final determination of consistency with plan policies for the portions of the project site that are within its permit jurisdiction.

San Francisco Waterfront Special Area Plan

The San Francisco Waterfront Special Area Plan was adopted in 1975 following a collaborative process with the San Francisco Planning Department. It was amended in 2012. This plan, together with the San Francisco Bay Plan and BCDC's enabling legislation, prescribes a set of rules for shoreline development along the San Francisco waterfront. Several policies of the San Francisco Bay Plan are aimed at protecting the bay's water quality, managing safety of fills, and guiding the dredging activities of the bay's sediment.

BCDC approval would be required for project uses within the shoreline band. As noted, publicly accessible open spaces are proposed in this area, which would be consistent with the commission policy framework. The commission would also have to approve the proposed project's stormwater discharge outfall (under the preferred dual system [combined sewer/separated sewer]) and for the proposed floating pier. Additionally, the floating pier is anticipated to require maintenance dredging to maintain the minimum water depth required for vessel access during long term project operations. Dredging would be undertaken consistent with commission guidance and with regulations set forth by other agencies, potentially including the U.S. Army Corps of Engineers, National Oceanic and Atmospheric Administration, California Department of Fish and Wildlife, San Francisco Bay Regional Water Quality Control Board, and the Dredged Materials Management Office. Additionally, site remediation of contaminated soil and groundwater, which is currently under way, will be completed under the oversight of the San Francisco Bay Regional Water Quality Control Board to ensure that the project will not cause harm to the public, bay resources, or the beneficial uses of the bay. Finally, as described in Chapter 2, Project Description, to address potential flooding due to future sea level rise in combination with storm and high tide conditions, the proposed project would make physical improvements to the shoreline, including rock slope revetments, wetlands, berms and bulkheads; and would increase the elevation of portions of the site. Based on the foregoing, no conflict with the commission plans or policies is anticipated.

3.C.3 Other Regional Plans and Policies

Other regional plans and policies, such as the Bay Area Air Quality Management District's 2017 Clean Air Plan and the San Francisco Bay Regional Water Quality Control Board's Water Quality Control Plan for the San Francisco Bay Basin, directly address specific environmental resources and contain objectives or standards to maintain or improve specific characteristics of the city's, as well as the region's, physical environment. These matters are discussed in the relevant resource sections of this EIR. As explained therein, the proposed project is not expected to conflict substantially with any of these objectives or standards.

3.C.4 Public Trust Doctrine

The Public Trust Doctrine is a legal doctrine that governs the use of tidal and submerged lands, including former tidal and submerged lands that have been filled. It is not a codified set of laws but a doctrine primarily established through court decisions and in decisions and interpretations by the California State Lands Commission and the state Attorney General. The purpose of the Public Trust Doctrine is to ensure that land that adjoins the State of California's waterways or is actually covered by those waters remains committed to water-oriented uses. Uses of public trust land are generally limited to waterborne commerce; navigation; fisheries; water-oriented recreation, including commercial facilities that must be located on or adjacent to water; and environmental preservation and recreation, such as natural resource protection, wildlife habitat and study, and facilities for fishing, swimming, and boating. Ancillary or incidental uses that promote Trust uses or accommodate the public's enjoyment of Trust lands are also permitted, such as hotels, restaurants, and specialty retail. Although on the bay waterfront, most of the project site is not tidelands or submerged lands, or former tidelands or submerged lands, and therefore is not subject to the Public Trust. Only the Port sub-area is subject to the Public Trust Doctrine.

CHAPTER 4

Environmental Setting, Impacts, and Mitigation Measures

4.A Impact Overview

This chapter provides a project-level impact analysis of the potentially significant, physical environmental impacts of implementing the Potrero Power Station Mixed-Use Development project (proposed project) as described in Chapter 2, Project Description. After Section 4.A are separate sections 4.B through 4.K, each presenting the impact analysis for the key resource topics identified in the initial study, as described below. Sections 4.B through 4.K in this chapter each include descriptions of the environmental setting and regulatory framework; assessments of project impacts (i.e., offsite, onsite, construction-related, operational, direct, and indirect impacts) and cumulative impacts; and identification of mitigation measures that would reduce or avoid identified significant environmental impacts. This impact overview section describes the scope of analysis in the initial study and EIR and explains the format and basis for the impact analysis for all resource topics, including the cumulative impact analysis.

4.A.1 Scope of Analysis

Initial Study

As described in Chapter 1, Introduction, the San Francisco Planning Department determined that an EIR is required for the proposed project in compliance with CEQA and published a Notice of Preparation (NOP; see Appendix A). As part of the preparation of the EIR, the planning department identified several resource topics that could be adequately addressed in an initial study. The initial study prepared for this EIR (see Appendix B) concluded that many of the physical environmental impacts of the proposed project 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 issues addressed in the initial study are listed below. Also shown are abbreviations for each resource topic that are used in the naming of impact statements and mitigation measures.

Section E.4: Cultural Resources (archeological resources, human remains, and tribal cultural resources) (CR)

Section E.8: Greenhouse Gas Emissions (GG)

Section E.10: Recreation (RE)

Section E.11: Utilities and Services Systems (UT)
Section E.12: Public Services (PS)
Section E.14: Geology and Soils (GE)
Section E.17: Mineral and Energy Resources (ME)
Section E.18: Agriculture and Forest Resources (AG)

Please refer to the initial study in Appendix B for a discussion and the impact analysis of the proposed project with respect to these resource topics.

EIR Topics

The resource topic areas addressed in this chapter of the 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.B: Land Use and Land Use Planning (LU)
Section 4.C: Population and Housing (PH)
Section 4.D: Cultural Resources (Historic Architectural Resources) (CR)
Section 4.E: Transportation and Circulation (TR)
Section 4.F: Noise and Vibration (NO)
Section 4.G: Air Quality (AQ)
Section 4.H: Wind and Shadow (WS)
Section 4.I: Biological Resources (BI)
Section 4.J: Hydrology and Water Quality (HY)
Section 4.K: Hazards and Hazardous Materials (HZ)

Aesthetics and Parking Analysis

CEQA Statute section 21099(d) states that "Aesthetic and parking impacts of a residential, 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."[1] Accordingly, aesthetics and parking are not considered in determining if a project has the potential to result in significant environmental effects for projects that meet all of the following three criteria:

a. The project is in a transit priority area;[2]

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[1] Refer to CEQA Statute section 21099(d)(1).

[2] CEQA Statute 21099(a)(7) defines a "transit priority area" as an area within 0.5 mile of an existing or planned major transit stop. A "major transit stop" is defined in CEQA Statute 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 interval of 15 minutes or less during the morning and afternoon peak commute periods.

b. The project is on an infill site;[3] and

c. The project is residential, mixed-use residential,[4] or an employment center.[5]

The proposed project meets each of the above three criteria because it is (1) located within one-half mile of several rail, bus, and streetcar transit routes, (2) located on an infill site that is already developed with vacant parking areas, industrial uses and adjacent to approved mixed uses; and (3) would include residential, office/R&D, and retail/restaurant uses meeting the definition of a mixed-use residential project.[6] Thus, this EIR does not consider aesthetics and the adequacy of parking in determining the significance of project impacts under CEQA.

CEQA Statute section 21099(e) states that a lead agency may consider aesthetic impacts under local design review ordinances or other discretionary powers and that aesthetics impacts do not include impacts on historical or cultural resources. Therefore, there is no change in the planning department's methodology related to design review or impacts on historical resources.

The planning department recognizes that the public and decision-makers nonetheless may be interested in information pertaining to the aesthetic effects of a proposed project, and may desire that such information be provided as part of the environmental review process. Therefore, some of the information that would have otherwise been provided in an aesthetics section of an EIR (such as visual depictions of the proposed project) is included in Chapter 2, Project Description. However, this information is provided solely for informational purposes and is not used to determine the significance of the environmental impacts of the project, pursuant to CEQA.

Similarly, the planning department acknowledges that parking conditions may be of interest to the public and the decision-makers. Therefore, this EIR presents parking demand information in Section 4.E, Transportation and Circulation, for informational purposes and considers any secondary physical impacts associated with constrained parking supply (e.g., queuing by drivers waiting for scarce on-site parking spaces that affects the public right-of-way) as applicable in the transportation, air quality, greenhouse gas emissions, noise, and pedestrian safety analyses.

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[3] CEQA Statute 21099(a)(4) defines an "infill site" as a lot located within an urban area that has been previously developed, or a vacant site where at least 75 percent of the perimeter of the site adjoins, or is *separated* only by an improved public right-of-way from, parcels that are developed with qualified urban uses.

[4] CEQA Statute 21159.28(d) defines a "mixed-use residential" project as a project where at least 75 percent of the total building square footage of the project consists of residential use or a project that is a transit priority project as defined in CEQA Statute 21155. CEQA Statute 21155 defines "transit priority project" as a project that (1) contains at least 50 percent residential use, based on total building square footage and, if the project contains between 26 percent and 50 percent nonresidential uses, a floor area ratio of not less than 0.75; (2) provides a minimum net density of at least 20 dwelling units per acre; and (3) is within one-half mile of a major transit stop or high-quality transit corridor included in a regional transportation plan.

[5] CEQA Statute 21099(a)(1) defines an "employment center" as a project located on property zoned for commercial uses with a floor area ratio of no less than 0.75 and located within a transit priority area.

[6] San Francisco Planning Department, Eligibility Checklist: CEQA Section 21099—Modernization of Transportation Analysis for the Potrero Power Station Mixed-Use Development Project, September 13, 2018. This document (and all other documents cited in this report, unless otherwise noted) is available for review at 1650 Mission Street, Suite 400, San Francisco, CA, as part of Case No. 2017-011878ENV. Additional information is also available at *https://www.opr.ca.gov/s_sb743.php*, accessed February 12, 2018.

Automobile Delay and Vehicle Miles Traveled

CEQA Statute section 21099(b)(1) requires that the California Governor's 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 greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses." CEQA Statute section 21099(b)(2) states that upon certification of the revised CEQA Guidelines for determining transportation impacts under section 21099(b)(1), automobile delay, as described solely by *level of service* (LOS) or similar measures of vehicular capacity or traffic congestion, shall not be considered a significant impact on the environment under CEQA.

In January 2016, the California Governor's 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* (Proposed Transportation Impact Guidelines) recommending that transportation impacts for projects be measured using a *vehicle miles traveled* (VMT) metric.[7] VMT measures the amount and distance that a project might cause people to drive, accounting for the number of passengers within a vehicle. These proposed transportation impact guidelines provide substantial evidence that VMT is an appropriate standard to use in analyzing transportation impacts to protect environmental quality and a better indicator of greenhouse gas, air quality, and energy impacts than automobile delay. Acknowledging this, San Francisco Planning Commission Resolution 19579, was issued on March 3, 2016, which:

- Found that automobile delay, as described solely by LOS or similar measures of vehicular capacity or traffic congestion, shall no longer be considered a significant impact on the environment pursuant to CEQA, because it does not measure environmental impacts and therefore it does not protect environmental quality.
- Directed the Environmental Review Officer to remove automobile delay as a factor in determining significant impacts under CEQA for all guidelines, criteria, and list of exemptions, and to update the Transportation Impact Analysis Guidelines for Environmental Review and Categorical Exemptions from CEQA to reflect this change.
- Directed the Environmental Planning Division and Environmental Review Officer to replace automobile delay with VMT criteria which promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses; and consistent with proposed and forthcoming changes to the CEQA Guidelines by the OPR [Office of Planning and Research.]

Planning Commission Resolution 19579 became effective immediately for all projects that had not received a CEQA determination and all projects that had previously received CEQA determinations but require additional environmental analysis. Accordingly, this EIR does not contain a discussion of automobile delay impacts based on LOS criteria. Instead, a VMT and induced automobile travel impact analysis is provided in Section 4.E, Transportation and Circulation. Nonetheless, automobile

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[7] California Governor's Office of Planning and Research, Revised Proposal on Updates to the CEQA Guidelines on Evaluating Transportation Impacts in CEQA, January 20, 2016, *http://www.opr.ca.gov/docs/Revised_VMT_CEQA_Guidelines_Proposal_January_20_2016.pdf*, accessed February 13, 2018.

delay may be considered by decision-makers, independent of the environmental review process, as part of their decision to approve, modify, or disapprove the proposed project.

4.A.2 Format of the Environmental Analysis

Each of the resource areas in this chapter includes the following elements:

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 describes the existing, physical conditions of the project site and surroundings relevant to that resource topic when the NOP was issued on November 1, 2017, (except in certain circumstances as described in 4.A.5 below) in sufficient detail and breadth to allow a general understanding of and basis for the environmental impacts of the proposed project.

Regulatory Framework

This subsection describes the relevant federal, state, and local regulatory requirements that are directly applicable to the environmental topic being analyzed.

Impacts and Mitigation Measures

As described in more detail below, this subsection identifies the significance criteria specific to that resource topic, which is followed by the approach to analysis, and concludes with the impact evaluation.

Significance Criteria

This subsection lists the criteria specific to each resource topic used to identify and determine significant environmental effects of the proposed project. 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 EIR are based on the San Francisco Planning Department's Environmental Planning Division guidance regarding the thresholds of significance used to assess the severity of environmental impacts of the proposed project. It is based on CEQA Guidelines Appendix G, with procedures as set forth in San Francisco Administrative Code chapter 31.10.

Approach to Analysis

This subsection first describes the relevant project features that are pertinent to the impact analysis of that resource topic, followed by the methodology used to analyze potential environmental impacts based on identified significance criteria and thresholds. The Approach to Analysis subsection describes the approach used to assess construction, operational, and cumulative impacts. Depending on the resource topic and applicable significance criteria, some evaluations (e.g., VMT and transit capacity in transportation and circulation) are quantitative, while the evaluations for other topics (e.g., cultural resources) are qualitative.

Impact Evaluation

This subsection evaluates the potential for the proposed project to result in direct and indirect adverse effects on the existing physical environment, with consideration of both short-term and long-term effects. The analysis covers all phases of the proposed project, including construction and operation, and is based on the significance criteria/thresholds and the approach to analysis described in the previous subsection. 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 (see Section 4.A.4, Significance Determinations, below).

The impacts of the proposed project are organized into separate categories based on the criteria listed in each topical section. Project-specific impacts are discussed first, followed by cumulative impacts (see Section 4.A.6, Approach to Cumulative Impact Analysis, for further discussion).

4.A.3 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.** A no impact conclusion is reached 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 the project would or could potentially result in a significant effect, exceeding the defined significance criteria, but feasible mitigation is available that would reduce the impact to a less-than-significant level.
- **Significant and Unavoidable Impact with Mitigation.** This determination applies if the project 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.
- **Significant and Unavoidable Impact.** This determination applies if the project would result in a significant adverse effect that exceeds the defined significance criteria, and there is no feasible mitigation available to lessen the severity of the impact. Therefore, the impact would be significant and unavoidable.

4.A.4 Mitigation Measures and Improvement Measures

Mitigation measures are identified, where feasible, for impacts considered significant consistent with CEQA Guidelines section 15126.4, which states that an EIR "shall describe feasible measures which could minimize significant adverse impacts." CEQA requires that a mitigation measure has an essential nexus and be roughly proportional to the significant effect identified in the EIR. Pursuant to CEQA Guidelines section 15126.4, mitigation measures are not required for environmental impacts that are not found to be significant.

In some cases, the impact analysis found the proposed project's physical environmental impact to be less than significant, but the planning department has identified feasible measures that would further lessen the already less-than-significant impacts of the project. These measures are identified as "improvement measures." The project sponsor has agreed to implement all improvement measures identified in this EIR as conditions of approval of the project.

4.A.5 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 or where there are possible variations in project characteristics, this EIR employs a "reasonable worst-case analysis" in order to identify the largest expected potential change from existing baseline conditions that the project may create. This approach thus identifies the most severe impact that could occur, providing a conservative analysis of potential environmental impacts.

Baseline Conditions for Evaluation of Impacts

CEQA Guidelines section 15125 provide that, in most cases, the environmental conditions at the time of publication of the NOP of the EIR constitute the appropriate baseline physical conditions by which the lead agency should evaluate project impacts. These baseline conditions are described in the Environmental Setting section of each Chapter 4 resource section. The impact analysis identifies the conditions that are anticipated to occur with implementation of the project and compares those conditions against the baseline conditions to determine if the project would result in a significant environmental impact.

In general, this EIR uses the physical conditions in the project area at the time of NOP publication (November 2017) as the baseline conditions to evaluate all construction, operational, and cumulative impacts of the proposed project. However, in some cases, the comparison of existing conditions as of November 2017 to project conditions does not adequately capture the full range of environmental effects that could occur with project implementation, so this EIR considers alternate baseline conditions, depending on the resource topic, in order to present a reasonable worst-case analysis. For example, the EIR considers other projects within the vicinity of the proposed project that were under construction as of November 2017, but where construction is expected to be completed prior to the start of construction of the proposed project. In some cases, such as the shadow analysis, those projects currently under construction are considered to be fully completed as part of the baseline conditions, the assumption being that once a project is under construction, the construction is likely to be completed. The setting section in each environmental topic in this chapter describes the existing conditions as well as the baseline conditions appropriate for the impact analysis of that topic.

Proposed Project Flex Use Scenarios, and Other Project Options

The proposed project is described in Chapter 2, Project Description. As described in detail in subsection 2.E, Project Characteristics and Components (p. 2-12), the project would rezone and establish development controls for a multi-phased, mixed-use development at the project site. Overall, the proposed project would construct up to approximately 5.4 million gross square feet (gsf) of development. Table 2-1 (p. 2-14), summarizes the “preferred project” characteristics (as noted in Chapter 2, the term "proposed project" is used interchangeably with "preferred project" in this EIR, including a description of the types and amounts of proposed land uses, details regarding proposed dwelling units, building heights, vehicle and bicycle parking, and other features. As discussed, the proposed project includes 2.7 million gsf of residential uses (2,682 residential units), 1.6 million gsf of commercial uses, 922,000 gsf parking, approximately 100,000 gsf of community facilities, approximately 25,000 gsf of entertainment/assembly uses and approximately 6.2 acres of open space. The proposed project also assumes repurposing and converting the Unit 3 power block into a hotel.

However, the proposed project incorporates a flexible land use program (refer to discussion on p. 2-15, and Figure 2-5 on p. 2-16), in which certain blocks on the project site (“flex blocks”) permit both residential and commercial uses. Future market conditions and other economic considerations may, ultimately, determine the type and amount of residential and commercial land uses to be developed on the flex blocks. Accordingly, the proposed project could include between approximately 2.4 and 3.0 million gsf of residential uses (between about 2,400 and 3,000 dwelling units), and between approximately 1.2 and 1.9 million gsf of commercial uses. Additionally, under the flexible land use program, the Unit 3 power block could be demolished, with construction of a hotel or residential uses in its place.

Due to the potential land use variation that could occur under the flex blocks and with Unit 3, implementation of the proposed project could result in a range of impacts. Therefore, in order to provide the reasonable worst-case analysis under each impact topic, there are two scenarios that bracket the full range of potential impacts: (1) development that maximizes residential uses is considered the *maximum residential scenario*, and (2) development that maximizes office space uses is considered the *maximum office scenario*. **Table 4.A-1**, **Proposed Project and Flex Blocks Size and Potential Population**, presents the assumptions used for these two scenarios in comparison to the proposed project. In considering the worst-case potential impacts related to the project that could be generated under the flex use programs, this EIR considers the project and the appropriate scenario topic by topic to identify the maximum potential impact on a resource. This approach to analysis is considered and described in each resource topic of Chapter 4 under Project Features.

As described in Chapter 2, Project Description, the project description includes two potential options for wastewater and stormwater infrastructure as well as two potential options for non-potable (graywater) systems to serve the project. The project description also identifies two potential widths for the proposed Humboldt Street, and two potential alternative locations for the district parking garage. For each of these project components, this EIR analyzes the project option(s) that would reflect the worst-case impact analysis for the affected resource. If it is not clear which is the environmentally worst-case scenario, then the EIR analyzes both options. Again, this approach to analysis is considered and described in each resource topic of Chapter 4 under Project Features.

4.A.6 Approach to Cumulative Impact Analysis

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 proposed project when added to those of other closely related past, present, or reasonably foreseeable future projects. Pertinent guidance for cumulative impact analysis, as provided in CEQA Guidelines section 15130, is presented below:

- An EIR shall discuss cumulative impacts of a project when the project's incremental effect is "cumulatively considerable" (e.g., 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.
- The cumulative impact analysis for each individual resource topic is described in each resource section of this chapter immediately following the description of the direct project impacts and identified mitigation measures.

TABLE 4.A-1
PROPOSED PROJECT AND FLEX BLOCKS SIZE AND POTENTIAL RESIDENTIAL AND EMPLOYMENT POPULATION

Land Use Type	Population Generation Rate	Proposed Project		Maximum Residential		Maximum Office	
		Metric	Population	Metric	Population	Metric	Population
Residential Population							
Residential (units)	2.27 resident/unit[a]	2,682	6,088	3,014	6,842	2,441	5,541
Total Residents		**6,088**		**6,842**		**5,541**	
Employee Population							
Residential (units)	1 employee/32 units[b]	2,682	84	3,014	94	2,441	76
Hotel (rooms)	0.9 employee/ room[c]	220	198	0	0	220	198
General Office (sf)	276 sf/employee[c]	597,723	2,166	421,952	1,529	814,240	2,950
Research & Development (sf)	405 sf/employee[d]	645,738	1,594	645,738	1,594	645,738	1,594
PDR (sf)	276 sf/employee[e]	45,040	163	45,040	163	45,040	163
General Retail (sf)	350 sf/employee[c]	10,744	31	10,744	31	10,744	31
Supermarket (sf)	350 sf/employee[c]	42,975	123	42,975	123	42,975	123
Sit-down Restaurant (sf)	350 sf/employee[c]	16,116	46	16,116	46	16,116	46
Quick Service Restaurant (sf)	350 sf/employee[c]	37,604	107	37,604	107	37,604	107
Childcare (sf)	345 sf/employee[d]	15,000	43	15,000	43	15,000	43
Library (sf)	850 sf/employee[d]	10,000	12	10,000	12	10,000	12
Other Community Facilities (sf)	780 sf/employee[d]	75,938	97	75,938	97	75,938	97
Entertainment (sf)	350 sf/employee[f]	25,000	71	25,000	71	25,000	71
Public Open Space (acres)	3.9 acre/employee[g]	6.3	2	6.3	2	6.3	2
Parking (space)	270 spaces/employee[h]	2,622	10	2,691	10	2,622	10
Total Employees		**4,747**		**3,923**		**5,524**	

NOTES:

[a] Residential population generation rate is based off of the U.S. Census 2012-2016 ACS data for San Francisco.

[b] “Residential” employee rate is based off Seawall Lot 337 and Pier 48 Mixed-Use Project Draft EIR Table 4.9-C.

[c] Table C-1 of the Transportation Impact Guidelines (TIG) provided the generation rates for “Hotel,” “General Office,” “General Retail,” “Supermarket,” “Sit-down,” and “Composite Rate.” Note, the composite rate is used over the fast food rate, as the nature of the project would not lend itself to a typical drive-through fast food establishment

[d] “Research and Development,” “Childcare,” “Library,” and “Other Community Facilities,” employee generation rates are based on Adavant Consulting, April 30, 2018, Estimation of Project Travel Demand -- Appendix F, the were determined using Trip ITE estimates from the Mission Bay EIR, and are comparable to Candlestick Point-Hunters Point Shipyard Phase II Development Plan EIR rates.

[e] PDR employee generation rates assume the more conservative rate of 276 sf/employee, consistent with “General Office,” as opposed to “Research and Development,” consistent with Pier 70 Mixed-Use District EIR.

[f] “Entertainment” assumes “Eating/Drinking” generation rate of 350 sf/employee based on Table C-1 of the TIG.

[g] “Public Open Space” was calculated using the Candlestick Point-Hunters Point Shipyard Phase II Development Plan EIR considered 0.26 employees per acre, equivalent to approximately 3.9 acres per employee, this is more conservative than 0.1 employees per acre considered in the Pier 70 Mixed-Use District EIR.

[h] “Public Open Space” and “Parking” employee generation rate was calculated using 270 spaces per employee based on Table III.C-7 from the Candlestick Point-Hunters Point Shipyard Phase II Development Plan EIR, consistent with Pier 70 Mixed-Use District EIR.

SOURCE: California Barrel Company, Potrero Power Station – SF Allocation by Block, October 14, 2017.

Approach to Cumulative Impact Analysis

The following factors were used to determine an appropriate level for cumulative analysis in this EIR:

- **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 and/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 is 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.

Two approaches to a cumulative impact analysis are provided in CEQA Guidelines section 15130(b)(1): (1) the analysis can be based on a list of past, present, and reasonably foreseeable future projects producing closely related impacts that could combine with those of a proposed project, or (2) a summary of projections contained in a general plan or related planning document. The analyses in this EIR employ both the list-based approach and a projections-based approach, depending on which approach best suits the resource topic being analyzed. For example, the analysis of cumulative recreation impacts uses the list-based approach and considers individual projects that are anticipated in the project site vicinity that may affect recreational resources also affected by the proposed project. By comparison, the cumulative transportation and circulation analysis relies on a projection of overall citywide growth and other reasonably foreseeable projects, which is the typical methodology the planning department applies to analysis of transportation impacts.

For the resource topics using the list-based approach, **Table 4.A-2**, **Cumulative Projects in the Project Vicinity**, presents a comprehensive list of cumulative development and infrastructure projects generally located within 0.5 mile of the project site that are considered in the various cumulative analyses (though in order to consider larger projects this table considers some projects beyond 0.5 mile). The table identifies cumulative projects and their status as of the date of the Notice of Preparation (November 1, 2017), and provides a figure key, **Figure 4.A-1**, **Cumulative Projects in the Project Vicinity**, which shows the location of these projects relative to the proposed project site. In order to differentiate the status of these projects at the time of the Notice of Preparation, the table includes a column to list each project's status. In general, these cumulative projects are either under construction, which means they were "Under Construction" at the date of the Notice of Preparation and will likely be completed prior to the approval/operation of the proposed project; "Planning Entitled," which means the project is approved by the planning department but not yet approved for construction; "Building Permit Approved," meaning the project has permits necessary to start construction but has not yet started construction; and "Under Review," in which case, the project has an application on file with the planning department.

Each cumulative impact analysis considers the projects listed in Table 4.A-2 as appropriate to the resource topic. Each section identifies which of the cumulative projects could contribute to a cumulative impact on that specific resource and why. Not all projects on the list apply to every cumulative analysis. In some cases, as described above, projects on this list are considered as part of the baseline conditions, as described under each resource topic.

TABLE 4.A-2
CUMULATIVE PROJECTS IN THE PROJECT VICINITY

Key #	Project Name (Case File No.)	Status as of NOP	Dwelling Units	Commercial/ Retail (gsf)	Office (gsf)	Industrial (gsf)	Event Center (gsf)	Public Open Space (gsf)	Child Care (students)	Total # of Employees & Residents[a]
1	Pier 70 Mixed-Use District (also referred to as the Pier 70 project) (2014-001272ENV)[b]	Planning Entitled	1,000-2,000	400,000	900,000-1,810,000			304,900		12,243
2	SF Port Re-Tenanting of Pier 70 Shipyard (2014.0713E)[c]	Planning Entitled								-
3	20th Street Historic Core at Pier 70 (2016-000346ENV)	Building Permit Approved		16,000	100,000	224,000		42,000		961
4	2420 Third Street (2013.0673E)	Building Permit Approved	9	500						22
5	901 Tennessee Street (2013.0321E)	Under Construction	40							100
6	950 Tennessee Street (2014.1434ENV)	Planning Entitled	103							234
7	888 Tennessee Street/890 Tennessee Street (2013.0975E)	Planning Entitled	128							291
8	2290 Third Street (2005.0408E)	Building Permit Approved	71							161
9	815-825 Tennessee Street (2013.0220E)	Under Construction	69							157
10	2230 Third Street (2013.0531E)	Under Review	37	2,400						91
11	777 Tennessee Street (2013.0312E)	Building Permit Approved	59							134
12	600 20th Street	Under Review	20	1,400						49
13	2171 Third Street/590 19th Street (2013.0784E)	Building Permit Approved	109	3,100						256
14	Crane Cove Park (2015-001314ENV)	Under Construction						426,900		3
15	2092 Third Street/600 18th Street (2014.0168E)	Building Permit Approved	18	3,100						50
16	595 Mariposa Street (2014.1579ENV)	Building Permit Approved	20							45
17	2051 Third Street/650 Illinois Street (2010.0726E)	Under Construction	93							211
18	Mariposa Pump Station Upgrade (2014-002522ENV)[d]	Planning Entitled								-
19	Mission Bay Ferry Landing (2017-008824ENV)	Under Review								-
20	Golden State Warriors Event Center and Mixed-Use Development (2014.1441E)	Under Construction		125,000	605,000		750,000	139,400		3,728
21	Bayfront Park (ER 919-97)	Under Construction						239,600		1

TABLE 4.A-2 (CONTINUED)
CUMULATIVE PROJECTS IN THE PROJECT VICINITY

Key #	Project Name (Case File No.)	Status as of NOP	Dwelling Units	Commercial/ Retail (gsf)	Office (gsf)	Industrial (gsf)	Event Center (gsf)	Public Open Space (gsf)	Child Care (students)	Total # of Employees & Residents[a]
22	Seawall Lot 337/Pier 48 (2013.0208E)	Planning Entitled	1,500	1,250,000	700,000			348,500		9,515
23	650 Indiana Street (2012.1574E)	Under Construction	61	1,900						144
24	800 Indiana Street (2011.1374E)	Under Construction	326							740
25	645 Texas Street (2012.1218E)	Under Construction	91							207
26	790 Pennsylvania Avenue / 1395 22nd Street (2011.0671E)	Under Construction	256			43,600				689
27	Potrero Hope SF Master Plan (2010.0515E)	Planning Entitled	1,700		10,000				40-60	3,905
28	1000 Mississippi Street (2014-001291ENV)	Building Permit Approved	28							64
29	1201–1225 Tennessee Street (2012.0493E)	Under Construction	259	2,300						595
30	1499 Illinois Street, 1401-1443 Illinois Street, & 700 25th Street (2018-000949ENV)[e]	Under Review		2,500	230,000					840
31	Central Bayside System Improvement Project (Indiana Street Channel Tunnel and Carolina Street Channel Tunnel) (2017-000181ENV)[f]	Under Review								-
Total[g]			**6,001-7,001**	**1,808,200**	**2,545,000-3,455,000**	**267,600**	**750,000**	**1,501,300**	**40-60**	**35,434**

NOTES:

[a] Employment and Residential generation rates generated using the following: Dwelling Units: 2.27 persons/unit, Commercial/ Retail: 350 sf/employee, Office: 276sf/employee, Event Center: uses values from Event Center and Mixed-Use Development at Mission Bay Blocks 29-32 Subsequent EIR of 2,728 full time equivalent employees and 1,000 day of game staff, Public Open Space: 3.8acres/employee, Child Care (students) is based on recommended staff-child ratio by the National Association for the Education of Young Children - 6 kids per employee http://childcareaware.org/child-care-providers/management-plan/staffing, Industrial: 405 sf/employee. Based on this methodology there would be approximately 19,538 employees and 15,863 residents.

[b] Approved Pier 70 Mixed-Use District entails a range of development land uses, therefore the population generation assumes highest employment and population rates from highest end of project range of approved 2017 project.

[c] SF Port Re-Tenanting of Pier 70 Shipyard project would include renewal of the lease for BAE Ship Repair facility, which calls for the removal of 12 polychlorinated biphenyl electrical transformers and demolition of three buildings: Building 38 (Pipe and Electric Shop), Building 119 (Yard Washroom), and Building 121 (Drydock Office). In addition, the project would demolish Cranes Nos. 2 and 6. The project would involve routine maintenance and repairs approximately for a six-week duration once every 18 months over a seven-year period

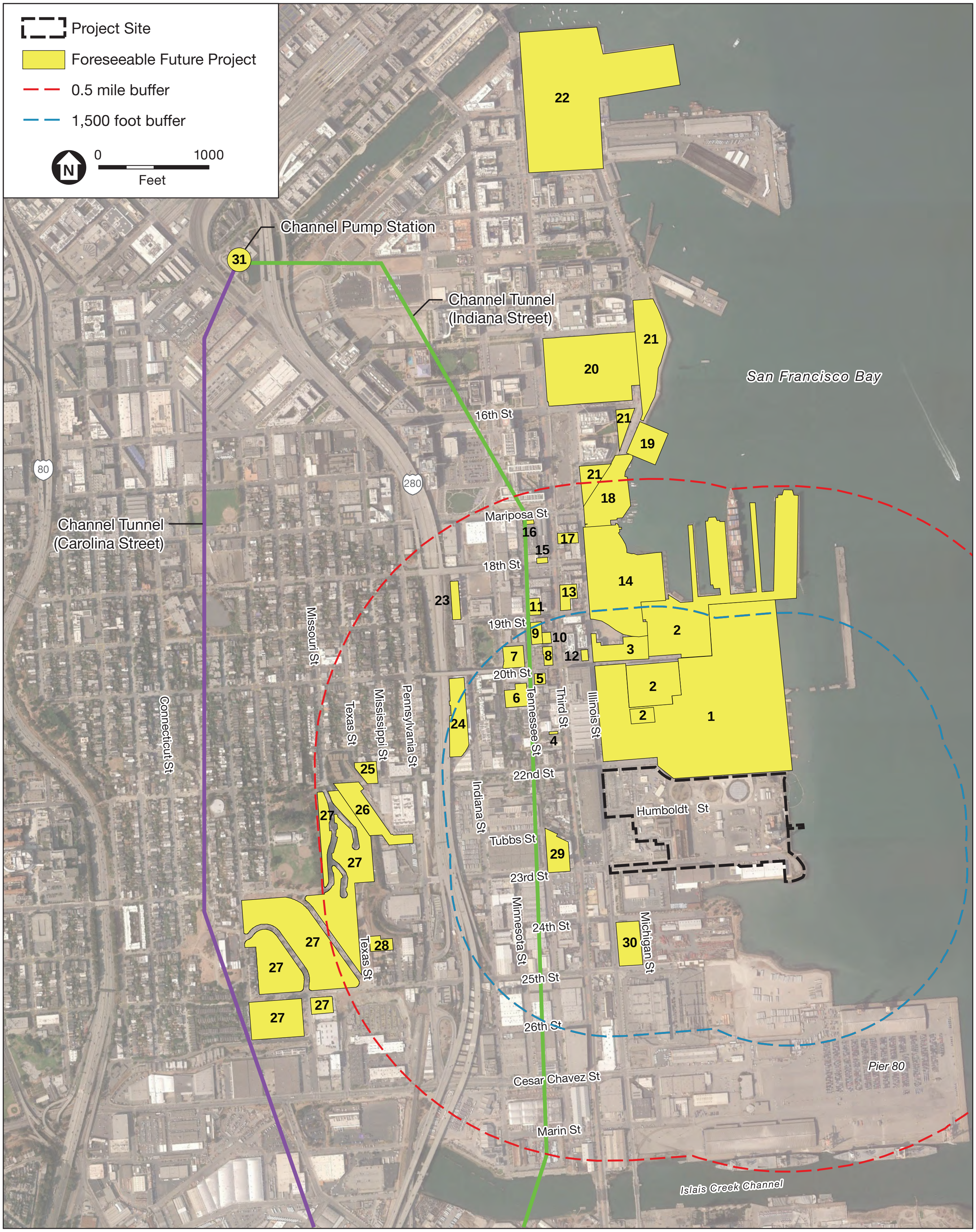
[d] Mariposa Pump Station Upgrade project will replace an existing 12-inch-diameter sewer pipe with new 24-inch-diameter high density polyethylene pipe within the same alignment of existing pipe, which runs east-west in the intersection of Terry Francois Boulevard, Mariposa Street, and Illinois Street, on the southern side of a large sub-surface concrete transport/storage sewer box. The project will also replace an existing manhole associated with the Mariposa Pump Station. Proposed modifications to an existing 20-inch force main and the Mariposa Pump Station also include a new 14-inch-diameter force main that will connect the pump station to the existing 20-inch force main.

[e] 1499 Illinois was not submitted to SF Planning until after NOP date, however due to scale of project, and proximity to the proposed project, it is included in the cumulative table.

[f] The Central Bayside Improvement Project will address the sewer system need; the design team is investigating a potential tunnel to provide reliable and redundant gravity conveyance and storage of wastewater flows from the Channel Pump Station to the Southeast Treatment Plant. Pump station improvements and a new pump station are also under consideration.

[g] Transportation network improvements and development projects are not included in this table as they primarily relate to Section 4.E, and are therefore addressed in that section.

SOURCE: San Francisco Planning Department, Quarter 4, 2017 Pipeline Report, *http://sf-planning.org/pipeline-report,* and *http://developmentmap.sfplanning.org/*, accessed May 18, 2018. [The list was cross referenced with the City and County of San Francisco Pier 70 Mixed-Use District EIR, Case No. 2-14=--1272ENV, August 9, 2017, and each project status and description was verified through the San Francisco Planning Department, 2018 San Francisco Property Information Map Version 8.5.7 *http://propertymap.sfplanning.org/*, accessed May 18, 2018.



SOURCE: ESA

Potrero Power Station Mixed-Use Development Project

Figure 4.A-1
Cumulative Projects in the
Project Vicinity

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4.B Land Use and Land Use Planning

4.B.1 Introduction

This section describes the existing land uses on and in the vicinity of the project site and analyzes potential project impacts with respect to land use and land use planning. The setting section documents the existing land uses, development pattern, and built environment of the project site and vicinity.[1] The impacts and mitigation section analyzes whether the proposed project would physically divide a community or conflict with any applicable land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. Where inconsistencies are identified that could result in physical effects on the environment, those associated physical environmental effects are analyzed in Chapter 4, Environmental Setting, Impacts, and Mitigation Measures, in the appropriate topic section. In particular, Section 4.D, Historic Architectural Resources, evaluates physical environmental effects related to potential inconsistency with plans and policies governing historical resources. Section 4.E, Transportation and Circulation, analyzes effects related to potential conflicts with transportation policies. Section 4.F, Noise and Vibration, evaluates impacts related to potential inconsistency with policies related to noise, while physical effects related to potential conflict with the regional air quality plans and regulations (e.g., the 2017 Bay Area Clean Air Plan) are analyzed in Section 4.G, Air Quality. Section 4.H, Wind and Shadow, considers physical effects related to potential conflict with policies regarding pedestrian-level winds, while Section 4.I, Biological Resources evaluates effects related to potential inconsistency with policies governing biological resources. Finally, Initial Study Topic E.3, Cultural Resources, (Appendix B), analyzes physical effects related to potential conflict with policies regarding archeological resources, including human remains and tribal cultural resources.

4.B.2 Environmental Setting

Existing Land Uses

Project Site

As described in Chapter 2, Project Description, the project site is largely occupied by vacant buildings and facilities; much of the site consists of undeveloped areas and parking lots, covered in asphalt or concrete. Current uses in the Power Station sub-area, which encompasses the great majority of the project site (see Figure 2-2 in Chapter 2, Project Description, p. 2-6), include warehouses, surface parking, vehicle storage, and office space. There is also a small modular "demonstration house" erected to evaluate energy- and water-saving techniques.

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[1] In this section, the project vicinity is generally considered the surrounding neighborhood and therefore the relevant area for consideration of land use impacts. This surrounding neighborhood, or vicinity, includes the area between San Francisco Bay and just west of the Interstate-280 freeway, and between Islais Creek north to Mariposa Street.

The PG&E sub-area currently houses a portion of the utility's Potrero substation and is also used by PG&E for storage and construction staging. The Port sub-area on the bay side of the project site consists primarily of vacant land, while other portions of the Port and City sub-areas and privately-owned Southern sub-area are currently part of 23rd Street and are paved.

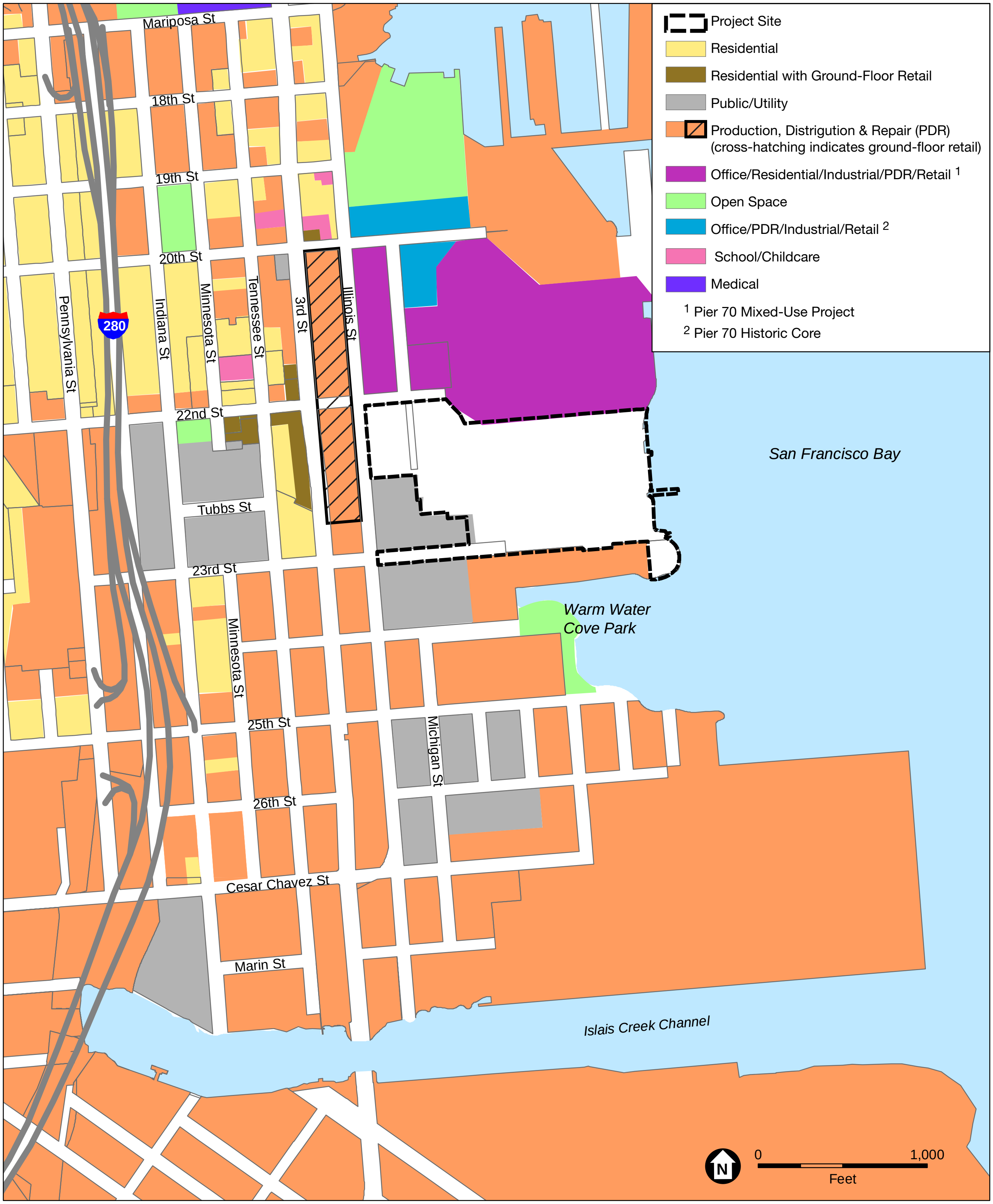
The project site has a long history of industrial land use, including manufactured gas production, electrical power generation, and sugar refining, dating from the mid-1800s (see Section 4.K, Hazards and Hazardous Materials, for details on the site history). The last major industrial operation, a power plant, closed in 2011.

Surrounding Land Uses

Adjacent land uses (see **Figure 4.B-1, Generalized Existing Land Uses in Project Vicinity**) consist of light industrial and storage uses (both classified as Production, Distribution and Repair, or PDR uses) to the south; largely vacant buildings to the north on the Pier 70 Mixed-Use District project site, approved in 2017 as a mixed-use project of a scale comparable to that of the proposed project; and, to the west, various PG&E facilities, including the existing PG&E Transbay Cable converter station and PG&E Potrero Substation (part of which occupies the project site's PG&E sub-area). West of the PG&E sub-area, across Illinois Street, is the two- to four-story American Industrial Center, whose four buildings span 865 linear feet, or most of the area between 20th and 23rd streets. This complex includes light industrial uses on the upper floors and a number of ground-floor retail stores on both Illinois and Third streets.

Farther south and southwest are Warm Water Cove Park (open space under the jurisdiction of the Port of San Francisco) and additional industrial and light industrial uses, including Muni's Metro East light rail vehicle maintenance and storage yard at 25th and Illinois streets and a diesel bus maintenance and operations facility at Cesar Chavez and Indiana streets, and the Port of San Francisco's Pier 80 container terminal bordering Islais Creek. West of the American Industrial Center is a mix of residential, retail, and light industrial uses, among them a concentration of historic mostly residential buildings that comprise the Dogpatch Historic District. There are also several historic buildings that have been rehabilitated, and new construction, including a recently completed 300-unit apartment building at 23rd and Third streets. Muni's Woods Division bus yard is farther west, at 22nd and Indiana streets, and also includes a mini-park facing 22nd Street. Finally, there is the elevated Interstate 280 (I-280) freeway, generally aligned with the Iowa Street right-of-way. The mostly residential Potrero Hill neighborhood rises to the west of the freeway.

To the northwest is a continuation of the mixed residential/retail/PDR uses of the Dogpatch neighborhood, including the area's only large City park, Esprit Park at 20th and Minnesota streets. This area also includes large new residential buildings, including some 325 units at 800 Indiana Street, at 20th Street, approximately 110 units at 650 Indiana Street, at 19th Street; and approximately 69 units at 815 Tennessee Street. As noted, the Pier 70 Mixed-Use District project is immediately north of the project site; it is approved for up to about 5.3 million square feet of residential, commercial, retail/arts/light-industrial, and open space uses, with buildout anticipated by approximately 2029. At present, the site is used for temporary events, along with artist studios, storage, warehouse, parking, a recycling yard, and office space.



SOURCE: San Francisco Property Information Map, 2018; ESA, 2018

Potrero Power Station Mixed-Use Development Project

Figure 4.B-1
Generalized Existing Land Uses in Project Vicinity

To the north beyond the Pier 70 Mixed-Use District project is the so-called "historic core" of Pier 70, along both sides of 20th Street east of Illinois Street. There, several 19th and early 20th century office and industrial buildings have recently been rehabilitated and put to reuse as office and light industrial space. Farther north is the former BAE shipyard (the subject of ongoing Port attempts to engage a new ship repair tenant); Crane Cove Park, a new Port open space anticipated to open by 2020; and several recently constructed residential buildings on Illinois Street between 20th and Mariposa streets that together include nearly 400 dwelling units. To the north of Mariposa Street is the Mission Bay Redevelopment Area, including: the new University of California, San Francisco, hospital and associated buildings; Mariposa Park; the under-construction Golden State Warriors' arena; and other buildings devoted to office, medical, and research and development uses.

Existing Zoning

Use Districts

Nearly the entirety of the project site is within a M-2 (Heavy Industrial) Use District. The southeastern tip of the project site, which is within the Port sub-area, is within a PDR-1-G (General Production, Distribution, and Repair) Use District, while the 23rd Street right-of-way, also within the Port sub-area, has no zoning designation (as is the case for nearly all streets in San Francisco). Nearby use districts to the project site include PDR-1-G to the south, southwest, and west; PDR-2 (Core PDR) farther southwest; and M-2 to the north and south (beyond the PDR-1-G district), along most of the nearby waterfront areas. The site of the Pier 70 Mixed-Use District project, immediately north of the project site, is within the Pier 70 Special Use District (SUD), adopted in 2017 in connection with approval of that project. The Pier 70 SUD (San Francisco Planning Code section 249.79) permits various land uses, including residential, institutional (except hospital), retail, office, entertainment/arts/recreation, certain industrial, and PDR uses and parking, subject to state laws governing the Port of San Francisco.[2] To the west and northwest of the project site is a UMU (Urban Mixed Use) Use District, and there is a NCT-2 (Small-Scale Neighborhood Commercial Transit) Use District along Third and 22nd streets and RH-3 (Three-family Residential) on Tennessee and Minnesota streets north and south of 22nd Street. Much of the area west of the I-280 freeway is within a RH-2 (Two-Family Residential) Use District. North of Mariposa Street, finally, there are P (Public) Use Districts throughout the project site vicinity. These are home to parks, municipal facilities such as Muni streetcar and bus yards, and utility facilities. **Figure 4.B-2, Existing Use Districts in the Project Vicinity**, depicts use districts in the project vicinity.

M-2 Use Districts are the least restrictive as to permitted uses. M-2 districts permit maritime uses, shipyards, manufacturing of most types, and agriculture, along with office, retail, and entertainment uses. Student housing and single-room occupancy residential units are permitted, but other residential uses, along with hotels, are permitted only with a conditional use authorization. Certain land uses are expressly prohibited in M-2 districts, including child care, hospitals, and schools.

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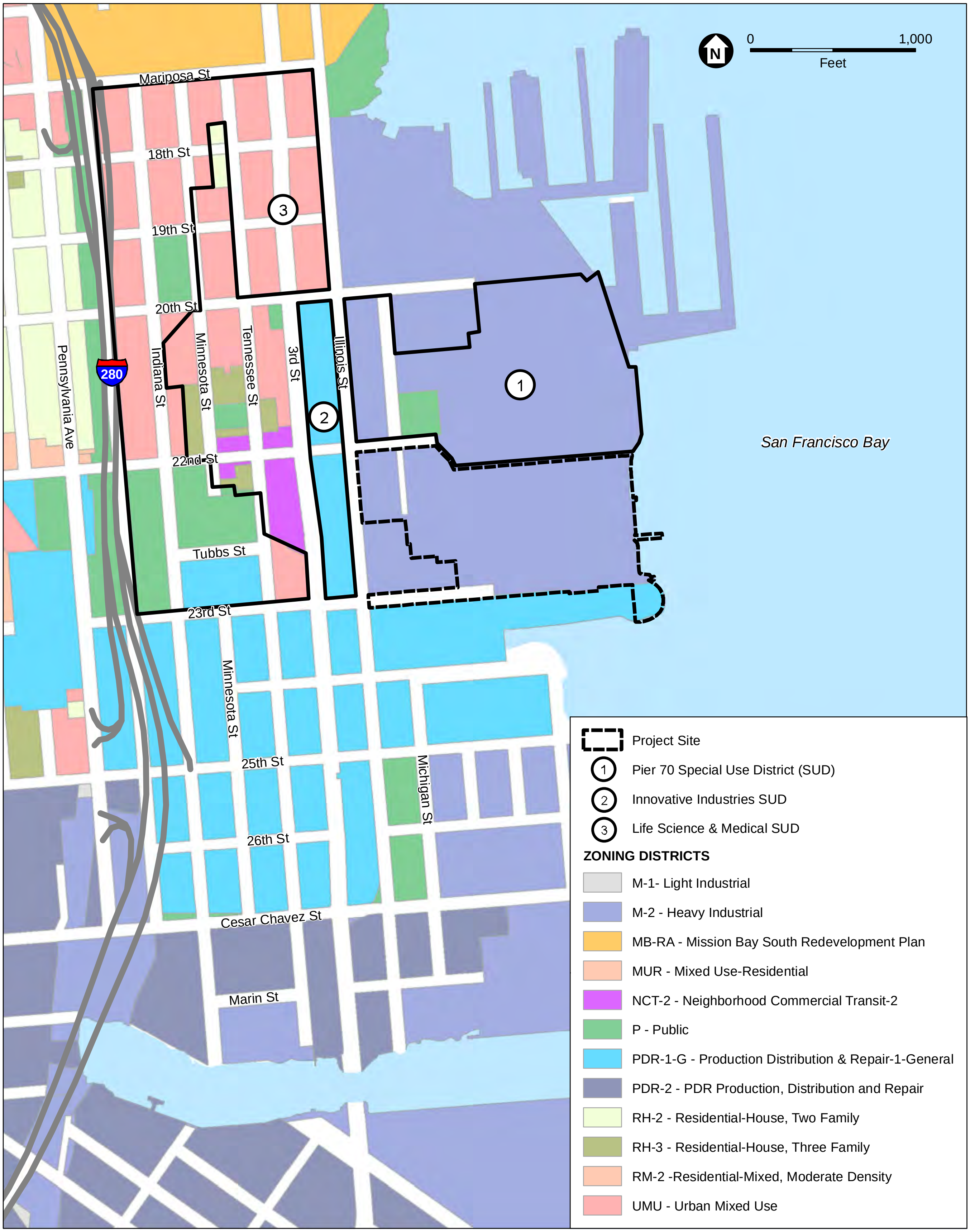
[2] The Pier 70 SUD also incorporates the Pier 70 Design for Development, which sets forth standards and guidelines with respect to land use; open space; streets and streetscapes; parking and loading; building massing, design, and compatibility with historical resources; and lighting, signage, and public art.



SOURCE: DataSF

Potrero Power Station Mixed-Use Development Project

Figure 4.B-2
Existing Use Districts in the Project Vicinity

PDR-1-G Use Districts are intended to retain and encourage PDR uses (generally, agricultural, automotive, light manufacturing, wholesale, animal hospitals and boarding, repair establishments, and business service uses, all of which are permitted). Most entertainment and recreation uses are also permitted, as is child care. Like all PDR districts, PDR-1-G districts do not permit residential or office uses, nor are schools permitted. Most retail uses are limited to 2,500 square feet per lot.

PDR-2 Use Districts are similar to PRD-1-G districts but are intended to permit more intensive industrial-type operations.

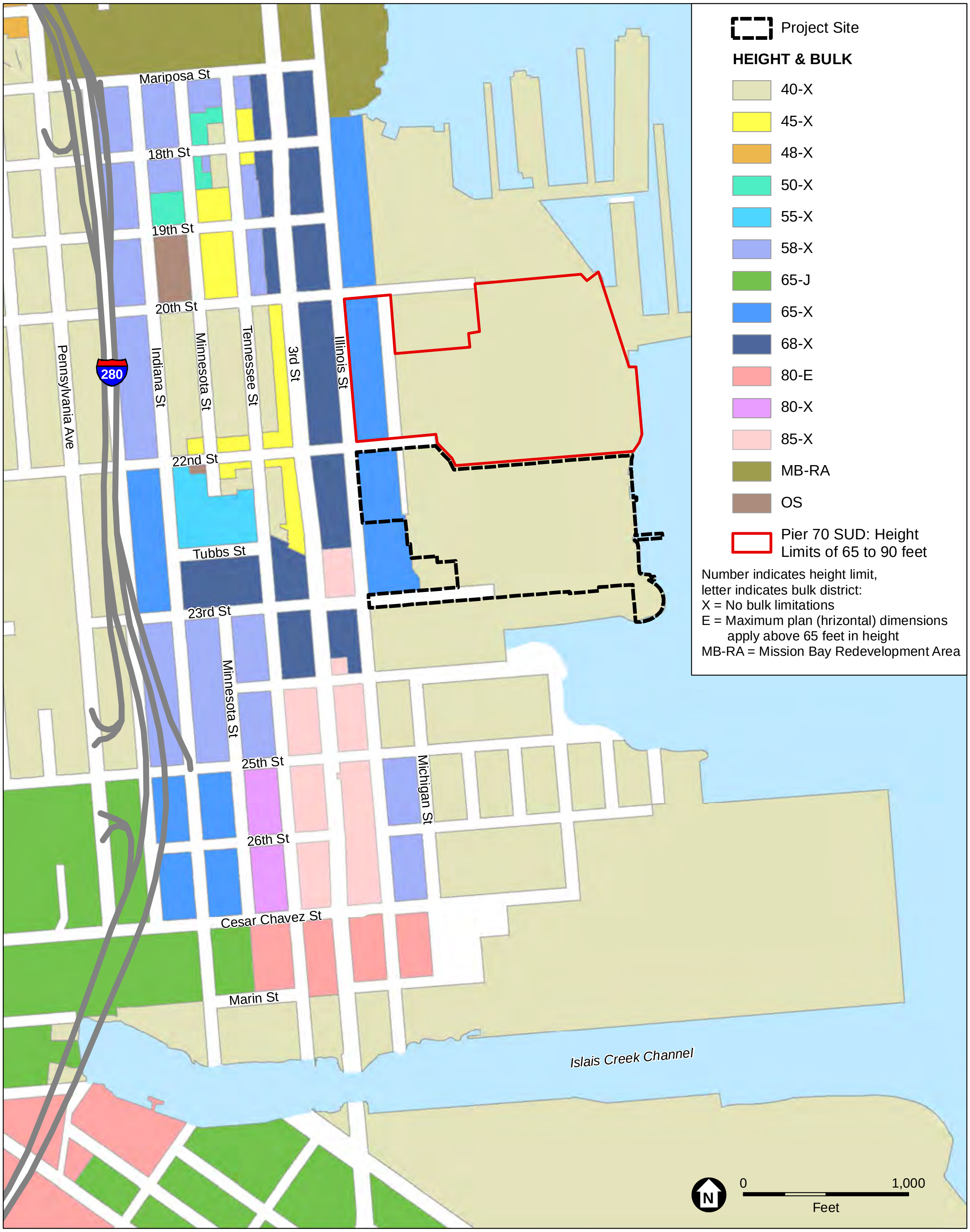
UMU Use Districts allow for a mix of uses and serve as a buffer between PDR districts and other use districts. UMU districts permit PDR, arts, entertainment, and recreation uses, along with residential uses, religious facilities, child care, and schools (post-secondary schools require a conditional use authorization). Retail use is generally limited to 25,000 square feet per lot, and a conditional use authorization is required for *formula retail* (chain stores). Office use is generally permitted at the ground floor and in designated landmark buildings.

NCT-2 Use Districts are generally intended to allow for residential uses and small retail stores that provide “convenience goods and services” to the surrounding area. Retail stores larger than 4,000 square feet require a conditional use authorization. Office use is generally limited to design professionals and offices of building, plumbing, electrical, painting, roofing, furnace, and pest control contractors, and the like. Automotive and some entertainment uses are permitted, as is child care.

RH-3 and RH-2 Use Districts permit three- and two-unit residential buildings per parcel, respectively. Child care is also permitted, but most other institutional uses, including schools, require a conditional use authorization. Retail and office uses are not permitted. Hotels may be permitted as a conditional use.

Height and Bulk Districts

Most of the project site is within a 40-X Height and Bulk District. This means that the height limit is 40 feet (certain rooftop projections such as mechanical equipment and screening are exempt) and there is no limitation on building bulk (i.e., buildings can be built to the height limit and parcel boundaries with no setbacks required). The western portions of the project site, along Illinois Street are within a 65-X Height and Bulk District (65-foot height limit, no bulk limit). In the project vicinity, height limits range from 40 feet to 85 feet, with the greatest heights being permitted generally along either side of Third Street south of 24th Street. There is also a small 85-foot height zone on 23rd Street between Third and Illinois streets. Most of the vicinity has an X bulk designation, meaning there is no bulk limit. Bulk limits are in place south of Cesar Chavez Street, west of Michigan Street, and south of 25th Street, west of Iowa Street. **Figure 4.B-3**, **Existing Height and Bulk Districts in the Project Vicinity**, depicts height and bulk districts in the project vicinity. In addition to the heights depicted on Figure 4.B-3, the Pier 70 SUD establishes permitted maximum building heights for new construction of 65 to 90 feet. In Open Space Districts, where buildings are typically limited to park structures, height and bulk is determined on an as-needed basis, consistent with the General Plan. Height and bulk limits in the Mission Bay Redevelopment Area are governed by the redevelopment plan and associated documents.



SOURCE: DataSF

Potrero Power Station Mixed-Use Development Project

Figure 4.B-3
Existing Height and Bulk Districts in the Project Vicinity

4.B.3 Regulatory Framework

Please refer to Chapter 3, Plans and Policies, for a discussion of the local and regional land use regulatory framework applicable to the proposed project.

4.B.4 Impacts and Mitigation Measures

Significance Criteria

The criteria for determining the significance of impacts in this analysis are consistent with the environmental checklist in Appendix G of the CEQA Guidelines, which has been modified by the San Francisco Planning Department. For the purpose of this analysis, the following applicable criteria were used to determine whether implementing the proposed project would result in a significant impact on land use and land use planning. Implementation of the proposed project would have a significant effect on land use and land use planning if the project would:

- Physically divide an established community; or
- Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect.

Approach to Analysis

Project Features

The project features relevant to the Land Use and Land Use Planning impact analysis are the buildings and infrastructure that would be permitted to be developed pursuant to the project's proposed amendments to the General Plan and Planning Code through the creation of a new Potrero Power Station Special Use District (SUD). The SUD would establish land use controls for the project site and incorporate design standards and guidelines in a new Potrero Power Station Design for Development document (D for D). The Zoning Maps would be amended to show changes from the current zoning to the proposed SUD zoning and would also increase the height limits on the project site from the existing 40 feet and 65 feet to a range of 65 to 300 feet.

Methodology for Analysis of Impacts

The evaluation of the potential for impacts related to land use and land use planning involves a qualitative assessment of the project's potential to physically divide the Central Waterfront neighborhood, or any part thereof. The impact assessment also evaluates any potential conflicts with applicable plans, policies, and regulations that have been adopted to avoid or reduce environmental impacts. As such, the policy analysis is not comprehensive, but rather is limited to policies that are intended to address physical environmental impacts, as analyzed pursuant to CEQA.

A conflict between the project and an existing plan or policy does not, in itself, indicate a significant environmental effect under CEQA, unless the project substantially conflicts with a land use plan/policy that was adopted for the purpose of avoiding or mitigating an environmental effect and also results in an adverse physical impact on the environment.[3] However, such an inconsistency may potentially, at least in some cases, be indicative of an adverse physical effect. The determination of a significant impact—which, by definition, must involve a physical change—is separate from the legal determination of plan consistency. The focus of the analysis under Impact LU-2 is on the proposed project's potential for substantial conflicts with applicable plans and policies, such that a substantial adverse physical change in the environment related to land use would result from the identified conflict. Impact LU-2 does not present a complete analysis of project conformity with applicable state, regional, and local plans and policies. Chapter 3, Plans and Policies, identifies potential conflicts with plans and policies relevant to the proposed project.

However, the City will conduct a comprehensive analysis of the proposed project's consistency with the general plan and other applicable plans and policies independent of the CEQA process, as part of the decision-makers' action to approve, modify, or disapprove the project or aspects thereof. The planning commission and/or board of supervisors will ultimately determine the proposed project's overall consistency on balance with the goals and policies contained in the general plan and other City requirements and planning documents as part of the decision to approve or reject the proposed project. The staff report for the planning commission will analyze the project's consistency with general plan policies.

To the extent that physical environmental impacts may result from conflicts between the proposed project and applicable policy language, the EIR discloses and analyzes these physical impacts under the specific environmental topic sections in EIR Chapter 4 or in the initial study (see Appendix B). For example, impacts resulting from a change or intensification in the residential population and/or employment opportunities on the project site are discussed in Section 4.C, Population and Housing, and are also embodied in environmental impacts related to the capacity of existing facilities and services to adequately serve the area, including those described in EIR Chapter 4 and initial study sections related to transportation and circulation, recreation, utilities and service systems, and public services. The physical impacts of construction and/or operation of the proposed project on the environment are evaluated in the impact analysis for specific environmental topics, such as cultural resources, noise, air quality, greenhouse gas emissions, wind and shadow, hydrology and water quality, and hazards and hazardous materials.

Methodology for Analysis for Cumulative Impacts

Section 4.A.6, Approach to Cumulative Impact Analysis, describes the overall approach to the cumulative analysis for those topics using a list-based approach and summarizes past, present and reasonably foreseeable future projects in the vicinity of the Potrero Power Station project that could contribute to a cumulative impact. The geographic scope for cumulative land use impacts is the Central Waterfront area, including the Dogpatch neighborhood. This area, which comprises the area between San Francisco Bay and the eastern foot of Potrero Hill, from Islais Creek north to about 18th Street, is generally considered the surrounding neighborhood and therefore the relevant

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[3] CEQA Guidelines section 15358(b) states, "Effects analyzed under CEQA must be related to a physical change."

area for consideration of cumulative land use impacts. The cumulative analysis focuses, in particular, on combined land use effects of the proposed project and the approved Pier 70 Mixed-Use District project, along with the Pier 70 Historic Core projects (currently under construction), as these three developments comprise the vast majority of development projected to occur within the Central Waterfront area. It also considers the numerous recently built, under construction, and approved residential projects in the Central Waterfront area. The analysis also acknowledges the Mission Bay Redevelopment Plan area, (which is nearing buildout) to the north, the approved reconstruction and expansion of the Potrero Terrace and Potrero Annex public housing sites (Potrero HOPE SF project), as well as three large but more distant projects on the east side of San Francisco—the under-development Candlestick Point-Hunters Point Shipyard project to the south, and the approved Mission Rock project and pending Central South of Market Area (SoMa) Plan area to the north.[4]

The cumulative analysis evaluates, qualitatively, whether or not there would be a significant, adverse cumulative land use impact associated with project implementation in combination with past, present, and reasonably foreseeable future projects in the geographical area, and if so, whether or not the project's contribution to the cumulative impact would be considerable. Both conditions must apply in order for a project's contribution to cumulative effects to be deemed cumulatively considerable (i.e., significant).

Impact Evaluation

Impact LU-1: The proposed project would not physically divide an established community. *(Less than Significant)*

The physical division of an established community typically refers to the construction of a physical feature (such as a major roadway or railroad line) or removal of a means of access (such as a street or bridge) that would impair mobility within an existing community or between a community and surrounding areas. Physical divisions within a community could also result from large-scale land use changes that have the potential to isolate existing residential uses from other nearby residential neighborhoods.

Because of its industrial history, specifically the most recent use of most of the site as the Potrero Power Plant, and because of the surrounding predominantly industrial and light industrial uses, both existing and historic, to the north, west, and south, the project site is isolated from the remainder of the Central Waterfront area, including the nearby Dogpatch neighborhood. The project site is characterized by clusters of structures and large, paved but undeveloped areas. Access is limited, as the project site is gated at Humboldt Street, which extends east into the site from Illinois Street, and on the north side of 23rd Street. There is currently no street access from the north. As a result, the project site is not well integrated with the surrounding street grid. There is currently no public access to the waterfront and no visual access to the bay through the project site.

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[4] Mission Rock (aka Seawall Lot 337/Pier 48) was approved by the Planning Commission in October 2017, the Port Commission in January 2018, and the Board of Supervisors in February 2018, with legislation creating a special use district signed by the mayor in March 2018. The Central SoMa Plan is anticipated to be considered for adoption in 2018.

Given these isolating factors, the project site does not currently contain, nor does it lie within, an established community.

As a result, rather than dividing an established community, the proposed project would reconnect the project site to the established Dogpatch community and the larger Central Waterfront area. Specifically, the proposed project would improve and extend both Humboldt and 23rd streets, which would link the project site to the existing neighborhoods to the west, beyond Illinois Street. Humboldt Street, in particular, would provide for a new view corridor through the site to the San Francisco Bay. The project would also develop new north-south streets within the project site, providing for a street connection to the adjacent approved Pier 70 Mixed-Use District project to the north and further enhancing connectivity with the larger Central Waterfront area. Other transportation improvements that would increase linkages and connectivity with the surrounding neighborhoods would include a new pedestrian and bicycle network, a bus layover to accommodate Muni buses anticipated to serve the site, and the project's shuttle service to and from BART and Caltrain.

The project would provide new publicly accessible open space, including new public access to the San Francisco Bay shoreline, a link for the planned Bay Trail through the project site along the shoreline, and a floating dock and wharf along the edge of the bay. The open space component would include several publicly accessible parks and other open spaces that would be accessible not only to residents and employees of the project site but to nearby residents and workers. Street trees planted on the project site would help to visually integrate the project site with the existing street trees on Illinois Street.

Additionally, as a mixed-use project, the proposed project would provide both a substantial increase in housing, including affordable housing, as well as jobs and retail goods and services to both project residents and those from the surrounding area, further helping link the project site to the remainder of the Central Waterfront. The proposed project would not include any features, such as major roadways, that could serve as a barrier to site access, nor would it remove any features that currently provide access. Although the replacement of existing buildings and open areas with a large mixed-use development would increase the development intensity on the project site, the new buildings would not divide an established community (for example, by isolating an existing residential area), because the site is at present largely unoccupied and is not an integral part of the larger Central Waterfront neighborhood. For the same reason, the project would not constitute a barrier to access because the project site currently provides no public access, either from the rest of the Central Waterfront to the bay or from north to south through the site, as described above.

Based on the foregoing, the proposed project would have a ***less-than-significant*** effect related to physical division of a community.

Mitigation: None required.

Impact LU-2: The proposed project would not conflict with applicable land use plans, policies, or regulations of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect. ***(Less than Significant)***

Applicable local land use plans that regulate development on the project site include the San Francisco General Plan and the San Francisco Planning Code. As noted in Chapter 3, Plans and Policies, the Port's Waterfront Land Use Plan has limited applicability to the project site and is not considered further. Other applicable plans include the Bicycle Plan, the Transit First Policy, the Better Streets Plan, and the Accountable Planning Initiative. Applicable regional plans include the San Francisco Bay Conservation and Development Commission's Bay Plan, and San Francisco Waterfront Special Area Plan, and Plan Bay Area. The discussion in Chapter 3, Plans and Policies, generally describes the proposed project's potential inconsistencies with these plans.[5]

San Francisco General Plan

The proposed project would be generally consistent with the Central Waterfront Area Plan, which is the portion of the San Francisco General Plan with the most specific applicability to the project site. Text accompanying Objective 1.1 of the Central Waterfront Area Plan (adopted in 2008) notes that the power plant was anticipated to cease operations. As to future use of the project site, the text at Objective 1.1 continues:

> While contamination of the soil here will preclude housing development on the site, it will be an opportunity, similar to Pier 70, for mixed-use development in the future that could include larger activities such as commercial as well as research and development uses. A future community planning process for this site will help determine exactly what should occur on the site.

The Central Waterfront Area Plan therefore called for maintaining the existing industrial zoning of Pier 70 site and the project site pending the outcome of a separate planning process for the two sites.

As called for in the Central Waterfront Plan, the project sponsor has undertaken a "community planning process," with numerous public meetings and open houses. The proposed project would include the "larger-scale commercial and research establishments" called for in the Central Waterfront Area Plan. With respect to residential use, remediation undertaken and still in progress by PG&E at the project site is being completed to achieve a commercial/industrial land use standard at the site. Therefore, as described in Chapter 2, Project Description, additional remediation as deemed appropriate by the Regional Water Quality Control Board may occur during project construction to allow for residential use and/or to address previously unknown contaminants discovered during the course of development. Implementation of this additional project-specific remediation, as required by the regional board, would avoid any physical effects that the Central Waterfront Area Plan had assumed would be associated with residential use of the

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[5] Other regional plans, such as the 2017 Clean Air Plan and the Basin Plan concerning San Francisco Bay, address specific environmental resources and are discussed in the relevant resource sections of this EIR.

site. Accordingly, in addition to commercial and research and development uses, the proposed project would include new residential development and amenities such as open space and ground-floor retail uses that would be available to both project residents and occupants and to others. While certain conforming amendments to the Central Waterfront Area Plan would likely be required as part of project approval, the project would not substantially conflict with the Central Waterfront Area Plan's environmental policy framework. Likewise, amendments to the San Francisco Planning Code and Zoning Maps would be required, but these would not, in general, implicate environmental effects.

As discussed in Chapter 3, Plans and Policies, the proposed project's 300-foot-tall tower could be seen to partially conflict with Central Waterfront Area Plan Policy 3.1.2, "Development should step down in height as it approaches the Bay to reinforce the city's natural topography and to encourage an active and public waterfront." Any such partial conflict would potentially result in aesthetic changes. As explained in Section 3.B, Local Plans and Policies, the proposed project would meet other design goals of the San Francisco General Plan, including providing orientation points for areas of activity. As explained in Section 4.A, Impact Overview, however, aesthetic impacts are not considered significant impacts under CEQA for this proposed project per CEQA Statute section 21099(d). Therefore, this potential conflict would not result in a significant environmental effect.

However, as also discussed in Chapter 3, Plans and Policies, the proposed project's demolition of historical resources would at least partially conflict with Central Waterfront Area Plan Objective 8.2, "Protect, preserve, and reuse historic resources within the Central Waterfront area plan," and Policy 8.2.1, "Protect individually significant historic and cultural resources and historic districts in the Central Waterfront area plan from demolition or adverse alteration, particularly those elements of the Maritime and Industrial Area east of Illinois Street." The physical environmental impacts associated with demolition of historical resources are analyzed in Section 4.D, Historic Architectural Resources.

Additionally, as discussed in Chapter 3, the proposed project could conflict with Central Waterfront Area Plan Objective 1.5, "Minimize the impact of noise on affected areas and ensure General Plan noise requirements are met," because project construction would cause significant effects, even with mitigation, and project and cumulative traffic volumes could cause substantial permanent increases in ambient noise levels along some streets in the project vicinity. The physical environmental noise effects of the proposed project are analyzed in Section 4.F, Noise and Vibration.

The proposed project could conflict with City policy direction with respect to pedestrian exposure to hazardous winds; these physical environmental impacts are analyzed in Section 4.H, Wind and Shadow.

Other Plans

The project site is largely outside the boundary of the Port of San Francisco's Waterfront Land Use Plan, which applies only to the 1.6-acre waterfront portion of the Port sub-area, between the Power Station sub-area and the bay (i.e., most of the project site's bay frontage). This area would be devoted to publicly accessible open space and includes the project's proposed recreational dock.

Because the Waterfront Land Use Plan identifies these as acceptable land uses, the proposed project would not conflict with the land use guidance in the plan.

The project would be undertaken within a Priority Development Area, as set forth in Plan Bay Area 2040, Final, and thus would be consistent with this regional transportation plan and Sustainable Communities Strategy. The project would not substantially conflict with the San Francisco Bay Conversation Development Commission's San Francisco Bay Plan, in that the project would provide for extensive public access, including waterfront public access, and would not develop any new structures within 100 feet of San Francisco Bay.

With respect to the City's Transit First Policy, project-generated transit demand would not be fully accommodated by existing Muni service and would result in a substantial increase in transit delay on the 22 Fillmore, which could result in a significant impact. This impact is analyzed in Section 4.F, Transportation and Circulation.

San Francisco Planning Code

As explained in Chapter 2, Project Description, the proposed project would include amendments to the Planning Code and Zoning Maps, creating a new Potrero Power Station Special Use District (SUD) and increasing height limits on the project site. If approved by the planning commission and board of supervisors, the SUD would establish land use controls for the project site and incorporate design standards and guidelines in a new Potrero Power Station Design for Development (D for D) document, while the new height and bulk map within the Zoning Map would change the existing height limits of 40 and 65 feet to height limits ranging from 65 to 300 feet.

Conclusions

If the San Francisco Board of Supervisors finds that amendments to the San Francisco General Plan and Planning Code are warranted to allow for implementation of the proposed project, conflicts between the San Francisco General Plan and Planning Code, and the project would be resolved through a legislative amendment of the San Francisco General Plan and Planning Code.

Conflicts with plans, policies, and regulations do not necessarily indicate a significant environmental land use impact under CEQA, unless the project substantially conflicts with a land use plan/policy that was adopted for the purpose of avoiding or mitigating an environmental effect, such that a substantial adverse physical change in the environment related to land use would result. To the extent that such substantial physical environmental impacts may result from such conflicts, this EIR discloses and analyzes these physical impacts under the relevant environmental topic sections, as noted above in the introduction to this section.

The proposed project would not conflict with land uses plans and policies such that a substantial adverse physical change in the environment related to land use would result. For this reason, the proposed project would have a ***less-than-significant*** land use effect related to conflict with a land use plan, policy, or regulation; no mitigation measures are required.

Potential conflicts with applicable San Francisco General Plan objectives and policies will continue to be analyzed and considered as part of the review of entitlement applications required for the proposed project independent of environmental review under CEQA. They also will be considered by the decision-makers during their deliberations on the merits of the proposed project and as part of their actions to approve, modify, or disapprove the proposed project.

Mitigation: None required.

Cumulative Impacts

Impact C-LU-1: The proposed project, in combination with past, present, or reasonably foreseeable future projects, would not contribute considerably to significant cumulative land use impacts related to physical division of an established community. ***(Less than Significant)***

Section 4.A, Impact Overview, identifies several foreseeable future projects that are located near the project site. In addition, several area plans have identified the southeastern part of San Francisco as the location for substantial future growth in housing and employment. These include the five Eastern Neighborhoods area plans (East SoMa, Western SoMa, Showplace Square/Potrero Hill, Mission, and Central Waterfront, where the project site is located), the Mission Bay Redevelopment Plan, the Bayview Hunters Point Area Plan, and plans for the former Hunters Point Shipyard, Candlestick Point, Visitacion Valley, and Executive Park. Additionally, the proposed Central SoMa Plan anticipates further growth in the central portion of the South of Market neighborhood. The proposed project would add to this growth (see Section 4B, Population and Housing, for further discussion).

The proposed project would combine with growth in the above areas, the approved Pier 70 Mixed-Use District project, and the approved Mission Rock project to continue the transformation of much of eastern San Francisco from a substantially industrial area to a mixed-use residential-commercial area. However, this transformation would be largely consistent with both adopted local and regional plans, including the plans noted above and Plan Bay Area 2040, Final.

As discussed above under Impact LU-1, the proposed project would extend a network of public streets through the project site and would enhance pedestrian and bicycle circulation and add new open space. All of these changes would enhance public access to and through the project site and to the waterfront. Development in the above-noted plan areas would likewise enhance circulation options and open space, as would the approved Pier 70 and Mission Rock projects. Therefore, none of these projects would divide an established community, nor would they combine to do so in a cumulative manner. Accordingly, cumulative effects related to physical division of established communities would be ***less than significan***t.

Mitigation: None required.

Impact C-LU-2: The proposed project, in combination with past, present, or reasonably foreseeable future projects, would not contribute considerably to significant cumulative land use impacts related to conflicts with applicable land use plans, policies, and/or regulations adopted for the purpose of avoiding or mitigating an environmental effect. *(Less than Significant)*

The proposed project's conflicts with existing land use plans and policies adopted for the purpose of avoiding or mitigating an environmental effect, discussed above under Impact LU-2, would be less than significant. To the extent that substantial physical environmental effects may result from such conflicts, this EIR discloses and analyzes these physical impacts under the relevant environmental topic areas, including Section 4.D, Historic Architectural Resources, Section 4.E, Transportation and Circulation, Section 4.F, Noise and Vibration, Section 4.G, Air Quality, Section 4.H, Wind and Shadow, and Section 4.I, Biological Resources, along with Initial Study Topic E.3, Cultural Resources, and Initial Study E.13, Geology and Soils, for both the proposed project and the cumulative projects.

For these reasons, the proposed project, in combination with past, present, and reasonably foreseeable future projects, would have ***less-than-significant*** cumulative land use impacts.

Mitigation: None required.

4.C Population and Housing

4.C.1 Introduction

This section describes existing population, housing, and employment characteristics and trends in San Francisco and the potential for the Potrero Power Station Mixed-Use Development project (proposed project) to induce substantial unplanned population growth, either directly or indirectly, or displace housing or residents in the project vicinity or citywide necessitating the construction of replacement housing. The impact analysis evaluates the potential population, housing, and employment impacts of the proposed project and identifies mitigation measures to avoid or reduce adverse impacts, as appropriate. In addition, the project is considered in combination with past, present and reasonably foreseeable future projects to determine potential cumulative impacts.

4.C.2 Environmental Setting

Study Area

The City of San Francisco is the primary study area that would be affected directly by potential project-related population and housing effects as well as by employment effects that could in turn result in demand for additional housing. Because project construction could draw on the regional labor pool, this section also describes employment trends in surrounding Bay Area counties. In addition, to address potential indirect and cumulative effects of the project, this Population and Housing section considers the population within approximately 0.5-miles of the project site the "project vicinity." Census tract populations, therefore, considered in the project vicinity include census tracts 226, 217.02, 604, 614, and 9809.

Regional Setting

Population

In 2010, there were 805,235 people living in San Francisco, a 4 percent increase in the city's population compared to 2000.[1] The California Department of Finance, which provides population estimates and tracks changes in housing and vacancy rates for years between the decennial census counts, estimates that the city's population in 2015 was 845,600, a 5 percent increase since 2010.[2] Under the Metropolitan Transportation Commission and Association of Bay Area Governments (ABAG) Plan Bay Area 2040 Final report, the city's population is projected to increase by nearly

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[1] U.S. Census Bureau, American FactFinder, DP-1 Profile of General Population and Housing Characteristics: 2010, 2010 Demographic Profile Data, San Francisco County, California, 2010; and U.S. Census Bureau, American FactFinder, DP-1 Profile of General Demographic Characteristics: 2000, San Francisco County, California, 2000.

[2] State of California, Department of Finance, *E-5 Population and Housing Estimates for Cities, Counties, and the State, January 1, 2011-2017, with 2010 Benchmark.* Sacramento, California, May 1, 2017. This estimate is slightly lower than the 2015 population projected in 2013 by the regional planning agency, the Association of Bay Area Governments (ABAG); the Department of Finance estimate is used here for consistency with information on vacancy rates, which are tracked by the Department of Finance and provided, herein. The difference between the population estimate and population projections (which may be attributable to more current data available for the Department of Finance estimate), is negligible (0.16 percent).

46 percent over the 30-year period between 2010 and 2040 (or approximately 1.5 percent per year) to an estimated population of 1,173,952.[3]

The population of the nine-county Bay Area[4] is expected to increase at a slightly lower rate than San Francisco's population over the same 30-year period. The Bay Area's population is estimated to increase from approximately 7.2 million persons in 2010 to 9.6 million by 2040.[5] Overall, the Bay Area's population is expected to increase by 33 percent over this 30-year period.

Housing

Households

In 2010, the Bay Area had approximately 2.6 million households, (defined by the Association of Bay Area Governments as an occupied residential unit), and by 2040, the association estimates the number of Bay Area households will increase by approximately 30 percent to 3.4 million households.[6] In 2010, San Francisco had approximately 345,810 households comprising approximately 13 percent of Bay Area households. By 2040, the Association of Bay Area Governments estimates the number of San Francisco households will increase by 137,800 households to an estimated 483,700 households and represent approximately 11 percent of Bay Area households.[7]

According to the U.S. census, the average household size in San Francisco has fluctuated between 2.30 persons per household in 2000 to 2.26 persons per household in 2010, which is smaller than the Bay Area average household size of 2.76 persons per household in 2010.[8] According to the Association of Bay Area Governments and Metropolitan Transportation Commission Plan Bay Area 2040 Final, San Francisco's average household size is projected to increase to 2.43 persons per household by 2040.[9] The Bay Area average household size is expected to increase from 2.76 to 2.80 persons per household between 2010 and 2040.[10]

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[3] *Plan Bay Area 2040 Final* does not provide explicit updated population forecasts, therefore this analysis considers a parallel comparison between persons per households among the most recent data: the *2013 Draft Plan Bay Area*, forecasts 447,800 households within 469,430 housing units in 2040, with a population of 1,085,730 (Table 14, page 42), while the *Plan Bay Area 2040 Final* provides an updated forecast with San Francisco expected to have 483,700 households. Adhering to the same population generation rates, the *Final Plan Bay Area 2040* thus forecasts approximately 507,574 housing units, with an overall population of 1,173,952.

[4] The Bay Area's nine counties are Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma.

[5] Metropolitan Transportation Commission (MTC) and Association of Bay Area Governments (ABAG), *Plan Bay Area 2040 Final*, July 2017, Table 3.1, p. 33.

[6] MTC and ABAG, *Plan Bay Area 2040 Final*, July 2017, Table 3.1, p. 33.

[7] MTC and ABAG, *Plan Bay Area 2040 Final*, Land Use Modeling Retort, July 2017. Appendix 1- Household and Employment Growth Forecasts by Jurisdiction, p. 35.

[8] U.S. Census Bureau, American FactFinder, DP-1 Profile of General Population and Housing Characteristics: 2010, 2010 Demographic Profile Data, San Francisco County, California, 2010; U.S. Census Bureau, American FactFinder, DP-1 Profile of General Demographic Characteristics: 2000, San Francisco County, California, 2000. And Final Plan Bay Area 2040, July 2017. MTC and ABAG. Table 3.1, p. 33.

[9] The *2013 Draft Plan Bay Area*, forecasts 447,800 households within 469,430 housing units in 2040, with a population of 1,085,730 (Table 14, page 42), while the Final Plan Bay Area 2040 provides an updated forecast with San Francisco expected to have 483,700 households. Adhering to the same population generation rates, the Final Plan Bay Area 2040 thus forecasts approximately 507,574 housing units, with an overall population of 1,173,952. Based on this growth ration, the 2040 Persons per Household is 2.43.

[10] MTC and ABAG, *Plan Bay Area 2040 Final*, July 2017, Table 3.1, p. 33

Existing Housing Stock

San Francisco experienced marked housing growth between 2000 and 2010. About 29,600 housing units were added over this period, a 9 percent increase, for a total of 376,200 housing units in 2010; the estimated vacancy rate in 2010 was 8.3 percent.[11] The number of households (occupied housing units) increased over this period from 329,700 in 2000 to 345,811 in 2010, a 5 percent increase.[12] There was a net addition of 4,441 units to the City's housing stock in 2017, a 12 percent decrease from 2016's net addition. The net addition in 2017, however, is about 60 percent more than the 10-year average net addition of 2,745, and represents an upward trend in net unit production from the lowest production point of 2011. By the end of 2017, there were approximately 392,000 housing units in the city.[13]

Employment

According to the California Employment Development Department data, approximately 703,600 people worked in San Francisco in 2016, an increase of 28,400 jobs since 2015 and the City's peak annual average employment level to date.[14,15] This estimate measures workers by place of work and includes full-time and part-time wage and salary employment; it does not include self-employed people, unpaid family workers, or private household employees.[16] From 2010 following the recession through 2016, more than 160,000 jobs were added in San Francisco.[17]

Employment in San Francisco, as in the Bay Area region as whole, has fluctuated substantially since the mid-1990s. Both the San Francisco and Bay Area economies experienced strong growth through 2000, fueled by the "dot-com" boom in the high technology and internet sectors; 84,000 jobs were added between 1994 and 2000 for a total of almost 609,000 workers in San Francisco in 2000.[18] Following the dot-com crash, San Francisco lost 90,000 jobs between 2000 and 2004. The City regained almost 48,000 jobs between 2004 and 2008 and lost about 27,000 jobs between 2008 and 2010 during the global recession.[19]

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[11] U.S. Census Bureau, American FactFinder, DP-1 Profile of General Population and Housing Characteristics: 2010, 2010 Demographic Profile Data, San Francisco County, California, 2010; U.S. Census Bureau, American FactFinder, DP-1 Profile of General Demographic Characteristics: 2000, San Francisco County, California, 2000.

[12] U.S. Census Bureau, American FactFinder, DP-1 Profile of General Population and Housing Characteristics: 2010, 2010 Demographic Profile Data, San Francisco County, California, 2010; U.S. Census Bureau, American FactFinder, DP-1 Profile of General Demographic Characteristics: 2000, San Francisco County, California, 2000.

[13] San Francisco Planning Department, *2017 San Francisco Housing Inventory*, published April 2018.

[14] California Employment Development Department (EDD), Labor Market Information (LMI) for San Francisco County, California, Industry Employment Data, Annual Average Estimates 1990-2015, December 28, 2017.

[15] These estimates of employment by place of work count part-time and full-time jobs equally. People who hold more than one job may be counted more than once.

[16] California EDD, LMI Frequently Asked Questions, 2017, *http://www.labormarketinfo.edd.ca.gov/FAQs/FAQs_DD.html*, accessed on March 1, 2018.

[17] There were 703,600 jobs cited in 2016, and 543,500 in 2010. Data from: California EDD, LMI for San Francisco County, California, Industry Employment Data, Annual Average Estimates 1990-2015, December 28, 2017.

[18] This estimate is about 6 percent less than ABAG's estimate for 2000; ABAG's data include classes of workers that the Employment Development Department does not (self-employed workers, unpaid family workers, or private household employees).

[19] California EDD, LMI for San Francisco County, California, Industry Employment Data, Annual Average Estimates 1990-2015, December 28, 2017.

Construction employment in San Francisco has generally followed the same cycle of job gains and losses, except that there was a much sharper decline in construction jobs in the city between 2008 and 2010 compared to jobs overall, and construction employment continued to decline in 2011, whereas employment as a whole in the city began to increase slowly in 2011. From 2008 to 2010, 26 percent of construction jobs in the city – roughly 5,000 jobs – were lost, compared to a 5 percent decline in all city jobs, and construction jobs declined by another 3 percent in 2011. Construction employment began to increase in 2012; in 2014, there were 16,800 construction jobs in San Francisco, a net loss of 2,400 construction jobs since 2008; and by 2016, this number increased to 20,400, a net increase of 800 jobs since 2008. In a five-county subregion of the Bay Area (San Francisco, Alameda, Contra Costa, Marin, and San Mateo counties), 37,000 construction jobs were lost between 2007 and 2010. Construction employment for the five-county region began to recover in 2011, and more than 33,000 construction jobs were added in the region between 2010 and 2016; there were 113,600 construction jobs in the five-county region in 2013, a net loss of approximately 4,000 construction jobs compared to 2007.[20]

The Plan Bay Area 2040 Final report estimates that 296,000 new jobs will be added to San Francisco between 2010 and 2040 representing 23 percent of employment growth in the nine-county area of the Bay Area region.[21]

Local Setting

The project site is located within census tract 226, which is bounded by 16th Street to the north, I-280 to the west, 25th Street to the south, and San Francisco Bay to the east. The baseline setting for which project impacts are assessed under this section considers the November 1, 2017, Notice of Preparation publication date. At the time of the notice, there were three groups of existing employees using the project site: (1) up to 10 regular or permanent employees present at the PG&E Subarea at the General Construction Yard (currently used by PG&E for storage offices, as a headquarters for San Francisco utility maintenance operations, gas and electric transmission, and an electrical transmission substation); (2) temporary employees associated with hazardous material remediation; and (3) approximately 10 temporary employees associated with the project applicant, California Barrel Company LLC. Because remediation work is a temporary use of the site, and as remediation must be completed prior to operation of each phase of the project, this temporary population is not considered a potentially displaced population. Employees of the California Barrel Company are a newly introduced population by the project and would be relocated onsite once their current, temporary office space is required to be demolished for project construction. As such, these are not considered an existing employee population that would be displaced.

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[20] California EDD, Industry Employment Data for San Francisco County, California December 28, 2017; California EDD, Industry Employment Data for Alameda County, California, March 1, 2018a; California EDD, Industry Employment Data for Contra Costa County, California, July 17, 2018b; California EDD, Industry Employment Data for Marin County, California, San Rafael Metropolitan Division, July 17, 2018c; and California EDD, Industry Employment Data for San Mateo County, California, July 17, 2018d. Data provided for San Francisco, Alameda, Contra Costa, and San Mateo Counties are for the industry title “Mining, Logging and Construction” and for Marin County data are provided for the industry title “Construction.”

[21] ABAG and MTC, *Plan Bay Area 2040 Final*, adopted July, 26, 2017, Map 4.3 p. 47.

According to the 2010 U.S. Census, census tract 226, for which the project site is located, had a total population of 1,534 residents.[22] According to the American Community Survey's 2012-2016 five-year survey, the population of census tract 226 was 2,080, an increase of 36 percent since 2010, for 1,006 units.[23] Currently, there are no residential units on the project site.

For the purposes of this population and housing analysis, the project vicinity includes census tract 226, along with census tracts 217.02, 604, 614, and 9809, which are located, at least partially, within approximately 0.5 miles of the project. Collectively, these five parcels contained approximately 11,028 residents in 2010, and in 2016 according to American Community Survey 2012-2016 five-year estimates, contained 12,278 residents, in a total of 5,897 units.[24,25]

4.C.3 Regulatory Framework

There are no federal regulations and only one state regulation related to population, housing, or employment that apply to the proposed project. This section discusses state, regional, and local regulations.

State Regulations

Senate Bill 375

Senate Bill 375 was enacted to encourage regions like the Bay Area to develop solutions to the challenge of growing congestion, which has disproportionately affected lower-income residents and burdened them with hours-long commutes on crowded roads, buses or trains. This bill requires regions to prepare a Sustainable Communities Strategy (or Alternative Planning Strategy) to reduce greenhouse gas emissions by linking growth to transit, resulting in a different distribution of jobs and housing growth than under pre-strategy projections.

Regional Regulations

Plan Bay Area 2040 Final

Plan Bay Area 2040 Final was necessitated by the adoption of Senate Bill 375. This plan serves as the Bay Area's Sustainable Communities Strategy and was prepared by the Association of Bay Area Governments and Metropolitan Transportation Commission. The Draft Plan Bay Area was published in 2013, and the final was published July 2017. The Plan Bay Area 2040 Final provides an update to

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[22] U.S. Census Bureau, DP-1 Profile of General Population and Housing Characteristics: 2010, 2010 Demographic Profile Data, Census Tract 226, San Francisco County, California, *https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=DEC_10_DP_DPDP1&src*=pt, accessed December 29, 2017.

[23] U.S. Census Bureau, 2012-2016 American Community Survey 5-Year Estimates, DP05 American Community Survey Demographic and Housing Estimates, Census Tract 226, 227.02, 604, 614, 9809, San Francisco, California, *https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml#non*e, accessed March 1, 2018.

[24] U.S. Census Bureau, DP-1 Profile of General Population and Housing Characteristics: 2010, 2010 Demographic Profile Data, Census Tract 227.02, 604, 614, 9809, San Francisco, California, *https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml#non*e, accessed March 1, 2018.

[25] U.S. Census Bureau, 2012-2016 American Community Survey 5-Year Estimates, DP05 American Community Survey Demographic and Housing Estimates, Census Tract 226, 227.02, 604, 614, 9809, San Francisco, California, *https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml#non*e, accessed March 1, 2018.

the region's long-range transportation plan and sustainable communities strategy; it projects household and employment growth in the Bay Area through 2040, provides a roadmap for accommodating expected growth, and connects it all to a transportation investment strategy that strives to move the Bay Area toward key regional goals for the environment, economy, and social equity. Plan Bay Area 2040 Final is advisory; adherence by each jurisdiction is not compulsory.

The Plan Bay Area 2040 Final estimates approximately 137,800 additional housing units and 295,700 additional jobs will be added in San Francisco between 2010 and 2040. Household growth would equate to roughly 17 percent of regional growth, while this job growth equates to roughly 23 percent of the total employment growth anticipated in the region.[26] Plan Bay Area 2040 Final sets out a plan to meet most of the region's growth in *Priority Development Areas*, or PDAs, as identified by local governments. Much of the eastern third of San Francisco is within various PDAs; the project site is primarily located within the Eastern Neighborhoods PDA, (which includes East SoMa, the Mission, Showplace Square and Potrero Hill, and the Central Waterfront)[27] as well as partially within the Port of San Francisco Waterfront PDA.

Regional Housing Need Plan for the San Francisco Bay Area: 2014-2022

The Regional Housing Need Allocation Plan is the state-mandated process to identify the total number of housing units (by affordability level) that each jurisdiction must accommodate. As part of this process, the California Department of Housing and Community Development identifies the total housing need for the San Francisco Bay Area for an eight-year period (in the current cycle, from 2015 to 2023). The Association of Bay Area Governments must then develop a methodology to distribute this need to local governments in a manner that is consistent with the development pattern included in the Sustainable Communities Strategy. Once a local government has received its final allocation, it must revise its general plan housing element to accommodate its portion of the region's housing need.

The housing allocation is expressed not only as an overall housing production target to alleviate tight housing market conditions and reduce long-distance commuting, but also, as separate targets for production of housing affordable to various household income categories. Based on this two-fold expression, San Francisco's share of the regional housing need for 2014 through 2022 is 28,869 new units, with approximately 57 percent of the target to provide affordable to households making what is considered *above moderate*, or 120 percent of the area median income or less.[28] This represents a little over 15 percent of the regional total from 2014 to 2022 and amounts to a total citywide housing production goal of affordable and market rate units of about 3,609 units per year. San Francisco's share of the Regional Housing Need Allocation Plan is incorporated into the City's 2014 Housing Element (adopted in April 2015). As required by state law, the San Francisco General

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[26] ABAG and MTC, *Plan Bay Area 2040 Final*, adopted July, 26, 2017, Maps 4.2 and 4.3 p. 47.

[27] City and County of San Francisco Planning Department, Eastern Neighborhoods Plan Areas, *http://sf-planning.org/sites/default/files/FileCenter/Documents/1230-Eastern_Neighborhoods_Planning_Areas_Map.pdf*, accessed July 18, 2018.

[28] Income levels are broken into four categories: very low income is 50 percent or less of area median income, low income is 51 to 80 percent of area median income, moderate income is 81 to 120 percent of area median income, and above moderate is more than 120 percent of area median income. City and County of San Francisco, General Plan Housing Element, adopted April 27, 2015, p. I.41

Plan Housing Element discusses the City's fair share allocation of regional housing needs by income as projected by the Association of Bay Area Governments.

Local Regulations

San Francisco General Plan

Housing Element

The 2014 Housing Element is a component of the San Francisco General Plan and establishes the City's overall housing policies. California State Housing Element law (California Government Code sections 65580 et seq.) requires local jurisdictions to adequately plan for and address the housing needs of all segments of its population in order to attain the region's share of projected statewide housing goals. This law requires local governments to plan for their existing and projected housing needs by facilitating the improvement and development of housing and removing constraints on development opportunities. San Francisco's 2014 Housing Element was required to plan for an existing and projected housing need of 28,869 new housing units.

The following objectives and policies of the Housing Element are relevant to the population and housing impact analysis of the proposed project:

- **Objective 1:** Identify and make available for development adequate sites to meet the City's housing needs, especially permanently affordable housing.

  ***Policy 1.1*:** Plan for the full range of housing needs in the City and County of San Francisco, especially affordable housing.

  ***Policy 1.3*:** Work proactively to identify and secure opportunity sites for permanently affordable housing.

  ***Policy 1.4*:** Ensure community based planning processes are used to generate changes to land use controls.

  ***Policy 1.6*:** Consider greater flexibility in number and size of units within established building envelopes in community based planning processes, especially if it can increase the number of affordable units in multi-family structures.

  ***Policy 1.8*:** Promote mixed use development, and include housing, particularly permanently affordable housing, in new commercial, institutional or other single use development projects.

  ***Policy 1.9*:** Require new commercial development and higher educational institutions to meet the housing they generate, particularly the need for affordable housing for lower income workers and students.

  ***Policy 1.10*:** Support new housing projects, especially affordable housing, where households can easily rely on public transportation, walking and bicycling for the majority of daily trips.

- **Objective 4:** Foster a housing stock that meets the needs of all residents across lifecycles.

Policy 4.1: Develop new housing, and encourage the remodeling of existing housing, for families with children.

Policy 4.4: Encourage sufficient and suitable rental housing opportunities, emphasizing permanently affordable rental units wherever possible.

Policy 4.5: Ensure that new permanently affordable housing is located in all of the city's neighborhoods, and encourage integrated neighborhoods, with a diversity of unit types provided at a range of income levels.

Policy 4.6: Encourage an equitable distribution of growth according to infrastructure and site capacity.

Policy 4.7: Consider environmental justice issues when planning for new housing, especially affordable housing.

- **Objective 11:** Support and respect the diverse and distinct character of San Francisco's neighborhoods.

Policy 11.1: Promote the construction and rehabilitation of well-designed housing that emphasizes beauty, flexibility, and innovative design, and respects existing neighborhood character.

Policy 11.3: Ensure growth is accommodated without substantially and adversely impacting existing residential neighborhood character.

Policy 11.4: Continue to utilize zoning districts which conform to a generalized residential land use and density plan and the General Plan.

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

Policy 11.8: Consider a neighborhood's character when integrating new uses, and minimize disruption caused by expansion of institutions into residential areas.

Policy 11.9: Foster development that strengthens local culture sense of place and history.

- **Objective 12:** Balance housing growth with adequate infrastructure that serves the City's growing population.

Policy 12.1: Encourage new housing that relies on transit use and environmentally sustainable patterns of movement.

Policy 12.2: Consider the proximity of quality of life elements, such as open space, child care, and neighborhood services, when developing new housing units.

Policy 12.3: Ensure new housing is sustainably supported by the City's public infrastructure systems.

- **Objective 13:** Prioritize sustainable development in planning for and constructing new housing.

Policy 13.1: Support "smart" regional growth that locates new housing close to jobs and transit.

Policy 13.3: Promote sustainable land use patterns that integrate housing with transportation in order to increase transit, pedestrian, and bicycle mode share.

Central Waterfront Area Plan

The Central Waterfront Area Plan is part of the larger Eastern Neighborhoods Planning Area, which is composed of the Mission, Central Waterfront, East SOMA, Western SoMa, and Showplace Square/Potrero Hill neighborhoods. The Central Waterfront Area Plan was adopted by the Planning Commission in 2008. It is bounded by Mariposa Street on the north, San Francisco Bay on the east, Islais Creek on the south, I-280 on the west, and includes the project site (see Chapter 2, Project Description, Figure 2-1). The Central Waterfront Area Plan identifies the project site, as the Potrero power plant, similar to Pier 70 as playing a role in defining the Central Waterfront. However, because the project site was considered under active operation of industrial uses at the time of the Eastern Neighborhoods community planning process, the Central Waterfront Area Plan does not include changes to the zoning and height controls for the project site.[29]

The following objectives and policies of the Central Waterfront Area Plan are relevant to the population and housing impact analysis of the proposed project:

- **Objective 2.1:** Ensure that a significant percentage of new housing created in the Central Waterfront is affordable to people with a wide range of incomes.

  ***Policy 2.1.1*:** Require developers in some formerly industrial areas to contribute towards the City's very low, low, moderate, and middle income needs as identified in the Housing Element of the General Plan.

  ***Policy 2.1.2*:** Provide land and funding for the construction of new housing affordable to very low and low-income households.

  ***Policy 2.1.3*:** Provide units that are affordable to households at moderate and "middle incomes" – working households earning above traditional below-market-rate thresholds but still well below what is needed to buy a market priced home, with restrictions to ensure affordability continues.

- **Objective 2.3** Require that a significant number of units in new developments have two or more bedrooms except senior housing and SRO [single room occupancy] developments unless all below market rate unit are two or more bedroom units.

  ***Policy 2.3.1*:** Target the provision of affordable units for families.

  ***Policy 2.3.2*:** Prioritize the development of affordable family housing, both rental and ownership, particularly along transit corridors and adjacent to community amenities.

  ***Policy 2.3.3*:** Require that a significant number of units in new developments have two or more bedrooms, except Senior Housing and SRO developments.

  ***Policy 2.3.4*:** Encourage the creation of family supportive services, such as child care facilities, parks and recreation, or other facilities, in affordable housing or mixed-use developments.

  ***Policy 2.3.5*:** Explore a range of revenue-generating tools including impact fees, public funds and grants, assessment districts, and other private funding sources, to fund community and neighborhood improvements.

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[29] City and County of San Francisco, *Central Waterfront Area Plan*, December 2008, p. 8.

> ***Policy 2.3.6*:** Establish an impact fee to be allocated towards an Eastern Neighborhoods Public Benefit Fund to mitigate the impacts of new development on transit, pedestrian, bicycle, and street improvements, park and recreational facilities, and community facilities such as libraries, child care and other neighborhood services in the area.

- **Objective 2.4** Lower the cost of the production of housing.

> ***Policy 2.4.1*:** Require developers to separate the cost of parking from the cost of housing in both for sale and rental developments.
>
> ***Policy 2.4.2*:** Revise residential parking requirements so that structured or off-street parking is permitted up to specified maximum amounts in certain districts, but is not required.
>
> ***Policy 2.4.3*:** Encourage construction of units that are "affordable by design."

- **Objective 2.6** Continue and expand the City's effort to increase permanently affordable housing production and availability.

> ***Policy 2.6.1*:** Continue and strengthen innovative programs that help to make both rental and ownership housing more affordable and available.

Other Local Regulations

Jobs Housing Linkage Program

The Jobs-Housing Linkage Program was first implemented in 1985 as the Office-Affordable Housing Production Program as one means by which the impacts of Downtown office employment growth would be managed and mitigated. The original exaction was limited to Downtown (C-3 Zoning Districts) office development. The program was updated and expanded in 1997. The Jobs Housing Nexus Analysis prepared in 1997 for the City demonstrated the relationship between all types of new commercial development and the need for affordable housing.[30] The Jobs-Housing Linkage Program analyzes the relationships among construction of new non-residential buildings, added employment, increased demand for affordable housing, and assesses fees based on the costs of addressing the additional demands for affordable housing.

Policy 1.9 of the 2014 Housing Element calls for enforcement and monitoring of the Jobs-Housing Linkage Program, requiring that new commercial development (as well as institutions of higher education) in the City provide affordable housing or pay an in-lieu fee to meet the housing need attributable to employment or student population growth and new commercial development, particularly the demand for new housing affordable to low- and moderate-income households. The current Jobs-Housing Linkage Program applies to office and other types of developments. The program is incorporated into section 413 of the planning code. This provision would apply to the project, and could be modified by the project's development agreement.

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[30] Keyser Marston Associates, Inc. and Gabriel Roche, Inc., *Jobs Housing Nexus Analysis, City of San Francisco*, July 1997. Prepared for the Office of Affordable Housing Production Program, City and County of San Francisco.

Residential Inclusionary Affordable Housing Program

San Francisco's Inclusionary Housing Program, requires new residential projects of 10 or more units to pay an affordable housing fee, or meet the inclusionary requirement by providing a percentage of the units as *below market rate* units at a price that is affordable to low or middle income households, either onsite within the project, or offsite at another location in the city. The program is governed by San Francisco Planning Code section 415 and the Inclusionary Housing Program Procedures Manual, and is administered by the Mayor's Office of Housing and Community Development and the Planning Department.[31] This provision would apply to the project, and could be modified by the project’s development agreement.

4.C.4 Impacts and Mitigation Measures

Significance Criteria

The criteria for determining the significance of impacts in this analysis are consistent with the environmental checklist in Appendix G of the CEQA Guidelines, which has been modified by the San Francisco Planning Department. For the purpose of this analysis, the following applicable criteria were used to determine whether implementing the proposed project would result in a significant impact on population and housing. Implementation of the proposed project would have a significant effect on population and housing if the project would:

- Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure);
- Displace substantial numbers of existing housing units, necessitating the construction of replacement housing; or
- Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere.

Approach to Analysis

CEQA Guidelines section 15064(e) notes that an economic or social change by itself would not be considered a significant effect on the environment. Economic and social changes are only considered under CEQA to the extent that they may lead to adverse physical impacts on the environment, such as the construction of replacement housing necessitated by the displacement of substantial numbers of people. Moreover, population growth is considered in the context of local and regional plans and population, housing, and employment projections. The following analysis

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[31] The Inclusionary Housing Program has been in effect since 2002. On July 18, 2017, the board of supervisors unanimously approved legislation (Board File No. 161351) to significantly revise the key requirements and provisions contained in section 415 of the planning code, including as they apply to "grandfathered" projects currently in the development pipeline. The legislation was signed into law by Mayor Ed Lee on July 27, 2017 and become effective on August 26, 2017. Additional trailing legislation (Board File No. 170834) came into effect on December 3, 2017 to make a handful of technical changes to planning code section 415; including but not limited to the application of the Inclusionary Program in the Transbay Redevelopment Area and in certain areas including the Mission Plan Area, and how new requirements for feasibility studies of significant re-zoning actions will apply.

therefore considers whether the population and household growth that would occur with implementation of the proposed project (either directly or indirectly) would lead to unplanned growth that could in turn result in adverse physical environmental impacts. This analysis presents the surrounding environment, or the project vicinity of census tracts 226, 217.02, 604, 614, and 9809 for a local comparison. Much of this area is a priority development area.

Criteria Not Analyzed

Due to the project location, there would be no impact related to the following topics for the reasons described below:

- ***Displace substantial numbers of existing housing units, necessitating construction of replacement housing.*** The project would be located at existing, mostly vacant industrial sites that are bordered by non-residential land uses and San Francisco Bay; it would not displace any housing and therefore would not necessitate construction of replacement housing. Therefore, this criterion related to housing displacement does not apply and is not addressed further in this section.
- ***Displace substantial numbers of people, necessitating construction of replacement housing.*** The project would be located at existing, mostly vacant industrial sites that are bordered by non-residential land uses and San Francisco Bay; it would not displace any people and therefore would not necessitate construction of replacement housing. Therefore, this criterion related to population displacement does not apply and is not addressed further in this section.

Project Features

The population and housing impact analysis considers the proposed project as a whole; individual project components or features are not relevant to the analysis. The flexible land use program, as described in Section 4.A, Impact Overview, permits either residential or commercial uses on certain blocks on the project site (referred to as “flex blocks,” see Figure 2-5 in Chapter 2, Project Description). The ultimate type and amount of land use of these blocks would depend on market conditions and feasibility of remediating to a residential standard. As indicated in Section 4.A, Impact Overview, total employment under the proposed project would be approximately 4,747 employees, with approximately 6,088 residents. When considering the range of variability with the flex blocks under a maximum residential scenario, total employment would be approximately 3,923 employees, with approximately 6,842 residents. Under a maximum office scenario, total employment would be approximately 5,524 employees, with approximately 5,541 residents; (for a summary of employment by scenario and corresponding land use, see Table 4.A-1, Proposed Project Scenarios and Potential Population). While the proposed project is the preferred breakdown of uses within the project site, because of the potential for flex blocks to result in a modified breakdown of final uses, this analysis considers the worst-case scenario on a topic-by-topic basis as follows to provide a singular conservative project analysis. As shown in Table 4.A-1, a maximum residential scenario would provide the highest residential population, while a maximum office scenario would introduce the highest number of employees.

Methodology for Analysis of Construction Impacts

The evaluation of the potential for project construction to induce substantial direct population growth (significance criteria bullet one) compares the number of construction jobs that would be generated by the project to the size of the local and regional labor force. This comparison provides a means to assess whether project construction jobs are likely to be filled primarily by the local and regional labor force or to attract substantial numbers of construction workers from outside the region. If the available local and regional labor force project construction jobs would be sufficient to fill the project construction jobs for the duration of the construction period, then construction impacts related to population growth would be less than significant**.** For purposes of this analysis, the size of the local and regional labor force is based on the number of people working in construction jobs in San Francisco and the four surrounding counties: San Mateo, Marin, Alameda, and Contra Costa counties.

To determine if project construction would create a demand for additional housing, this analysis assumes that the attraction of a substantial number of construction workers from outside the area would be expected to create demand for additional housing for such workers. On the other hand, workers from within the region would be expected to commute to project-generated construction jobs and not require additional housing.

Methodology for Analysis of Operational Impacts

This analysis evaluates the potential for project operations to induce substantial population growth or to create a demand for additional, off-site housing. In both cases, the analysis considers the worst-case foreseeable scenario of the total number of residents and employees generated by the project.

For the analysis of operational impacts, direct population growth refers to the residents of the newly developed housing units and the people who would be employed by the proposed land uses at the project site. Indirect or secondary growth refers to the population associated with development that could occur as infrastructure is expanded to previously unserved or underserved areas. This type of growth typically occurs in suburban and rural areas adjacent to or near undeveloped lands and is not applicable to the project site, which is located in a built-up urban environment that is already largely served by existing infrastructure.

The Association of Bay Area Governments projections are used to analyze whether the growth caused by the project would be within planned growth projections. Specifically, U.S. Census and the association projections (under the Plan Bay Area 2040 Final) for 2015 are used to represent existing (*baseline*) conditions, and projections for 2040 are used to represent future planned conditions. Population increases that substantially exceed projected growth and that could not be accommodated by existing or planned infrastructure would be considered a significant impact under CEQA. The 2010 U.S. Census 2012-2016 American Community Survey, 2014 San Francisco General Plan Housing Element, the Association of Bay Area Government's Regional Housing Need Plan for the San Francisco Bay Area: 2014-2022, and Plan Bay Area 2040 Final were used to prepare this analysis because they are the most recent data consistently available for the project site across all population, employment, and housing indices.

Residential Population Growth

Based on the project features and population generation rates, as presented in Table 4.A-1, the project would directly lead to the highest population under the maximum residential scenario, which could introduce as many as 3,014 housing units, for an estimated residential population of 6,842. This increase in residential population would result in a significant impact if the increase would substantially exceed projected or planned residential growth, and would not be accommodated by existing or planned infrastructure or services.

Employment Growth

As presented on Table 4.A-1, the project would generate the highest number of employees under a maximum office scenario, for an estimated 5,524 employees at project completion.

Project-generated employment growth would represent a significant impact if the growth would substantially exceed the employment growth anticipated by the City or region (i.e., ABAG), and would not be accommodated by existing or planned services, infrastructure or regional housing projections.

Methodology for Analysis of Cumulative Impacts

Plan Bay Area 2040 Final calls for an increasing percentage of Bay Area growth to occur as infill development in areas with good transit access and where services necessary to daily living are provided in proximity to housing and jobs. With its abundant transit service and mixed-use neighborhoods, San Francisco is expected to accommodate an increasing share of future regional growth. Consistent with CEQA Guidelines section 15130(b)(1)(B), this cumulative analysis relies on population forecasts presented in the Plan Bay Area 2040 Final, Land Use Modeling Report. The report contains an appendix with household and employment forecasts by jurisdiction and county. The Association of Bay Area Governments forecasts consider the San Francisco County PDAs, which consist of multiple parcels and developments that are currently in various stages of the entitlement process, construction, and occupation. Specifically, the project site is partially located within the Port of San Francisco PDA and Eastern Neighborhood PDA identified in Plan Bay Area 2040 Final.[32] Therefore, the Plan Bay Area 2040 Final citywide projections provide the context for the population and housing cumulative analysis.

In order to assess whether a cumulative impact would occur, the analysis considers those projects within a quarter mile of the project and slightly beyond that are currently under construction, have received entitlements or building permits, or are under review, as presented in Table 4.A-2. The combined growth (residential population, employment, and housing demand) from these projects is calculated and compared to the Plan Bay Area 2040 Final citywide projections. By 2040, these projects and the residential and employee populations related to these projects would contribute to the cumulative development in the project vicinity.

The project would generate a cumulatively significant impact to cumulative population growth should the cumulative residential or employment growth substantially exceed planned growth,

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[32] ABAG, Plan Bay Area, Priority Development Area Showcase, *http://gis.abag.ca.gov/website/*, accessed March 1, 2018.

and the project's contribution to that growth also be significant such that the growth could not be accommodated by existing services and infrastructure.

Jobs-Housing Balance

While regional and local governments may use jobs-housing balance as a planning tool to weigh particular policy outcomes, it does not necessarily imply a physical change to the environment or relate to any recognized criteria under CEQA. Due to comments raised during the scoping period for this EIR, jobs-housing balance is discussed following the cumulative impacts for informational purposes. For local and regional land use planning purposes, the balance between jobs and housing is assessed on citywide and regional scales, rather than on a project-by-project basis.

Impact Evaluation

Construction Impact

Impact PH-1: Construction of the proposed project would not induce substantial population growth in an area. *(Less than Significant)*

Project construction would take approximately 15 years, though the work is considered temporary, as not all workers would remain on the project through all phases. During the construction period, the average and peak number of construction workers employed daily would be 154 and 401, respectively (refer to Table 2-3 in Chapter 2, Project Description). According to the California Employment Development Department, about 20,400 people worked in construction jobs in San Francisco in 2016 and 113,600 people worked in construction jobs in San Francisco and the four surrounding counties (San Mateo, Marin, Alameda, and Contra Costa).[33] The peak number of construction jobs – 401 jobs – would represent 2.0 percent of the construction jobs in San Francisco in 2016 and 0.4 percent of the construction jobs in the five-county region in 2016; in addition, 401 jobs would be substantially fewer than the 7,170 new construction jobs that the Association of Bay Area Governments estimates will be added in San Francisco between 2010 and 2020,[34] a projection that is also cited in the San Francisco General Plan Housing Element.[35] Given the size of the regional construction work force compared to the number of workers that would be needed for project construction, even during peak construction periods, project construction workers would likely be drawn primarily from the local and regional construction work force. Project construction workers who do not live in the project vicinity would likely commute from elsewhere in the city or Bay Area rather than relocate from more distant cities or towns. Consequently, construction of the Potrero Power Station project would not induce population growth by attracting a substantial number of construction workers from outside the region to relocate to the area, and therefore, project construction would not create demand for additional housing or other facilities and services

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[33] California EDD, Industry Employment Data for San Francisco County, California July 17, 2015a; California EDD, Industry Employment Data for Alameda County, California, July 17, 2015b; California EDD Industry Employment Data for Contra Costa County, California, July 17, 2015c; California EDD, Industry Employment Data for Marin County, California, San Rafael Metropolitan Division, July 17, 2015d; California EDD, Industry Employment Data for San Mateo County, California, July 17, 2015e.

[34] Association of Bay Area Governments, *Projections 2013*, December 2013.

[35] City and County of San Francisco, *San Francisco General Plan, 2014 Housing Element*, adopted April 27, 2015.

associated with growth. Therefore, the growth-inducing impact of Potrero Power Station project construction would be ***less than significant***.

Mitigation: None required.

Operational Impacts

Impact PH-2: Operation of the proposed project would not induce substantial population growth in an area. (*Less than Significant*)

Residential Population Growth

Under the proposed project, the greatest population increase for purposes of CEQA environmental review would occur under the maximum residential scenario, which could result in 3,014 residential units and a population of 6,842 (see Section 4.A, Table 4.A-1). The 3,014 units would represent an approximately 51 percent increase in the total number of units compared with the estimated 5,897 units currently located in the project vicinity (based on the 2012-2016 U.S. Census, as described above in subsection 4.C.2, Local Setting). The addition of approximately 6,842 new residents would represent an approximately 56 percent increase for the project vicinity, which currently has an estimated 12,278 residents (based on the 2012-2016 U.S. Census, as described above in Section 4.C.2, Local Setting). Although the addition of approximately 6,842 new residents would be substantial for the project area, it would be not be substantial for the City as a whole, as it would represent approximately 2.4 percent of the projected increase in citywide population growth of 280,465 persons between 2010 and 2040 (from 805,235 in 2010 to 1,085,700 in 2040), and less than 1 percent of the projected increase in the Bay Area-wide population growth of approximately 2.1 million persons over the same time period.

Similarly, the proposed number of residents would not be considered a substantial adverse impact in and of itself for the following reasons: the site is located in proximity to a major transit corridor and highways (I-280 and I-101) and is served by existing transportation infrastructure such as streets, light and heavy rail (Muni, Bart, Caltrain). The site is also located near major employment centers (e.g., the project site itself, the adjacent Pier 70 site, the nearby Mission Bay area, and Downtown San Francisco); the vicinity is within an area that is currently programed for higher residential densities in city and regional planning documents; and the site is identified in City and regional planning documents as an area designated to accommodate a substantial proportion of the city's future residential growth. Development of residential uses in this area would conform with the Association of Bay Area Government's and the City's designations of the Eastern Neighborhood and Port of San Francisco as two of 12 PDAs served by existing and planned utilities, infrastructure, and transit, and which have the potential to accommodate an increase in population and housing growth in the City and Bay Area. The project would have a *less-than-significant* impact on residential population growth.

Employment Growth

Total operational employment at build out by land use, as presented on Table 4.A-1, shows that the project would generate the highest number of employees under a maximum office scenario —

approximately 5,524 employees at project completion. Between 2010 and 2040, Plan Bay Area 2040 Final forecasts that the number of total jobs in the city will increase from 576,800 to 872,500, or a total growth of 295,700 new jobs. Of this growth, the report indicates that 267,700 new jobs will be located in PDAs. The projected employment increase at the project site would represent approximately 1.9 percent of this increase or a total of approximately 0.6 percent of jobs in the City in 2040. While noticeable in a local level, on a citywide basis, this incremental increase in employment would not be significant, and would not exceed the employment growth identified by the Association of Bay Area Governments. This growth is therefore, anticipated under current planning goals created for the City, and employment growth generated by the project would thus have a *less-than-significant* impact.

Under the proposed project with a maximum residential scenario, there would be fewer employees than described above, and would similarly provide employment meeting and not in excess of that planned by the City and region.

Conclusion

In summary, while operation of the proposed project would result in an increased population in the project vicinity, this growth would be consistent with the City's and regional plans for growth in the area, and as addressed elsewhere in Chapter 4 of this EIR and in Sections E. Evaluation of Environmental Effects of the attached initial study, this growth can be accommodated with existing and planned services and infrastructure. Furthermore, the project would contribute to meeting the regional housing needs goal and would provide employment consistent with Citywide and regional planning growth projections. Therefore, the growth-inducing impact of Potrero Power Station project operations would be ***less than significant***.

Mitigation: None required.

Cumulative Impacts

Impact C-PH-1: The proposed project, in combination with past, present, and reasonably foreseeable future projects, would not result in a cumulatively considerable contribution to significant cumulative population and housing impacts. *(Less than Significant)*

Residential Population Growth

Up to 3,014 new residential units would be developed under a maximum residential scenario, which would result in approximately 6,842 new residents at the project site. Future residential growth from cumulative projects in the project vicinity would total approximately 15,892 residents in 7,001 units. San Francisco is expected to reach 483,700 households by 2040, with citywide growth of 137,800 new units from 2010 to 2040. Much of this growth, as identified under Impact PH-2, would take place in PDAs. Under the Plan Bay Area 2040 Final report (p.35.), of the 137,800 units, 127,700 units would be located in PDAs such as the project site.

Thus, a maximum residential scenario in combination with cumulative projects would provide approximately 7.3 percent (approximately 3,014 + 7,001 = 10,015 units) of the total number of units required to meet the regional housing need (137,800 new units) and an estimated 22,734 (6,842 + 15,863) new residents. The proposed project in combination with past, present, and reasonably foreseeable future projects in the vicinity would therefore be within the planned growth and would not contribute to significant unplanned population growth.

Employment Growth

Total project operational employment at build out would generate the highest number of employees under a maximum office scenario, which would result in approximately 5,524 employees at project completion. Future employment growth by cumulative projects would total approximately 19,542 jobs. Together, the cumulative employment is estimated to be 25,066 jobs.

Between 2010 and 2040, ABAG Plan Bay Area 2040 forecasts that the number of total jobs in the City will increase from 576,800 to 872,500, or a total growth of 295,700 jobs. Of this growth, Plan Bay Area indicates that 267,700 new jobs will be located in PDAs**.** The proposed project under the maximum office scenario, in addition to the cumulative projects would generate approximately 25,066 jobs, which represents nearly 8.5 percent of the anticipated employment growth in San Francisco through 2040 (296,000 jobs), Thus, the proposed project in combination with past, present, and reasonably foreseeable future projects in the vicinity would be within the planned growth and would not contribute to significant unplanned employment growth.

Therefore, the population and housing impact of the Potrero Power Station project operations to cumulative growth would be ***less than significant***.

Mitigation: None required.

Supplemental Information

Jobs-Housing Balance

The balance between jobs and housing is assessed on citywide and regional scales, rather than on a project-by-project basis. The proposed project would result in 4,747 new jobs and 2,682 new housing units. This would result in a 0.0067 percent increase in jobs, and 0.0068 percent increase in housing within San Francisco.[36] This relatively equal increase in number of jobs and housing units would not substantially change, or worsen an imbalance of jobs to housing.

While regional and local governments may use jobs-housing balance as a planning tool to weigh particular policy outcomes, it does not necessarily imply a physical change to the environment or relate to any recognized criteria under CEQA. Due to comments raised during the scoping period for this EIR, the jobs-housing balance is discussed here for informational purposes.

The non-residential development at the project site would be subject to San Francisco's Jobs-Housing Linkage Fee (Planning Code section 413 et seq.) and could be modified by the project's

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[36] Employment growth is based on EDD LMI data of 703,600 jobs, and housing growth is based upon *2017 San Francisco Housing Inventory* report of 392,000 housing units, refer to section Setting for additional description.

development agreement. The fee would apply to the gross square feet of new office, retail, and restaurant uses to mitigate the impact of employment growth on housing supply and affordability. The Jobs-Housing Linkage Fee revenue would be deposited in the Citywide Affordable Housing Fund to be used to increase the supply of affordable housing in San Francisco. For the reasons stated above, a maximum office scenario would not create a substantial demand for housing that could not be accommodated by on-site residential development and by anticipated citywide and regional development, including affordable housing that would be developed as a result of Jobs-Housing Linkage Fee revenue.

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4.D Historic Architectural Resources

4.D.1 Introduction

Section 4.D, Historic Architectural Resources, describes historic architectural resources on the project site, identifies potential historic architectural resources near the project site, evaluates potential direct and indirect impacts to historic architectural resources that could result from the proposed project, and identifies mitigation measures to avoid or reduce potential adverse impacts. Project-related impacts to archeological resources, human remains, and tribal cultural resources are addressed in Appendix B, Initial Study, of this environmental impact report (EIR). Supplemental supporting information on historic architectural resources is contained in Appendix I of this EIR.

4.D.2 Environmental Setting

Definitions and Data Sources

An *historical 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 historical resources, such as article 10 and/or article 11 of the San Francisco Planning Code or (ii) is deemed significant due to its identification in a historical resources survey meeting the requirements of California Public Resources Code section 5024.1(g) is presumed to be a historical 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 historical resource even if the resource does not meet the foregoing criteria.

For the purposes of this EIR, the term, *historic architectural resource*, is used to distinguish such resources from archeological resources, which may also be considered historical resources under CEQA. Archeological resources, including archeological resources that are potentially historical resources under to CEQA Guidelines section 15064.5, are addressed in Appendix B, Initial Study, of this EIR.

The information and analysis included in this section are based on the Potrero Power Station Mixed-Use Development Project Archeological Sensitivity Assessment (ASA) prepared by ESA;[1] the Potrero Power Station Final Historic Resource Evaluation, Parts 1 and 2 (HRE) prepared by Page & Turnbull;[2] and the Historic Resource Evaluation Response (HRER) prepared by the San Francisco Planning Department.[3] The HRE and HRER are included with this EIR in Appendix I, Historic Resource Evaluation.

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[1] ESA, *Potrero Power Station Mixed-Use Development Project, City and County of San Francisco, Archeological Sensitivity Assessment*, 2018.

[2] Page & Turnbull, *Potrero Power Station Final Historic Resource Evaluation, Parts 1 and 2*, 2018.

[3] San Francisco Planning Department, *Historic Resource Evaluation Response: Potrero Power Station Development Project*, August, 2018 (see Appendix I).

Historical Background

Site History: Early Industries at Potrero Point

Initial recorded development of the project site occurred in the years following the Gold Rush. The discovery of gold in the Sierra Nevada in 1848 produced a major population increase in northern California as immigrants poured into the territory seeking gold or associated opportunities. Before the Gold Rush, San Francisco was a small community with a population of approximately 800. With the discovery of gold and the sudden influx of thousands of newcomers, a city of canvas and wood sprang up around Yerba Buena Cove and on the surrounding sand dunes and hills.

To accommodate the growing population, the city spread out in all directions. During the Gold Rush period, Potrero Point—a hilly peninsula on San Francisco Bay that would later be graded and filled and would be the location of the project site—was far south of the sparsely populated southern edge of development, which was concentrated to the north around Yerba Buena Cove and Mission Bay. According to G.R. Dow:

> "Since the promontory of Potrero Point rose steeply from the waters of San Francisco Bay, it was one of the few places along San Francisco's bay-side shoreline where deep water lay close to shore. This natural advantage was hindered by the lack of level land at Potrero Point, thus slowing the development of the area until other alternatives had been exhausted."[4]

Historical maps and charts of San Francisco indicate that, at the time of the Gold Rush and in the decade following, land reclamation off-shore of Potrero Point had not yet begun, and the eastern and southwestern portions of the project site remained submerged in San Francisco Bay.

Gunpowder Production

The combination of distance from the populated areas of San Francisco to the north and lack of level ground resulted in the project site remaining largely undeveloped throughout the 1850s. From the 1850s through 1881, buildings located at Potrero Point were used to store black gunpowder, which was used for hard rock mining in the Sierra Nevada and street grading in San Francisco. The project site's isolation and deep-water access made it an ideal location for storing such a dangerous commodity as gunpowder. Powder magazines operated by the E.I. du Pont de Nemours and Hazard Powder companies may have employed Chinese laborers.

Hazard Powder Company's two-story storage building, constructed in 1855 or 1856 south of the Gibbons and Lammot facility, measured 30 by 50 feet and could hold nearly 400 tons of gunpowder. The company also built a wharf that ultimately extended some 500 feet into San Francisco Bay. As depicted on the 1869–1872 tidelands map, only a portion of the Hazard Powder magazine was located within the project site. The majority of the magazine, as well as its adjacent wharf, were located south of the project site. After 1881, both gunpowder manufacturers sold their plants to industrialist Claus Spreckels and moved east to Contra Costa County.

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[4] 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, p. 145.

Rope-Making

In 1856 the San Francisco Cordage Manufactory (renamed the Tubbs Cordage Company in 1889) established the West Coast's first rope-making facility, known as a ropewalk, immediately west of the project site. Alfred L. Tubbs built a manufacturing plant near the present-day intersection of Indiana and Tubbs streets, several blocks inland from the water's edge and outside the project site. The facility initially included a 1,000-foot ropewalk (an enclosed building used for making rope) that extended to the bay shore and ended in a short wharf that did not extend into the project site. A later extension of the ropewalk and wharf did extend into the southwest corner of the project site.

By 1867, the ropewalk had been extended to more than 1,500 feet in length, and it projected well into San Francisco Bay and into the southwest corner of the project site on 23rd Street. Where the ropewalk crossed Third Street, a block west of the project site, a bridge was constructed over it. In 1900, the Tubbs Cordage Company's ropewalk remained about 1,400 feet long, as it had since the late 1860s, and it still extended into the southwest corner of the project site along 23rd Street. As the city grade gradually increased and fill was placed in the vicinity, the ropewalk was nearly buried. The ropewalk was covered with wood planks and pavement where it crossed Third Street and built on piles where it extended into the bay. The ropewalk extended into the project site until at least 1905. By 1913, the Sanborn map indicates the Tubbs Cordage Company ropewalk had been shortened so that it no longer extended east past Third Street, and a concrete cap was constructed on the building's east side. The 1913 Sanborn map shows that the entire length of 23rd Street had been filled by that time as well.

Shipbuilding

By the early 1860s, the City's early wood shipbuilders had abandoned the crowded shoreline along Steamboat Point in San Francisco's South of Market district for the deep waters and vacant lands around Potrero Point. John North, a Norwegian shipbuilder who immigrated to San Francisco in 1848, was the first shipbuilder to relocate in 1861, and he was followed by others. A portion of North's shipyard was located within the northern part of the project site.

North's shipyard at Potrero Point, located at the foot of what is now 22nd Street, built many kinds of vessels, but was primarily focused on building wood-hulled steamers for use in San Francisco Bay and inland waterways. In total, 53 steamers and 273 other vessels were built there. Sometime before 1869, North sold the shipyard and returned to Norway. North's shipyard continued to operate under new ownership at the same location until the 1890s.

North's shipyard is depicted on a number of historical maps of Potrero Point. The 1869 U.S. Coast Survey (the predecessor to the U.S. Coast and Geodetic Survey) chart shows a structure and marine railway associated with North's shipyard just north of the project site, at the foot of present-day 22nd Street. The 1869 salt marsh and tidelands map also identifies North's wharf and shipyard, including an engine house, marine railway and wharf just north of the project site, and a structure labeled as "North's Shop" just within the northern boundary of the project site.

When shipbuilders began to move from Steamboat Point to Potrero Point in the early 1860s, it attracted a significant residential labor force to the area. The influx of immigrant laborers accelerated after the completion of the Long Bridge in 1867 and the opening of the Pacific Rolling

Mills north of the project site in 1868. A large number of the workers attracted to the area were Irish immigrants, and the residential neighborhood that evolved around the industrial complex on Potrero Point became known as Irish Hill. Irish Hill was crowded with boardinghouses, saloons, and hotels. The 1869 U.S. Coast Survey map is the first to depict the Irish Hill residential neighborhood, which included the northwest portion of the project site.

Barrel Production

The California Barrel Company's first factory was constructed on the project site in 1883.[5] The company's principal consumer was the adjacent California Sugar Refinery to the east (described below under Site History: Sugar Refinery); it also served a variety of San Francisco breweries, wineries, and distilleries. The barrel factory is depicted on the 1886 Sanborn map and consisted of the factory itself, a boiler room, and three large warehouses for cooperage stock.

At the turn of the twentieth century, the California Barrel Company moved its facility to the corner of 23rd and Illinois streets, in the northwest corner of the project site, but buildings at the former location west of the sugar refinery were still present in 1900. The 1900 Sanborn map shows the California Barrel Company occupying only the northern portion of the parcel, while the southern half of the parcel was occupied by the Pacific Refining and Roofing Company, which advertised roofing materials including building paper, tarred felts, roof paints, roofing pitch, and coal tar. By 1905, the California Barrel Company had expanded to occupy the roofing company space. The California Barrel Company was present there from 1900 to 1956, after which the factory was demolished.

Site History: Sugar Refinery

The California Sugar Refinery (renamed Western Sugar Refinery in 1891) opened a new plant at Potrero Point in 1881 to take advantage of the deep water immediately offshore to accommodate ships arriving with sugar cane from Hawaii. The refinery was built by Claus Spreckels, a prominent West Coast industrial capitalist. The new refinery occupied five blocks inclusive of the project site and was located immediately south of the San Francisco Gas Light Company, described below under "Site History: Power Generation." At least three of the blocks were tidelands that were filled for the construction project. The main refinery facilities included a large plank wharf along the bay shore on its eastern edge; a number of large warehouses and sheds, a melt/filter house, a sugar refinery, a wash house, a char house, a battery of 22 coal-fired steam boilers to power the facility, and a large coal bunker along the northern boundary supplied by an elevated tramway from the wharf. The western part of the facility included storage facilities, a pipe and boiler shop, a tin and sheet iron shop, a blacksmith, a machine shop, and a carpenter and pattern shop. Water was supplied to the refinery from a 1.7-million-gallon reservoir set on a bluff to the northwest of the refinery.

Residential dwelling units (a small portion of the Irish Hill residential neighborhood) remained in the northwest portion of the project site throughout the remainder of the nineteenth century.

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[5] The historical California Barrel Company, although the namesake of the project sponsor, is unrelated to the sponsor.

The 1883 U.S. Coast and Geodetic Survey map depicts the residences just northwest of the San Francisco Gas Light Company gas holders, and the 1886 Sanborn map provides a detailed view of the dwellings adjacent to the northern side of the California Sugar Refinery reservoir, south of Sierra (22nd) Street. These dwellings persisted into the twentieth century but were eventually demolished, and the area was excavated to make way for a Pacific Gas and Electric Company (PG&E) gas holder, built in the 1920s to replace the sugar refinery reservoir.

The northwestern portion of the project site underwent significant changes during the 1910s and 1920s. During this period, the Western Sugar Refining Company's 1.7-million-gallon water reservoir was demolished, along with the remnants of the southernmost portion of the Irish Hill residential neighborhood located within the project site. The last remaining residences on Irish Hill were removed by 1920. In their place, a 10-million-cubic-foot gas holder was constructed, which dominated this part of the project site until the 1980s when it was demolished.

Additional changes were made in the early twentieth century to the Western Sugar Refinery, which occupied the entire southeastern part of the project site. Between 1900 and 1913, the large coal bunker on the northern edge of the sugar refinery was replaced by a large warehouse. In 1915, a new ten-story sugar refinery building was built west of the existing refinery building, which came to be known as the Sugar House. It had a 16,300 square-foot footprint and a below-grade basement. Although numerous changes were made to operations at the Western Sugar Refinery during the twentieth century, the facility itself was never modernized and was eventually allowed to deteriorate. In the 1920s, several of the older wood-frame sugar warehouses were demolished and were replaced with modern concrete warehouses—two of which still survive at 435 23rd Street, across 23rd Street from the project site.

In 1949, the California and Hawaiian (C&H) Sugar Refining Corporation bought out Spreckels's plant and concluded that the existing sugar refinery facilities were too antiquated to be profitably modernized. The 1950 Sanborn map reflects the change in ownership to C&H and depicts the plant just prior to its near-complete demolition in the 1950s. When C&H shut down the refinery around 1950, PG&E purchased the site to expand its power plant operations.

Site History: Power Generation

The City Gas Company was one of the first industries to take advantage of newly-reclaimed land within the project site. It started construction on a gas works (a facility used to produce flammable gas by heating coal, a product known as manufactured gas) in the northeast portion of the project site in 1870 and opened the facility in 1872. According to Dow, the facility:

> "was located on an area the size of four city blocks at the foot of Humbolt [sic] Street in the southeastern portion of the peninsula, including two blocks covered by water. The record is not clear whether these two blocks were filled at the time of the building of the gasworks; however, it seems likely that a pier of that size would have been constructed in preference to filling the land and building on it."[6]

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[6] 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, p. 148.

In 1873, the City Gas Company merged with two other San Francisco gas works companies to form the San Francisco Gas Light Company, which occupied almost the entire northern half of the project site. The gas works included, among other facilities, coal sheds adjacent to San Francisco Bay for convenient unloading of coal from cargo ships, retort houses used to heat coal and produce gas, a purifying house, and two gas holders (large, above-ground tanks) that could contain a half million cubic feet of gas each. The 1886 Sanborn fire insurance map indicates that the two gas holders had been constructed on a level area excavated from the original hillside.

Historical maps indicate that relatively minor physical changes occurred on Potrero Point between the publishing of the 1886 and 1900 Sanborn maps. The 1900 Sanborn map indicates that the San Francisco Gas Light Company (later renamed San Francisco Gas and Electric Company) and the Western Sugar Refining Company facilities had expanded slightly within the footprints previously depicted on the 1886 Sanborn map.

A notation on the 1900 Sanborn map indicates the former location of the California Barrel Company on the west side of the Western Sugar Refinery was being excavated for the Independent Electric Light and Power Company's electric generating plant. In 1901, Claus Spreckels purchased the California Barrel Company site adjacent to the Western Sugar Refinery and demolished the buildings to construct an electric generating station operated by his Independent Gas and Power Company. The gas-fired, steam-powered station (later to be called "Station A") consisted of turbine and boiler halls, as well as accessory shops and offices. It also had two large gas holders along Michigan Street on its western edge.

By the end of 1903, the purchase and consolidation of various corporations, including Spreckels's Independent Electric Light and Power Company and Independent Gas and Power Company, resulted in the San Francisco Gas and Electric Company owning Potrero Point's Station A, along with the gas works. PG&E was formed in October 1905 through a merger of the San Francisco Gas and Electric Company and the California Gas and Electric Company. The relatively new Station A was PG&E's largest steam plant, providing most of the electrical power for the City of San Francisco from 1902 to 1915. Station A underwent many renovations throughout the twentieth century, and was in operation until 1983 when PG&E removed it from service.

Beginning in 1951, PG&E demolished the antiquated buildings of the C&H Sugar Refining Corporation sugar refinery and sold machinery parts for scrap. It then built the new buildings and structures necessary for its expanding power station. Although PG&E demolished all other sugar refinery buildings on the project site, it retained the 1915 Sugar House building, which was used throughout the latter half of the twentieth century for office space and records storage. The ten-story Sugar House was demolished in 1995, following damage sustained during the 1989 Loma Prieta earthquake.

In 1965, PG&E built a new steam plant on the eastern portion of the project site that included the Unit 3 Power Block and its accompanying Boiler Stack near the water's edge. In that same year, the Station A Boiler Hall was demolished, which removed more than fifty percent of the original Station A plant. PG&E's expansion eastward onto the former sugar refinery site during the 1960s also included demolition of its outmoded gas manufacturing buildings and gas holders located north of Station A and the sugar refinery buildings. PG&E constructed three large fuel oil tanks (Fuel Storage Tanks 3, 4, and 5) on the former site of the gas works in the 1960s. These were demolished in 2017.

Description of the Potrero Power Station

As noted, when built, Station A included both a Turbine Hall and a Boiler Hall, as well as other smaller structures. The Turbine Hall is a four-story, unreinforced brick structure some 65 feet in height (nearly 80 feet to the peaked rooftop) that extends 433 feet from 23rd Street north to Humboldt Street and has a width of 60 feet. The Turbine Hall was originally joined to a larger (both in height and width) five-story brick building (the "Boiler Hall"), such that the combined structure extended 130 feet along 23rd Street and reached a maximum height of more than 100 feet. The Turbine Hall is extant, although a large portion of its roof covering has been removed, leaving only the skeletal roof truss system. The Boiler Hall was torn down in 1983, although the lowest approximately 15 feet of its north and south walls remain, including most of the large double doors on 23rd Street. Another remaining component of the early power generating station is a small gate house (the "Gate House"), located on 23rd Street east of the Turbine Hall. The Gate House is visually connected to the Turbine Hall by the remaining portion of the former Boiler House wall. The Gate House is a single-story unreinforced brick building, rectangular in plan, with a flat roof, decorative brick cornice, and rectangular wood-sash windows. It was apparently built some time before 1914.[7]

In 1930, a three-story Switching Center was added to the west side of the Turbine Hall. The Switching Center, which remains extant, is a brick-clad concrete structure that abuts approximately the southern 60 percent of the Turbine Hall. Together, the two buildings display a four-story brick-clad façade along 23rd Street for about 105 feet. The south façade features classical detailing in the form of brick pilasters (which resemble columns affixed to the façade), as well as a slightly projecting brick frieze and, on the Switching Center façade, a brick cornice and parapet. The Switching Center has rectangular multi-lite steel-sash windows. The other facades are largely unornamented, including on the eastern façade, which was originally an interior wall dividing the Turbine Hall from the boiler hall. The northern façade has arched windows, which are now boarded up.

Immediately north of the Switching Center and west of the Turbine Hall is a single-story concrete Machine Shop. Built in 1915 this structure is clad in brick. It includes classical details including brick pilasters and a brick frieze, cornice, and parapet. Finally, north of the Machine Shop is a small, single-story concrete Machine Shop Office, which faces Humboldt Street. Unlike the other buildings described here, the office building, constructed in 1911, is not clad in brick. Instead, it is designed in the Greek Revival style, with a large pediment at the roof and a centrally located entrance surmounted by a semi-circular pediment and flanked by two windows, each with a pedimented hood. Pilasters frame the windows and doorway, which is reached by a concrete stair that is parallel to the façade.

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[7] Although the 2008 historic district documentation gives the Gate House construction date as 1901, coinciding with the construction of the Turbine Hall and Boiler Hall, the HRE opines that it was added somewhat later, because the building is not depicted on the 1905 Sanborn fire insurance map. It is shown on the 1914 Sanborn map.

The four extant buildings comprising the Station A complex—the Turbine Hall, Switching Center, the Machine Shop, and the Machine Shop Office—are interconnected and therefore essentially form a single unit. They are referred to together as Station A in the remainder of this analysis.

West of Station A along Humboldt Street, another building was built around 1902 as part of the original power station—the single-story unreinforced brick Meter House. Like most of the other structures described, the Meter House, which is extant, is classical in style, with arched multi-lite wood-sash windows, brick pilasters, a brick cornice, and a gable roof. Around 1924, PG&E constructed the single-story Compressor House, directly west of Station A. This extant unreinforced brick structure, some 30 feet tall, is also designed in the classical style, with multi-lite steel-sash windows, brick pilasters, and a low-pitched gable roof. The Compressor House was built on the site of a former Purifying House for the manufactured gas plant. A metal-framed Pump House, built in 1930 east of the other buildings, was demolished in 2010 to make way for the Transbay Cable project, through which PG&E now supplies a portion of San Francisco's electricity, which is transmitted under San Francisco Bay from conventional aboveground high-voltage lines in Pittsburg.

At the east end of the project site, the Unit 3 Power Block is an approximately 128-foot, steel-frame structure that includes a boiler, steam compressor, turbine generator, control room and offices, and supporting equipment including piping, valves, pumps, a lubrication system, and other appurtenances; a concrete elevator tower rises approximately 15 feet above the height of the steel frame for a total height of 143 feet at the top the elevator shaft. Skeletal in appearance and filled with equipment and appurtenances, the Unit 3 Power Block displays a starkly functional industrial aesthetic, in marked contrast to the solid brick exterior of the Station A Turbine Hall. The facility, designed to run on either natural gas or fuel oil, has been decommissioned and idle since 2011. Adjacent to the Unit 3 Power Block on the east (bay) side is a three-story concrete office building. It is modernist in design, with exposed concrete elements, large aluminum-framed windows, and green metal panel cladding. The reinforced concrete Boiler Stack (adjacent to the Unit 3 Power Block, to the south), at 300 feet in height, is the tallest structure on the southern waterfront, except for the waterfront crane at the former Hunters Point shipyard. The Boiler Stack is recognizable by its height, slender profile, smooth concrete exterior, and open flue.

In addition to the above structures, the project site contains about 15 other buildings, all utilitarian in nature and largely of metal siding or concrete block construction, that have been built since World War II, with most of these constructed after 1967.

Historic Architectural Resources Located on the Project Site

Individually Eligible Historical Resources

There are three extant buildings on the project site that have previously been determined to be individually eligible for listing on the California Register. These are Station A, the Meter House, and the Compressor House. Each of these buildings is eligible under Criterion 1 (association with important events; see discussion of California Register under Regulatory Framework, p. 4.D-22, below) for their link to early power generation in San Francisco and, more generally, to industrial uses in the Central Waterfront. Accordingly, each of these three buildings is a historical resource under CEQA. **Figure 4.D-1, Historical Resources,** depicts the location of each building. **Figure 4.D-2, Photos of Historical Resources,** presents photographs of each building. All three buildings were surveyed in 1999, at which time only the Meter House and the Compressor House were found significant under Criterion 1 for their association with PG&E's gas manufacturing facility. Station A was subsequently identified as individually eligible under Criteria 1 and 3 as part of expert testimony on behalf of the City and County of San Francisco in 2002, and the HRER states that the San Francisco Planning Department "finds that Station A is an individually significant historic resource under Criterion 1" due to its association with the early history of PG&E and power generation in San Francisco. Although the boiler hall was demolished in 1983, the planning department believes that the remainder of Station A possesses sufficient integrity to convey its historical significance.[8] Character-defining features of the individually eligible historical resources on the project site were identified in the HRE and are listed below.[9]

- **Station A**
  - Turbine Hall
    - Rectangular plan
    - Built out to lot lines between 23rd and Humboldt streets
    - Four stories tall
    - Massive brick masonry construction
    - Classical decorative brick quoin patterning
    - Multi-lite steel-sash windows at the north façade, deeply recessed
    - Multi-lite steel-sash windows at the south façade
    - Symmetrical window pattern at north and south façades; irregular window pattern at east façade (west façade not visible)
    - Slightly-pitched gable roof with steel trusses; corrugated metal roof material at northern portion
    - High volume and industrial character of interior
  - Switching Center
    - Rectangular plan
    - Four stories tall
    - Concrete construction with brick cladding
    - Multi-lite steel-sash windows
    - Flat roof
    - Corbelled brick detailing at parapet
    - Decorative quoin patterning
    - Engraved signage reading "Station A" and "Pacific Gas and Electric Company"

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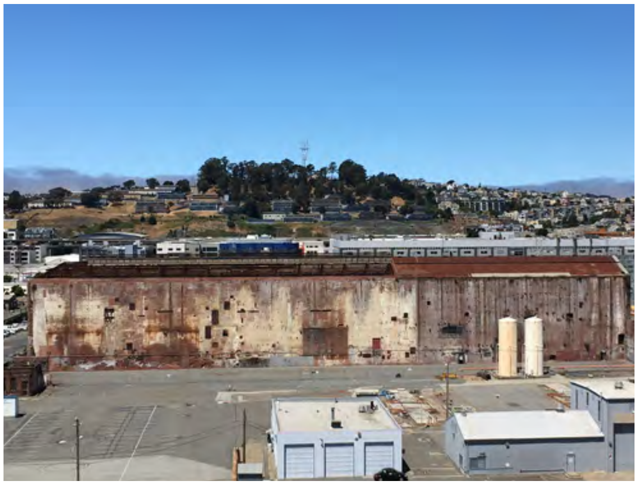
[8] The planning department took no position as to whether Station A is also historically significant for its design (Criterion 3).

[9] The non-publicly accessible interior features of the historic resources within the project site are not subject to CEQA review.

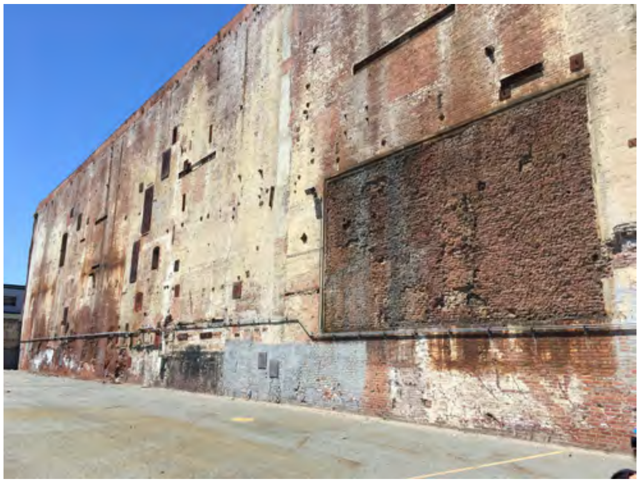
SOURCE: Google Earth, 2017; ESA, 2018

Potrero Power Station Mixed-Use Development Project

Figure 4.D-1
Historical Resources On and Near the Project Site

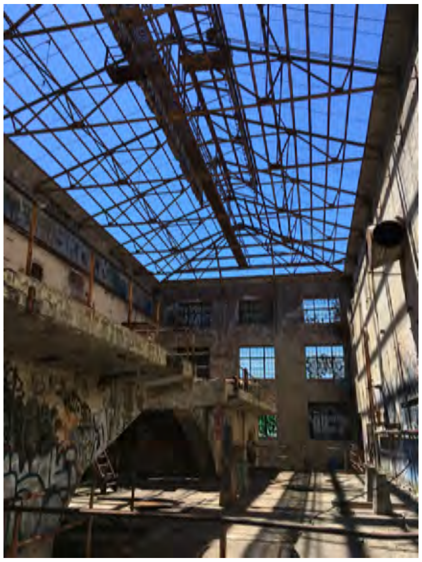


Station A Turbine Hall (east façade), distant view



Station A Turbine Hall (east façade), near view

Station A Turbine Hall (south façade); two bays at left are the Switching Center (south façade)



Station A Turbine Hall (roof structure)

Station A Machine Shop (north façade)

Station A Machine Shop office (north façade)

SOURCE: Page & Turnbull, 2018; ESA, 2018

Potrero Power Station Mixed-Use Development Project

Figure 4.D-2
Historical Resources On and Near the Project Site


Meter House (west façade)


Meter House (south façade)


Compressor House (north façade)


Unit 3 Power Block


Gate House (south façade)


Unit 3 Boiler Stack

SOURCE: Page & Turnbull, 2018; ESA, 2018

Figure 4.D-2 (cont.)
Historical Resources On and Near the Project Site

  - Machine Shop
    - Irregular plan
    - Tall single story
    - Reinforced concrete construction with brick cladding
    - Corbelled brick detailing at parapet
    - Decorative brick quoin patterning
    - Flat roof
  - Machine Shop Office
    - Rectangular plan
    - One story tall
    - Reinforced concrete construction
    - Flat roof
    - Greek Revival-style features at the primary façade including: gabled pediment, pedestrian entrance and full-height windows with corbels and triangular and arched pedimented hoods, pilasters topped with Doric capitals and egg and dart molding, and dentil cornice
    - Concrete stairs parallel to façade

- **Meter House**
  - Rectangular plan
  - One story
  - Brick masonry construction
  - Multi-lite wood-sash windows with concrete sill and brick arched lintel
  - Multi-lite wood-sash lunette windows at the gable peaks of the west and east façades
  - Rhythmic brick pilasters and cornice
  - Dentil cornice
  - Steel truss gable roof with a raised central monitor
  - Partially glazed metal pedestrian doors
  - Loading door opening at the west façade (metal roll-up door is not historic)
  - Volume and industrial character of interior
  - Shortened north façade due to raised street grade

- **Compressor House**
  - L-shaped plan
  - Tall one story
  - Brick masonry construction
  - Multi-lite steel-sash windows with decorative brick surround
  - Brick parapet (partial stepped at the east façade)
  - Corbeled brick cornice
  - Brick quoin patterning

  - Round openings
  - Loading door openings at all façades (metal roll-up doors are not historic)
  - Slightly pitched concrete gable roof with steel trusses
  - Two monitor roof skylights
  - Volume and industrial character of interior

Third Street Industrial District

The project site is within San Francisco's Central Waterfront area, which extends from Mariposa Street south to Islais Creek and from I-280 east to San Francisco Bay. The historic Dogpatch residential neighborhood is located at the center of the Central Waterfront area and is surrounded by a mix of Production, Distribution, and Repair (PDR) uses, newer residential buildings, industrial and institutional facilities (e.g., a PG&E substation, Muni storage yards), and retail uses.

A large portion of the project site is located within the Third Street Industrial District, a historic district initially identified in the 2001 Central Waterfront Historic Resources Survey Summary Report and fully documented and found eligible for listing in the California Register in 2008. Because it is eligible for the California Register, the Third Street Industrial District is considered a historical resource under CEQA. Figure 4.D-1 shows the boundaries of the Third Street Industrial District and the buildings that contribute to the district's historical significance, including the contributors on the project site. Each of the three buildings identified above as being individually eligible for the California Register—Station A, the Meter House, and the Compressor House—are also contributors to the district. In addition, although not individually eligible, the Gate House, the Boiler Stack, and the Unit 3 Power Block are contributors to the district because of their association with the industrial history of the Central Waterfront. The character-defining features of these buildings identified in the HRE are listed below.

- **Gate House**
  - Rectangular plan
  - Single story
  - Brick masonry construction
  - Flat roof
  - Simple decorative brick cornice
  - Rectilinear wood-sash transomed windows
  - Brick window and door surrounds
- **Boiler Stack**
  - Reinforced concrete construction
  - Tapered form
  - 300-foot height
  - Crow's nest walkway
  - Exterior metal ladder

- **Unit 3 Power Block**
  - Eight-story steel-frame structure, primarily exposed
  - Concrete elevator shaft
  - Control room and offices of concrete construction
  - Metal panel cladding and glazing of south office portion
  - Industrial character with remnants of equipment infrastructure

The boundary of the Third Street Industrial District extends west from the project site along 23rd Street and runs north along Third and Illinois streets roughly between 18th and 24th streets. The district encompasses the highest concentration of light industrial and processing properties remaining in the larger Central Waterfront area. At the time that the Third Street Industrial District was documented in 2008, it included 51 properties, 27 of which were contributing resources (approximately 53 percent) and 24 of which were non-contributing resources (approximately 47 percent).[10] When the Central Waterfront area was fully documented in 2008, the Potrero Point Historic District was identified, with three sub-areas: the Third Street Industrial District, the Dogpatch Historic District, and Pier 70 (later renamed the Union Iron Works Historic District).[11] The following is an excerpt from the 2008 District Record for the Potrero Point Historic District:

> The boundaries of the Third Street Industrial District encompass the highest concentration of significant light industrial and processing properties remaining in the Central Waterfront district. The linear character of the district boundaries is dictated by the separation of heavy maritime industrial uses along the waterfront from the residential enclave of Dogpatch. The intermediate zone between the two areas gradually developed with light industrial, repair, warehousing and food processing businesses, as well as some wholesale businesses, such as oil distribution companies, that needed to have proximity to rail lines along Third Street as well as a local labor force of blue collar workers. Historically, the blocks between Third and Illinois streets have been occupied by manufacturing operations and warehouses, most notable of which is the vast American Can Company plant.
>
> The Third Street Industrial Historic District links Pier 70 and Dogpatch and provides a sense of historical and geographical continuity between the two areas. Potentially, these three districts could be conceived as a single entity, San Francisco's only historic district that recognizes the remaining infrastructure of a mixed-use industrial and residential community, once the most important industrial zone on the West Coast.
>
> Many [buildings] are good examples of late-19th and early 20th-century American industrial design, justifying the district's eligibility for listing in the California Register under Criterion 3 (Design/Construction).[12]

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[10] One of the contributing resources is the original basalt block pavement (cobblestones) along 20th and Illinois streets, although most of the extant cobbles have been paved over with asphalt. The remaining contributors are buildings or other structures.

[11] The Dogpatch Historic District was designated a local historic district under article 10 of the planning code in 2003.

[12] Kelley & VerPlanck and Page & Turnbull, "State of California Department of Parks and Recreation District Record: Potrero Point Historic District," March 20, 2008, pp. 11-12.

The original period of significance of the Third Street Industrial District was 1872 to 1958, with the end date being 50 years prior to the district designation.[13] The HRE identified, and the HRER concurred with, an extension of the period of significance for the Third Street Industrial District to an end date of 1965, which the HRER notes was "the start of the decline in manufacturing and industry in the area and therefore marks another potential date for the district's period of significance." The change in end date resulted in the addition to the district of two contributing buildings that were not previously evaluated: the Unit 3 Power Block and the Boiler Stack, both constructed in 1965. With these additions, there are six buildings on the project site that contribute to the Third Street Industrial District. This is depicted in **Table 4.D-1, Onsite Contributors to the Third Street Industrial District**.[14]

TABLE 4.D-1
ONSITE CONTRIBUTORS TO THE THIRD STREET INDUSTRIAL DISTRICT

Resource Name	Construction Date	Applicable Criteria[2]
Station A[2]	1901-02; 1930-31	Individually eligible CRHR Criterion 1 (Events); Contributor to Third Street Industrial District
Meter House	ca. 1902	Individually eligible CRHR Criterion 1 (Events); Contributor to Third Street Industrial District
Compressor House	ca. 1924	Individually eligible CRHR Criterion 1 (Events); Contributor to Third Street Industrial District
Gate House	ca. 1914	Contributor to Third Street Industrial District
Unit 3 Power Block	1965	Contributor to Third Street Industrial District
Boiler Stack	1965	Contributor to Third Street Industrial District

NOTES:

[1] CRHR – California Register of Historical Resources

[2] As described in the text, Station A includes the Turbine Hall, the Switching Center, the Machine Shop, and the Machine Shop Office.

SOURCE: San Francisco Planning Department HRER, 2018. See Appendix I.

According to the HRER, four contributing buildings to the district have been demolished or substantially altered since 2008; therefore, these are no longer considered contributing resources. One of these was the 1930 Pump House on the project site, identified as a district contributor in 2008 but demolished by 2010. With the extended period of significance, the inclusion of two additional contributing buildings, and the removal of four contributing buildings, the Third Street Industrial District currently includes 25 contributing resources (approximately 47 percent) and 28 non-contributing resources (approximately 53 percent). The project site occupies 29 acres and accounts for approximately half of the land within the boundary of the Third Street Industrial District. Beyond the buildings on the project site, four of the other district contributors stand out for their scale and thus their relative importance in visually anchoring the historic

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[13] The 1872 start date is based on the earliest known date of construction within the overall Potrero Point Historic District, that of the Thompson House at 718 22nd Street. This building is not within the Third Street Industrial District, but rather within the Dogpatch Historic District. The oldest extant building in the Third Street Industrial District is the Station A Turbine House.

[14] The 1930 Pump House was originally identified as a district contributor but, as noted above, was demolished in 2010.

district. Primary among these are the two former American Can Co. buildings (now the American Industrial Center), at 2301 and 2501 Third Street. Together, these two structures, which range in height from about 55 feet to 70 feet, occupy the entirety of the 866-foot-long block bounded by 20th, Illinois, 22nd, and Third streets and most of the block to the south—a total length of more than 0.25-mile. The other two largest buildings in the district are the two former Western Sugar Refinery warehouses across 23rd Street from the project site. The other 14 remaining district contributors are mostly one- and two-story buildings with considerably smaller footprints than the four largest structures. According to the HRER, character-defining features of the Third Street Industrial District include:

- important industrial facilities along the waterfront, including PG&E's Station A complex and the Western Sugar Refinery warehouses;
- a high concentration of manufacturing, repair, and processing plants and warehouses dependent on road and railroad distribution systems;
- building heights between one and four stories;
- taller ground floors with mezzanines;
- concrete, stucco, brick, or corrugated metal cladding;
- ornamented parapets;
- steel-sash and wood-sash windows;
- rectilinear and arched window openings; and
- flat roofs.

Historic Architectural Resources Located Adjacent to the Project Site

Most of the contributing resources within the Third Street Industrial District are outside the project site. However, that district is described above because it encompasses much of the land area of the project site and because the site contains the six district contributors that are also described above.

Immediately north of the project site is the Union Iron Works Historic District (Pier 70), which is listed on the National Register of Historic Places (National Register).[15] The Union Iron Works Historic District occupies 66 acres (as listed on the National Register) north of 22nd Street. The Union Iron Works Historic District contains 44 contributing features that "are widely recognized as constituting the most intact industrial complex west of the Mississippi that represents the industrialization of the western United States."[16] Features include buildings, piers, slips, cranes, historic rail features, and the remnants of what is known as Irish Hill, a former shipyard workers' neighborhood. The district also includes 10 non-contributors. Union Iron Works Historic District "maintains exceptional integrity in terms of location, design, setting, materials, workmanship, feeling, and association," and is historically significant in relation to both events (National Register

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[15] Properties listed on the National Register are automatically listed on the California Register.

[16] San Francisco Planning Department, *Pier 70 Mixed-Use District Project Final EIR* (Case No. 2014-001272ENV; Final EIR certified August 24, 2017); p. 2-9.

Criterion A) and design (Criterion C) for its association with the development of steel shipbuilding in the United States and for its representation as "a physical record of the trends in industrial architecture from the late nineteenth century through World War II."[17]

Immediately south of the project site are the two surviving warehouses from the Western Sugar Refinery facility at 435 23rd Street. As noted, these warehouses were constructed in the 1920s as the refinery facility underwent modernization. They were determined to be individually eligible for listing in the California and National registers in 2001 under Criterion 1/A (events) for their connection to the growth of the local sugar industry and, as noted, are also contributors to the Third Street Industrial District. The two warehouses are the last remaining physical manifestation of the sugar refinery. They currently house storage and delivery operations, along with a dance studio.

4.D.3 Regulatory Framework

Federal Regulations

National Register of Historic Places

The National Register of Historic Places is the nation's master inventory of cultural resources worthy of preservation. It is administered by the National Park Service, which is represented at the state level by the State Historic Preservation Officer. The register includes listings of buildings, structures, sites, objects, and districts that possess historic, architectural, engineering, archeological, or cultural significance at the federal, state, or local level. Resources that are listed on or have been found by the State Historic Preservation Officer to be eligible for the National Register are considered historic resources, under CEQA. Listing of a property in the register does not prohibit demolition or alteration of that property but does denote that the property is a resource worthy of recognition and protection.

The register lists four criteria to determine the eligibility of a resource:

> The quality of significance in American history, architecture, archeology and culture is present in districts, sites, buildings, structures, and objects of state and local importance that possess integrity of location, design, setting, materials, workmanship, feeling and association, and:
>
> (a) That are associated with events that have made a significant contribution to the broad patterns of history; or
>
> (b) That are associated with the lives of persons significant in our past; or
>
> (c) That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
>
> (d) That have yielded or may likely yield information important in prehistory or history.

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[17] National Register Nomination Form for Union Iron Works Historic District, listed April 17, 2014.

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

National Register Bulletin Guidance on Integrity

In addition to qualifying for listing under at least one of the National Register of Historic Places criteria, a property must possess sufficient integrity to be considered eligible for the register. According to the National Register Bulletin: How to Apply the National Register Criteria for Evaluation, integrity is defined as "the ability of a property to convey its significance." The National Register Bulletin defines seven characteristics of integrity as follows:

> ***Location*** is the place where the historic property was constructed.
>
> ***Design*** is the combination of elements that create the form, plans, space, structure, and style of the property.
>
> ***Setting*** addresses the physical environment of the historic property inclusive of the landscape and spatial relationships of the buildings.
>
> ***Materials*** refer to 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*** is the physical evidence of the crafts of a particular culture or people during any given period in history.
>
> ***Feeling*** is the property's expression of the aesthetic or historic sense of a particular period of time.
>
> ***Association*** is the direct link between an important historic event or person and a historic property.

According to the National Register Bulletin, "To retain historic integrity a property will always possess several, and usually most, of the aspects."

The Secretary of the Interior's Standards for Rehabilitation

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.[18] Neither technical nor prescriptive, these standards are intended to promote responsible

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[18] Treatments are defined as follows: "Preservation" acknowledges a resource as a document of its history over time and emphasizes stabilization, maintenance, and repair of existing historic fabric. "Rehabilitation," while also incorporating the retention of features that convey historic character, also accommodates alterations and additions to facilitate continuing or new uses. "Restoration" involves the retention and replacement of features from a specific period of significance. "Reconstruction," the least-used treatment, provides a basis for recreating a missing resource.

preservation practices that help protect irreplaceable cultural resources.[19] These standards consist of ten basic principles created to help preserve the distinctive character of a historic building and its site while allowing for reasonable changes to meet new needs. As stated in the regulations (36 CRF 68), the standards are "to be applied taking into consideration the economic and technical feasibility of each project." In general, 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)).

State Regulations

Definition of Historical Resources under CEQA

CEQA Guidelines section 15064.5(a), in title 14 of the California Code of Regulations, defines a "historical resource" as:

(1) A resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the California Register of Historical Resources.

(2) A resource included in a local register of historical resources, as defined in section 5020.1(k) of the Public Resources Code or identified as significant in a historical resource survey meeting the requirements of section 5024.1(g) of the Public Resources Code, shall be presumed to be historically or culturally significant. 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 historical 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 of Historical Resources.

(4) The fact that a resource is not listed in, or determined to be eligible for listing in the California Register of Historical Resources, not included in a local register of historical resources (pursuant to section 5020.1(k) of the Public Resources Code), or identified in a historical resources survey (meeting the criteria in section 5024.1(g) of the Public Resources Code) does not preclude a lead agency from determining that the resource may be a historical resource as defined in Public Resources Code sections 5020.1(j) or 5024.1.

Therefore, under the CEQA Guidelines, even if a resource is not included on any local, state, or federal register, or identified in a qualifying historical resources survey, a lead agency may still determine that any resource is a historical 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.

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[19] 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 March 21, 2018.

California Register of Historical Resources Criteria

The California Register 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 for listing. A resource that meets at least one of the eligibility criteria for inclusion in the California Register is considered a historical resource for the purposes of CEQA. A resource is eligible for listing in the California Register if it:

(1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage (Events);

(2) Is associated with the lives of persons important in our past (Persons);

(3) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values (Design/Construction); or

(4) Has yielded, or may be likely to yield, information important in prehistory or history (Information Potential).[20]

National Park Service guidance on evaluating the integrity of resources often informs the determination of eligibility under the California Register.

Local Regulations

San Francisco Planning Code Section 101.1: General Plan Priority Policies

Planning Code section 101.1 requires that the City find that the proposed project is consistent with eight master plan priority policies. Priority Policy 7 states, "that landmarks and historic buildings be preserved."

San Francisco General Plan

Central Waterfront Area Plan

The project site lies within the Central Waterfront Area Plan, which was adopted as an area plan within the San Francisco General Plan in 2008 as part of the Eastern Neighborhoods Rezoning and Area Plans project. The plan includes the following objective and policy related to historic resources:

- **Objective 8.2:** Protect, preserve, and reuse historic resources within the Central Waterfront area plan.

  ***Policy 8.2.1*:** Protect individually significant historic and cultural resources and historic districts in the Central Waterfront area plan from demolition or adverse alteration, particularly those elements of the Maritime and Industrial Area east of Illinois Street.

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[20] California Office of Historic Preservation, Technical Assistance Series No. 3, California Register of Historical Resources: Questions and Answers, September 4, 2002.

Urban Design Element

The Urban Design Element of the San Francisco 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.

Housing Element

The Housing Element of the San Francisco 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

Article 10

Article 10 of the San Francisco Planning Code identifies buildings, properties, structures, sites, districts, and objects that are of "special character or special historical, architectural or aesthetic interest or value and are an important part of the city's historical and architectural heritage." It protects listed buildings from inappropriate alteration and demolition through review procedures overseen by the San Francisco Historic Preservation Commission. None of the historic properties on the project site are listed in article 10.

Planning Department CEQA Review Procedures for Historical Resources

The San Francisco Planning Department prepared the *CEQA Review Procedures for Historic Resources* to provide guidance in determining whether a resource is considered a historical resource as defined by CEQA.[21] Three categories of properties are defined, as follows:

- **Category A**. Category A has two subcategories:
    - *Category A.1*. Resources listed in or formally determined to be eligible for the California Register.
    - *Category A.2*. Resources listed in adopted local registers, or properties that appear eligible, or may become eligible, for the California Register.
- **Category B.** Properties requiring further consultation and review.

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[21] San Francisco Planning Department, Preservation Bulletin No. 16, CEQA Review Procedures for Historic Resources, Draft, March 31, 2008.

- **Category C.** Properties determined not to be historical resources, or properties for which the City has no information indicating that the property is a historical resource.

To determine if a property is eligible as a historical resource for the purposes of CEQA, the San Francisco Planning Department (lead agency) requires an evaluation of a property's individual significance for listing in the California Register of Historical Resources, as well as an examination of a property's relationship to any eligible historic district.

To assess impacts within historic districts, the planning department examines several factors including, but not limited to, size and significance of a historic district, number and location of contributing features/non-contributing features, district integrity, district boundaries, and details of the proposed project. Assessments within historic districts are examined on a case-by-case basis, due to the wide variety and unique nature of historical resources and historic districts.

4.D.4 Impacts and Mitigation Measures

Significance Criteria

The criteria for determining the significance of impacts in this analysis are consistent with the environmental checklist in Appendix G of the CEQA Guidelines, which has been modified by the San Francisco Planning Department. For the purposes of this analysis, the following applicable criteria were used to determine whether implementing the proposed project would result in a significant impact on historic architectural resources. Implementation of the proposed project would have a significant effect on historic architectural resources if the project would:

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

It is noted that article 11 of the planning code applies only to Downtown (C-3) Use Districts and thus is not applicable to the project site. No building located on the project site is listed in article 11 of the planning code; thus, article 10 is also not applicable to the proposed project.

CEQA Guidelines section 15064.5(b) establishes the criteria for assessing a significant environmental impact on historical resources. It states, "[a] project with an effect that may cause a substantial adverse change in the significance of a historical resource is a project that may have a significant effect on the environment." The CEQA Guidelines defines a "substantial adverse change" as "physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historical resource would be materially impaired" (CEQA Guidelines section 15064.5(b)(1)).

The significance of a historic architectural resource is considered to be "materially impaired" if the project were to "demolish or materially alter in an adverse manner the physical characteristics of [the] resource that convey its historical significance and that justify the inclusion in, or eligibility for inclusion in" (CEQA Guidelines section 15064.5(b)(2)) the California Register or in a local register, such as planning code article 10, the Central Waterfront Survey, or other surveys that have been adopted by the city.

Approach to Analysis

Project Features

Demolition, Retention, and Rehabilitation of Existing Contributors to the Third Street Industrial District and Demolition of Individual Historical Resources

A large portion of the project site is located within the Third Street Industrial District, a California Register-eligible historic district as described in the Setting, above.

As described in Chapter 2, Project Description, the proposed project would result in the demolition of approximately 20 existing structures located on the site of the former Potrero Power Plant. Demolition would include four or five of the six structures on the project site that are contributors to the Third Street Industrial District; Station A, the Gate House, the Meter House, and the Compressor House would be demolished under the proposed project. The Unit 3 Power Block could potentially be retained and repurposed or it could be demolished. For purposes of a conservative assessment of impacts to historic architectural resources, this analysis assumes that the Unit 3 Power Block would be demolished or would be repurposed in a manner such that it would no longer convey its historical significance that justifies its eligibility for the California Register as a contributor. This could result from a loss of the structure's character-defining features, including its steel-frame structure, concrete elevator shaft, control room and offices of concrete construction, metal panel cladding and glazing of the south office, and the industrial character with remnants of equipment infrastructure. As noted, Station A, the Meter House, and the Compressor House have also been determined to be individually eligible for listing on the California Register in addition to being district contributors. Additionally, the proposed project would retain and repurpose the Boiler Stack, which is also a contributor to the Third Street Industrial District but is not individually significant. The project would retain and repurpose the Boiler Stack as a ground-floor retail space occupying approximately 1,000 square feet (though allowable uses could also include entertainment, arts, and recreation). Proposed improvements to the Boiler Stack include perforations for a secondary means of egress and interior enclosures to provide a roof and any necessary structural support. Seismic retrofit of the Boiler Stack may obstruct the hollow flue. The proposed disposition of existing contributing buildings is summarized in **Table 4.D-2, Disposition of Contributing Features to the Third Street Industrial District on the Project Site**.

The project would be constructed in a previously developed area of San Francisco. However, the project site is currently underutilized, and implementation of the project would introduce new uses (e.g., residential, commercial-office, PDR, and open space) to areas within the historic Third Street Industrial District.

TABLE 4.D-2
DISPOSITION OF CONTRIBUTING FEATURES TO THE THIRD STREET INDUSTRIAL DISTRICT ON THE PROJECT SITE

Building Name	Proposed Project Action	Individually Eligible for California Register?
Station A	Demolish	Yes
Gate House	Demolish	No
Meter House	Demolish	Yes
Compressor House	Demolish	Yes
Unit 3 Power Block	Demolish or repurpose	No
Boiler Stack	Retain, repurpose, and seismically retrofit	No

SOURCE: Page & Turnbull, 2018.

Infill Construction and Design for Development

The proposed project calls for the establishment of new infill construction within the project site, which occupies land in and adjacent to the Third Street Industrial District. Height limits would be established on a block-by-block basis, as shown in Chapter 2, Figure 2-7, Proposed Height District Plan. The permitted heights for new construction would generally range from 65 to 180 feet, with a single tower at up to 300 feet in height permitted on Block 6. This height range is intended to limit new construction to be less than or equal in height to the 300-foot Boiler Stack.

The project proposes a special use district (SUD) that would establish land use controls for the project site and incorporate design standards and guidelines in a new Potrero Power Station Design for Development document (D for D). Standards in the proposed D for D would be design specifications that are mandatory, measurable, and quantifiable, while guidelines would be more qualitative and flexible. The proposed D for D would include project-wide and location-specific architectural requirements that would guide the design of infill construction within the SUD. These would include standards controlling building bulk, massing, and setbacks; separation between towers and between mid-rise structures; building base and ground-floor treatments; colors and materials; roofs; and sustainability and healthy buildings. The proposed D for D would also include architectural design guidelines. Project-wide standards in the proposed D for D would apply to all new construction on the project site and are intended to ensure a high standard of architecture throughout the project site. Location-specific requirements in the proposed D for D would call for increased attention to the design of the building envelope on a block-by-block basis to demonstrate how the standards and guidelines apply to buildings on each project block. The proposed D for D document would also contain standards and guidelines governing design and use of the site’s open space network and its multi-modal street network and streetscape features, including on-street parking and loading, landscaping, stormwater management, and street furnishings and lighting.

Where new construction is proposed on façades facing the Third Street Industrial District or facing district contributor(s) to be retained on the project site, location-specific controls are designed to ensure architectural compatibility with historic buildings and structures within the

Third Street Industrial District. This would apply to project site façades on 23rd Street (facing the Spreckels Sugar Warehouses) and on Illinois Street (facing the American Industrial Center), as well as to internal portions of the project site facing the Boiler Stack and, if it is retained, the Unit 3 Power Block (see Figure 4.D-1, p. 4.D-10, above for these locations). Location-specific controls are also proposed for open space design (specifically Stack Plaza) and streetscapes (specifically 23rd Street) surrounding or adjacent to district contributors.

Methodology for Analysis of Project Impacts

Project impacts on historical resources, as defined under CEQA, are analyzed in two steps. The first analysis determines whether a project may impact a resource that falls within the definition of a historical resource(s) under CEQA. If the project is found to impact historical resources, a second analysis then determines whether the project would cause a substantial adverse change to the resource. A project that may cause a substantial adverse change in the significance of a historical resource is one that may have significant effect on the environment (CEQA Guidelines section 21084.1).

Operational impacts are not anticipated to result from the proposed project because any impacts to existing historic architectural resources would occur during the demolition and construction phases of project implementation. Therefore, impacts discussed below are those related to demolition of existing buildings and new construction. The analysis discusses potential impacts to historic architectural resources—which include both individually eligible resources and district contributors—that could occur as a result of the proposed project. As discussed in the Significance Criteria section above, the impacts of the proposed project on historic architectural resources, as identified in the planning department’s HRER and in the HRE, are evaluated per the CEQA Guidelines (section 15064.5(b)). That is, the question to be answered is whether the project would affect one or more individual resource(s) and/or the Third Street Industrial District or the Union Iron Works Historic District such that the resource(s) would no longer be eligible for the California Register or, if applicable, a local register of historical resources. The analysis is informed by the conclusions presented in the HRER and HRE as well as the design documents for the proposed project.

Consistent with the planning department’s approach, demolition of a district contributor in itself does not necessarily constitute a significant impact because the historical resource under consideration is the district as a whole (e.g., Third Street Industrial District or Union Iron Works Historic District). The impact of the demolition of a district contributor is based on the degree to which the removal of the contributor would adversely affect the district.

Methodology for Analysis of Cumulative Impacts

The analysis of cumulative impacts to historic architectural resources is based on consideration of the proposed project in combination with past, present, and reasonably foreseeable future projects identified in Section 4.A, Impact Overview, and the potential for cumulative impacts to the Third Street Industrial District to occur. Any cumulative projects shown in Figure 4.A-1 and listed in Table 4.A-1 that fall within the boundary of the Third Street Industrial District are considered under the cumulative analysis with regard to impacts on the district. Any cumulative projects shown in Figure 4.A-1 that fall within the Central Waterfront Area are considered under the cumulative analysis with regard to impacts to individually eligible resources. The cumulative analysis also addresses whether the proposed project, in conjunction with the approved Pier 70 Mixed-Use District project, would adversely affect the adjacent Union Iron Works Historic District.[22] If the analysis determines that there is the potential for cumulative impacts, then the analysis determines if the project's contribution to the cumulative impact would be cumulatively considerable (i.e., significant), in which case, the analysis then identifies mitigation measures that would reduce the severity of the project's contribution to the cumulative impact.

Impact Evaluation

Impacts CR-1 through CR-3, relating to archeological resources, human remains, and tribal cultural resources, are in the initial study; see Appendix B of this EIR.

Impact CR-4: The proposed demolition of individually significant buildings would materially alter, in an adverse manner, the physical characteristics that justify their inclusion in the California Register of Historical Resources. (*Significant and Unavoidable with Mitigation*)

The proposed project would result in the demolition of three buildings that are individually eligible for listing in the California Register. These are Station A, the Meter House, and the Compressor House. The HRER concludes that the demolition would "result in physical destruction, damage or alteration such that the significance of the individually eligible resources will be materially impaired." Therefore, the demolition of these individually eligible buildings would be ***a significant and unavoidable impact with mitigation*** because, once demolished, they would no longer be eligible as historical resources under CEQA. While the impact on individual historical resources cannot be mitigated to a less-than-significant level, implementation of **Mitigation Measures M-CR-5a, 5b, and 5c** would require that the project sponsor prepare Historic American Building Survey (HABS) documentation, undertake video documentation of historical resources to be demolished, and implement a public interpretation and salvage program. Implementation of these measures would lessen the severity of the significant impact, but would not reduce this impact to a less-than-significant level.[23]

Mitigation Measure M-CR-5a: Documentation (see Impact CR-5, below)

Mitigation Measure M-CR-5b: Video Recordation (see Impact CR-5, below)

Mitigation Measure M-CR-5c: Public Interpretation and Salvage (see Impact CR-5, below)

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[22] Project-specific effects on the Union Iron Works Historic District are addressed in Impact CR-7.

[23] For simplicity and to avoid duplication, a single set of mitigation measures is presented under Impact CR-5. These measures would reduce impacts to both individual historical resources (the subject of this Impact CR-4) and to the Third Street Industrial District (analyzed in Impact CR-5). The mitigation measures accompany Impact CR-5 so that they follow the discussion of impacts to both individual and district resources.

Significance after Mitigation: Implementation of Mitigation Measures M-CR-5a through M-CR-5c would reduce the severity of project impacts, but not to a less-than-significant level because only avoidance of demolition of, or substantial adverse changes to, a historical resource would reduce impacts to less-than-significant levels. Therefore, the impact on individual historic architectural resources would be ***significant and unavoidable***.

Impact CR-5: The proposed demolition, substantial alteration, and rehabilitation of contributing buildings would materially alter, in an adverse manner, the physical characteristics of the Third Street Industrial District that justify its inclusion in the California Register of Historical Resources. (*Significant and Unavoidable with Mitigation*)

Station A, Gate House, Meter House, Compressor House, and Unit 3 Power Block

The proposed project would result in the demolition of or substantial and adverse alteration to five buildings and structures that contribute to the significance of the Third Street Industrial District. These are Station A, the Gate House, the Meter House, the Compressor House, and the Unit 3 Power Block. The HRER finds that demolition of these buildings would result in the loss of the following character-defining features of the district's significance:

- Demolition of all of the contributing resources associated with the early-20th-century PG&E use on the project site would cause the loss of the district's association with the early history of power generation and gas manufacturing in San Francisco and Northern California.
- The contributing buildings to be demolished are some of the oldest in the district, particularly Station A (built in 1901-02, with an addition constructed in 1930-31), the Meter House (ca. 1902), and the Gate House (ca. 1914). The demolition of these three resources would reduce the district's representation of industrial buildings from this significant period in the city's industrial history.
- Station A, the Meter House, the Compressor House, and the Gate House contribute to the character-defining typology of brick industrial buildings in the district, which would be compromised with their demolition.
- The demolition of or substantial alterations to the Unit 3 Power Block would result in the loss of one of two district contributors (along with the Boiler Stack) associated with the district's final period of power-generation and industrial development dating to the 1960s.
- The five contributors that would be demolished help to connect the portion of the district along San Francisco Bay with the rest of the district clustered along Third Street. The loss of these five buildings would create a physical gap between the remaining waterfront contributors (Boiler Stack and the Western Sugar Refinery warehouse south of the project site) and the district contributors along Third Street.

If the project is constructed as proposed, the resultant count would be 48 architectural resources remaining in the district, 20 of which are contributing resources (approximately 42 percent) and 28 of which are non-contributing resources (approximately 58 percent).

The project's proposed demolition of these contributors would not render the Third Street Industrial District ineligible for the California Register. However, according to the HRER, the demolition of these contributors would result in "the loss of the above characteristics that justify, in part, the district's eligibility for the California Register" and would "remove historic materials, features, and spaces that characterize the historic district and justify the existing district boundary, and … result in physical destruction, damage or alteration such that the significance of the district [would] be materially impaired." Specifically, the HRE notes that the project would result in demolition of all contributors on the project site associated with early San Francisco electricity generation. Therefore, this would be a *significant* impact on the Third Street Industrial district. While mitigation measures are available to document and record the historic district and to implement public interpretation and salvage programs and a historic preservation plan, these measures would be insufficient to reduce the impact to less than significant. Demolition of these buildings would not render the Third Street Industrial District ineligible for the California Register. However, for the reasons described above, this EIR conservatively concludes that the project's impact to the integrity of the Third Street Industrial District would be ***significant and unavoidable with mitigation***. Nevertheless, **Mitigation Measures M-CR-5a**, **5b**, and **5c**, are identified to reduce the severity of this impact to the extent feasible.

Boiler Stack

The Boiler Stack would be repurposed under the proposed project for retail, though allowable uses could also include entertainment, arts, and recreation. Because detailed design documents for the proposed project have not been prepared and because it is unknown whether the proposed alterations would conform with the Secretary of the Interior's Standards for Rehabilitation, retention and repurposing of this structure could potentially result in significant effects. The HRER notes that the project design would result in placement of the Boiler Stack within the proposed Stack Plaza and that the design of this plaza is currently being developed. This could compromise the Boiler Stack's integrity of setting and feeling. Because it is not certain that it would be feasible to rehabilitate and reuse the Boiler Stack in compliance with the Secretary's Standards, this impact is conservatively deemed *significant*.

Additionally, the Boiler Stack could potentially sustain inadvertent damage from heavy equipment during demolition and construction of other nearby structures. However, with implementation of **Mitigation Measure M-CR-5d, Rehabilitation of the Boiler Stack, and Mitigation Measure M-CR-5e, Historic Preservation Plan and Review Process for Alteration of the Boiler Stack**, alterations to the Boiler Stack, a contributor to the Third Street Industrial District, would be compatible with the character-defining features of the Third Street Industrial District and the Boiler Stack would be protected against any potential construction damage, and this impact would be ***less than significant with mitigation***.

Vibration Impacts to Off-Site Contributors to the Third Street Industrial District

As described in Impact NO-4 in Section 4.F, Noise and Vibration, vibration levels associated with controlled blasting on the project site could have the potential to exceed the 0.5 in/sec peak particle velocity (PPV) standard at the American Industrial Center building and Western Sugar Warehouses. This was identified as a potentially significant impact to these off-site contributors to the Third Street Industrial District. However, implementation of **Mitigation Measures M-NO-4a, Construction Vibration Monitoring, and M-NO-4b, Vibration Control Measures During Controlled Blasting and Pile Driving**, would require vibration monitoring during construction and that appropriate controlled blasting techniques (smaller charge sizes or using other controlled rock fragmentation techniques) be used so as to not exceed the 0.5 in/sec PPV standard and to avoid any building damage due to vibration. Therefore, this impact would be ***less than significant with mitigation***.

Mitigation Measure M-CR-5a: Documentation

Before any demolition or rehabilitation activities within the project site, the project sponsor shall retain a professional who meets the Secretary of the Interior's Professional Qualification Standards for Architectural History to prepare written and photographic documentation of Station A, the Compressor House, the Meter House, the Gate House, the Boiler Stack, and Unit 3. The documentation shall be prepared based on the National Park Service's Historic American Building Survey (HABS)/Historic American Engineering Record (HAER) Historical Report Guidelines. The HABS/HAER package shall jointly document the Third Street Industrial District contributors and individually eligible resources to be demolished or otherwise adversely affected. This type of documentation is based on a combination of both HABS/HAER standards and National Park Service's policy for photographic documentation, as outlined in the National Register and National Historic Landmarks Survey Photo Policy Expansion.

The documentation shall be scoped and approved by Planning Department Preservation staff and will include the following:

- *Measured Drawings:* A set of measured drawings that depict the existing size, scale, and dimension of Station A, the Compressor House, the Meter House, the Gate House, and the Unit 3 Power Block. Planning Department Preservation staff will accept the original architectural drawings or an as-built set of architectural drawings (plan, section, elevation, etc.). Planning Department Preservation staff will assist the consultant in determining the appropriate level of measured drawings;
- *HABS-Level Photography:* Either HABS standard large-format or digital photography shall be used. The scope of the photographs shall be reviewed by Planning Department Preservation staff for concurrence. All digital photography shall be conducted according to the latest National Park Service standards. The photography shall be undertaken by a qualified professional with demonstrated experience in HABS photography. Photograph views for the dataset shall include (a) contextual views; (b) views of each side of each building and interior views; (c) oblique views of the buildings; and (d) detail views of character-defining features, including features on the interior. All views shall be referenced on a photographic key. This photographic key shall be on a map of the property and shall show the photograph number with an arrow to indicate the direction of the view. Historical photographs shall also be collected, reproduced, and included in the dataset; and
- *HABS Historical Report:* A written historical narrative and report, per HABS Historical Report Guidelines.

- *Print-On-Demand Book*: A Print On Demand softcover book will be produced that includes the content of the HABS historical report, historical photographs, HABS-level photography, measured drawings and field notes.

The project sponsor shall transmit such documentation to the San Francisco Planning Department, the Port of San Francisco, and to repositories including the History Room of the San Francisco Public Library, San Francisco Heritage, Internet Archive, the California Historical Society, the Potrero Hill Archives Project, and the Northwest Information Center of the California Historical Information Resource System. All documentation will be reviewed and approved by the San Francisco Planning Department's Preservation staff prior to granting any demolition or site permit.

Mitigation Measure M-CR-5b: Video Recordation

Prior to any demolition or substantial alteration of an individual historical resource or contributor to a historic district on the project site, the project sponsor shall retain a qualified professional to undertake video documentation of the affected historical resource and its setting. The documentation shall be conducted by a professional videographer with experience recording architectural resources. The professional videographer shall provide a storyboard of the proposed video recordation for review and approval by Planning Department preservation staff. The documentation shall be narrated by 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 Code of Federal Regulations, Part 61). The documentation shall include as much information as possible—using visuals in combination with narration—about the materials, construction methods, current condition, historical use, and historic context of the historic resources.

Archival copies of the video documentation shall be submitted to the Planning Department, and to repositories including: the San Francisco Planning Department, the Port of San Francisco, the San Francisco Public Library, San Francisco Heritage, Prelinger Archives, the California Historical Society, the Potrero Hill Archives Project, and the Northwest Information Center of the California Historical Information Resource System. This mitigation measure would supplement the traditional HABS documentation, and would enhance the collection of reference materials that would be available to the public and inform future research.

The video documentation shall be reviewed and approved by the San Francisco Planning Department's preservation staff prior to issuance of a demolition permit or site permit or issuance of any Building Permits for the project.

Mitigation Measure M-CR-5c: Public Interpretation and Salvage

Prior to any demolition or rehabilitation activities that would remove character-defining features of an individual historical resource or contributor to a historic district on the project site, the project sponsor shall consult with planning department preservation staff as to whether any such features may be salvaged, in whole or in part, during demolition/alteration. The project sponsor shall make a good faith effort to salvage materials of historical interest to be utilized as part of the interpretative program. This could include reuse of the Greek Revival façade of the Machine Shop Office, Gate House or a portion of the Unit 3 Power Block. Following any demolition or rehabilitation activities within the project site, the project sponsor shall provide within publicly accessible areas of the project site a permanent display(s) of interpretive materials concerning the history and architectural features of the individual historical resources and Third Street Industrial District. The content of the interpretive display(s) shall be coordinated and consistent with the site-wide interpretive plan prepared in coordination with planning department preservation staff, and may include the display of salvaged features recovered through the process described above. The specific location, media, and other characteristics of such interpretive display(s) shall be presented to planning department preservation staff for review prior to any demolition or removal activities. The historic interpretation plan shall be prepared in coordination with an architectural historian or historian who meets the Secretary of the Interior's Professional Qualification Standards and an exhibit designer or landscape architect with historical interpretation design experience. As feasible, coordination with local artists should occur. Interpretive display(s) shall document both the Third Street Industrial District and individually eligible resources to be demolished or rehabilitated. The interpretative program should also coordinate with other interpretative displays currently proposed along the Bay, specifically at Pier 70, those along the Blue Greenway, and others in the general vicinity. The interpretative plan should also explore contributing to digital platforms that are publicly accessible. A proposal describing the general parameters of the interpretive program shall be approved by planning department preservation staff prior to issuance of a site permit. The substance, media and other elements of such interpretive display shall be approved by planning department preservation staff prior to issuance of a Temporary Certificate of Occupancy.

Mitigation Measure M-CR-5d: Rehabilitation of the Boiler Stack

Prior to the issuing of building permits associated with modifications to the exterior of the Boiler Stack, planning department preservation staff shall review the proposed design and confirm that it conforms to the Secretary of the Interior's Standards for Rehabilitation and the Design for Development standards and guidelines.

Mitigation Measure M-CR-5e: Historic Preservation Plan and Review Process for Alteration of the Boiler Stack

Prior to the approval of the first building permit for construction of Phase 1, a historic preservation plan establishing protective measures shall be prepared and implemented to aid in preserving and protecting the Boiler Stack, which would be retained as part of the project. The historic preservation plan shall be prepared by a qualified architectural historian who meets the Secretary of Interior's Professional Qualification Standards (36 Code of Federal Regulations Part 61). The plan shall establish measures to protect the retained character-defining features during construction of the project, such as avoiding construction equipment inadvertently coming in contact with the Boiler Stack, to minimize construction-related damage to the Boiler Stack, and to ensure that any such damage is documented and repaired. If deemed necessary upon further condition assessment of the resource, the plan shall include stabilization of the Boiler Stack prior to construction to prevent deterioration or damage. Where pile driving and other construction activities involving the use of heavy equipment would occur in proximity to the Boiler Stack, the project sponsor shall undertake a vibration monitoring program as described in Mitigation Measure M-NO-4a, including establishing a maximum vibration level that shall not be exceeded based on existing conditions, character-defining features, soils conditions, and anticipated construction practices in use at the time. The project sponsor shall ensure that the contractor follows these plans. The preservation and protection plan, specifications, monitoring schedule, and other supporting documents shall be incorporated into the building or site permit application plan sets. The documentation shall be reviewed and approved by Planning Department Preservation staff.

Mitigation Measure M-NO-4a: Construction Vibration Monitoring (see Section 4.F, Noise and Vibration, Impact NO-4)

Mitigation Measure M-NO-4b: Vibration Control Measures During Controlled Blasting and Pile Driving (see Section 4.F, Noise and Vibration, Impact NO-4)

Mitigation Measure M-NO-4c: Vibration Control Measures During Use of Vibratory Equipment (see Section 4.F, Noise and Vibration, Impact NO-4)

Significance after Mitigation: Implementation of Mitigation Measures M-NO-4a, 4b, and 4c would ensure that vibration levels during demolition and construction of nearby buildings would not result in damage to the off-site contributors of the Third Street Industrial District. Implementation of Mitigation Measures M-CR-5a, 5b, and 5c would reduce the severity of project impacts on the Third Street Industrial District, but not to a less-than-significant level because only avoidance of demolition of, or substantial adverse changes to, a historical resource would reduce impacts to less-than-significant levels. Therefore, the impact on the Third Street Industrial District would be ***significant and unavoidable***. However, implementation of Mitigation Measures M-CR-5d and 5e and Mitigation Measures M-NO-4a, 4b, and 4c, in tandem with implementation of the D for D drafted to be consistent with Mitigation Measure M-CR-6 (see below), would ensure that alterations to the Boiler Stack, a contributor to the Third Street Industrial District, would be compatible with the character-defining features of the district and would thereby reduce this impact to a ***less-than-significan*t** level.

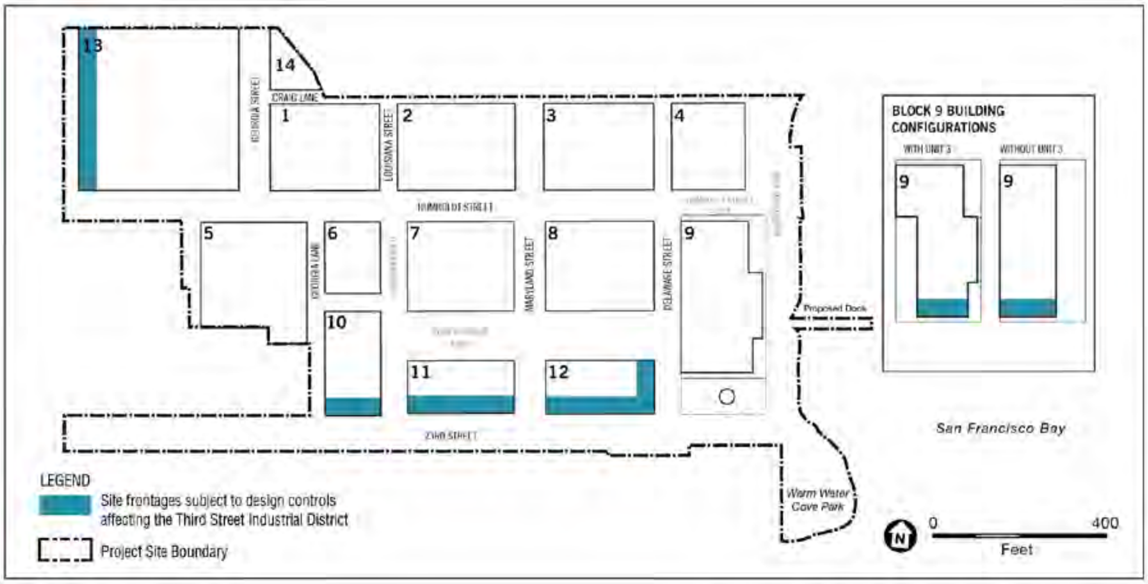
Impact CR-6: The proposed infill construction could materially alter, in an adverse manner, the physical characteristics of the Third Street Industrial District that justify its inclusion in the California Register of Historical Resources. *(Less than Significant with Mitigation)*

The Secretary of the Interior's Rehabilitation Standard No. 9 states that "new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the integrity of the property and its environment." The proposed D for D includes standards and guidelines ensuring new construction would be of a size, scale, and density and/or would use exterior materials that would be compatible with the Third Street Industrial District. However, because the proposed D for D has not yet been approved, this EIR conservatively finds that the proposed project's new construction could be incompatible with the Third Street Industrial District, which would be a *significant* impact. However, with implementation of **Mitigation Measure M-CR-6**, **Design Controls for New Construction,** future new construction would be compatible with the character-defining features of the Third Street Industrial District, and this impact would be ***less than significant with mitigation***.

Mitigation Measure M-CR-6: Design Controls for New Construction

The SUD and Design for Development (D for D) shall contain design standards and guidelines that ensure that new construction and site development within the SUD shall be compatible with the character of the Third Street Industrial District. Beyond the site-wide standards and guidelines developed for open space, buildings, and streetscapes in the D for D, the D for D shall contain design controls for the Third Street Industrial District, as outlined below (see site-wide design controls below).

Additional design standards shall apply to the western façades of new buildings fronting Illinois Street, the southern façades of new buildings fronting 23rd Street, and the eastern and/or southern façades of new buildings fronting the Boiler Stack (see block and frontage-specific design controls below and **Figure M-CR-6**, **Site Frontages Subject to Design Controls**). These façades would all face contributors to the Third Street Industrial District. The additional design standards that shall apply specifically to those frontages are included below.



SOURCE: Perkins+Will 2018

Potrero Power Station Mixed-Use Development Project

Figure M-CR-6
Site Frontages Subject to Design Controls

These design controls in the D for D shall be compatible with the Secretary of the Interior Standards for Rehabilitation, Standard 9. Standard 9 states that new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the integrity of the historic district and its environment.

Review Process

New construction in the Special Use District will be subject to administrative design review prior to the issuing of building permits. Planning staff along with Preservation staff will review new projects to ensure compatibility with the Third Street Industrial District as determined in the above standards and guidelines and identified in the D for D.

The D for D shall contain the following Third Street Industrial District Frontage Design Controls:

- *Block and Frontage-Specific Design Controls Ground Floor Height for Blocks 11, 12, and 13:* For Ground Floor of Blocks 11 and 12 facing 23rd Street Sugar Warehouses and Block 13 facing American Industrial Center all ground floor spaces shall have a minimum floor-to-floor height of 15 feet as measured from grade.
- *Height + Massing along 23rd and Illinois street frontages*. In order for 23rd and Illinois streets to appear balanced on either side, new construction shall respect existing heights of contributors to the Third Street Industrial District by referencing their heights with an upper level 10-foot setback at approximately 65 feet.
- *Awnings on Blocks 10, 11, 12, and 13*. An awning shall be provided on the southern facades of Blocks 10, 11, and 12 that face 23rd Street at a height of 15 to 25 feet above sidewalk grade to reference the industrial awning at the westernmost Sugar Refinery Warehouse. Awnings at this location may project up to 15 feet into the public realm. Should the southern façade of Station A be retained, an awning on Block 10 would not be required. For Block 13 frontages facing Illinois Street, canopies and awnings should only be located at the retail land use at the corner of Illinois and 22nd streets.

  The character, design and materials used for such awnings shall be industrial in character and design, suggestions are the following:

  - They should be flat or pitched, and should not be arched. The functional supporting structure and/or tieback rods should be clearly read [i.e., remain apparent to the observer].
  - Materials used for canopies and awnings should be utilitarian. Suggested materials include wood, standing seam or louvered metal panels, and corrugated metal.
- *Openings along 23rd and Illinois street frontages*. To the extent allowed by the Department of Public Health, large doors, such as sliding or roll-up doors that facilitate the movement of people, equipment, and goods in and out of the ground floor of new construction on Blocks 10-13 shall be incorporated along 23rd Street and Illinois Street.
- *Special Corners on Block 12*. To frame the view of the iconic Boiler Stack, the northeast corner of Block 12 should include the use of high quality materials, such as brick, concrete, copper, steel, glass, and wood, and in addition shall include:

  - Volumetric shaping of the area of a building within 15-feet of the northeastern corner of Block 12 with architectural treatments including but not limited to chamfers, round edges, setbacks, and/or protrusions to highlight views or relate to the shape of the Boiler Stack from the public realm.

- *Special Corners Block 9 without Unit 3*. To create an open and inviting entrance to Waterfront Park and Stack Plaza from Delaware Street and Power Station Park, the southwest corner of Block 9 without Unit 3 should use high-quality materials, such as brick, concrete, copper, steel, glass, and wood, and in addition shall include:

    - Volumetric shaping of any building in the area within 15-feet of the southwest corner of Block 9 with architectural treatments including but not limited to chamfers, round edges, setbacks, and/or protrusions to highlight views or relate to the shape of the Boiler Stack from the public realm.

- *Block 9 without Unit 3*. For deference to the historic Stack, and to create more physical space between the Stack and new construction, the building of Block 9 without Unit 3 shall be designed such that the overall bulk is reduced by at least 10 percent from the maximum permitted floor area, with a focus along the southern façade of the new building, facing the Stack. A potential distribution of bulk reduction, for example, could result in an 8 percent reduction along the southern façade with a 2 percent reduction elsewhere.

    The building should interact meaningfully with the Boiler Stack, such as referencing the existing relationship between it and Unit 3 (i.e., the simple, iconic form of the Boiler Stack in contrast to the highly complex, detailed form of the Unit 3 Power Block). Retain the existing exhaust infrastructure connecting the Unit 3 Power Block with the Boiler Stack and incorporating it into the new structure as feasible. Consider preserving other elements of the Unit 3 Power Block, such as portions of the steel gridded frame structure, in new construction.

- *Architectural Features on Blocks 10, 11, 12, and 13*. Regularly-spaced structural bays should be expressed on the exterior of the lower massing through the use of rectangular columns or pilasters, which reference the rhythm of loading docks on the Western Sugar Refinery Warehouses and American Industrial Center. Bay widths shall be no larger than 30 feet on center.

    Architectural features such as cornice lines, belt courses, architectural trim, or change in materiality or color should be incorporated into the building design to reference heights and massing of the Western Sugar Refinery Warehouses on 23rd Street and American Industrial Center on Illinois Street at areas of the façade that are not required to be set back.

- *Third Street District Fenestration*. Operable windows shall be single or double hung wood sash, or awning, pivot, or other industrial style steel or aluminum fenestration. Casement windows shall be avoided at lower building massing. Divided lite windows are appropriate.

    Ground level glazing shall incorporate transom windows if not utilizing roll up or full height sliding doors.

    Upper level glazing shall consist of regular repeated punched openings with divided lites. Punched openings shall be rectangular in proportion; an exception is the use of segmentally arched openings if the building material is brick.

- *Third Street District Building Rooftops*. Rooftops shall reflect the historic industrial character of the district and include flat, monitor, or shallow shed roofs. Gable or hipped roofs shall be avoided as primary features.

The D for D shall contain the following Site Wide Design Controls:

- *Recommended Materials.* Recommended materials should be incorporated into building design. Recommended materials include brick, concrete, copper, steel, glass, smooth stucco and wood. Avoid using veneer masonry panels except as described in the Depth of Façade, below. Avoid using smooth, flat, or minimally detailed glass curtain walls; highly reflective glass; coarse-sand finished stucco as a primary siding material; bamboo wood siding as a primary siding material; laminated timber panels; or black and dark materials should not be used as a predominate material. Where metal is used, selection should favor metals with naturally occurring patina such as copper, steel, or zinc. Metals should be matte in finish. Where shiny materials are used, they should be accent elements rather than dominant materials, and are generally not encouraged.

- *Depth of Façade.* The façade should be designed to create a sense of durability and substantiality, and to avoid a thin or veneer-like appearance. Full brick or masonry is a preferred material. If thin brick or masonry or panel systems are used, these materials should read as having a volumetric legibility that is appropriate to their thickness. For example, masonry should turn the corner at a depth that is consistent with the typical depth of a brick.

  Windows and other openings are an opportunity to reinforce the volumetric legibility of the façade, with an appropriate depth that relates to the material selected. For example, the depth of the building frame to the glazing should be sufficiently deep to convey a substantial exterior wall, and materials should turn the corner into a window reveal.

- *Quality and Durability.* Exterior finishes should have the qualities of permanence and durability found in similar contextual building materials used on neighboring sites and in the Central Waterfront. Materials should be low-maintenance, well suited to the specific maritime microclimate of the neighborhood, and able to naturally weather over time without extensive maintenance and upkeep. Materials characteristic of the surrounding context, such as brick, concrete, stone, wood, and glass, and, are envisioned on site and are good candidates to meet durability needs.

The D for D shall contain the following Street and Open Spaces Design Controls:

- *Stack Plaza.* No more than one-third of the area within 45 feet of the Boiler Stack shall be planted. Paving and hardscape elements shall incorporate industrial elements and materials into the design. Design elements should use simple geometric forms, regular or repeating paving patterns and utilitarian materials such as simple masonry pavers or salvaged masonry units if feasible and safe for public use.

  Stack Plaza design elements, such as planters and native planting, should be kept low to the ground to complement and not distract from the Boiler Stack. Surfaces should not be designed with elaborately applied patterns. Any patterning should be the pragmatic result of the use of unit pavers or concrete score joints.

- *23rd Street Streetscape.* The streetscape design of 23rd Street should balance the historic utilitarian character of the Third Street Industrial District with welcoming design gestures for this important entrance to the Potrero Power Station development. To that end, the following guidelines shall be followed:

  - Landscape elements should feel additive to the industrial streetscape. Examples include potted or otherwise designed raised beds of plants and trees that are placed onto paved surfaces; small tree wells within paved surfaces; green walls; and raised or lowered beds edged with industrial materials such as brick, low granite curbs, or steel.

  - Tree planting locations should be irregularly spaced or placed in small groupings along the street, in contrast with standard Better Street Plan requirements, in order to provide better compatibility with the historic district.
  - A tree and vegetation palette should be used that does not detract from the industrial character. Green walls, planter boxes, and vegetation should be considered rather than trees for storm water management.
  - Public art installations, such as murals, are encouraged.

- *Transit Bus Shelter.* The bus shelter should be utilitarian in materiality and design to reflect the industrial nature of the nearby Western Sugar Refinery Warehouse buildings. The bus shelter shall be coordinated with the building design on Block 12.
- *23rd Street and Illinois Paving*. Sidewalk paving at 23rd Street and Illinois Street should be more industrial in character compared to sidewalk paving at other portions of the site. Consider varying sidewalk concrete score joint patterns or pavers from block to block. Design must be reviewed and approved by San Francisco Public Works and San Francisco Municipal Transportation Agency as part of the Street Improvement Plans.
- *23rd Street Transit Island Paving*. Pavement at the transit boarding island should incorporate concrete or stone pavers or enhanced cast-in-place concrete with smaller scale joint patterns for a more refined appearance. Integral color and decorative aggregates may be selected for aesthetic quality and shall meet accessible design requirements for slip-resistance. Design must be reviewed and approved by San Francisco Public Works and San Francisco Municipal Transportation Agency as part of the Street Improvement Plans.
- *Signage*. Tenant signage facing contributing buildings to the Third Street Industrial District should be utilitarian in design and materiality to reflect the adjacent historic resources and strengthen the 23rd Street streetscape. Backlit signage should be avoided.

Significance after Mitigation: Implementation of Mitigation Measure M-CR-6, in tandem with implementation of the D for D, would ensure that future new construction would be compatible with the character-defining features of the Third Street Industrial District and would thereby reduce this impact to a ***less-than-significant*** level.

Impact CR-7: The proposed project would not materially alter, in an adverse manner, the physical characteristics of the adjacent Union Iron Works Historic District that justify its inclusion in the California Register of Historical Resources. (*Less than Significant*)

As discussed above, the Union Iron Works Historic District (Pier 70), which is listed in the National Register of Historic Places, stands directly to the north of the project site. Although the proposed project would have no direct physical impact on Union Iron Works Historic District, the proposed project could have an indirect visual impact on the district by altering its immediate visual setting. However, the recently approved Pier 70 Mixed-Use District project plans infill construction between Building 12 (on the Pier 70 site), the closest of the contributing properties that would be retained by the Pier 70 Mixed-Use District project to the project site, and the project site. The planned infill construction on the Pier 70 site would introduce a new roadway and new construction with heights up to 90 feet along the southern edge of the Union Iron Works Historic District. New construction from the proposed project would be more than 200 feet away from contributing properties of the Union Iron Works Historic District and heights of the closest project buildings would range from 85 to 180 feet.

While a visual relationship between contributing properties of the Union Iron Works Historic District and the historic resources on the project site may have existed historically, the construction of large storage tanks (now removed) along the northern edge of the project site during the 1960s and early 1970s would have visually interrupted the connection between such resources and would have previously affected the setting and association between Union Iron Works Historic District and the historic resources on the project site.

Additionally, new construction within the project site would be contemporary in design and materials and would not convey a false sense of historical development. As such, the character-defining features and form of the Union Iron Works Historic District would be clearly differentiated from the new development on the project site.

Finally, based on the analysis provided in Impact NO-4 in Section 4.F, Noise and Vibration, vibration levels for Union Iron Works Historic District contributors would not exceed the 0.5 in/sec PPV standard. Therefore, the project's construction-related vibration impacts on this existing historical district from impact pile driving or controlled rock fragmentation would be *less than significant*, and no mitigation would be required.

For these reasons, the indirect visual impacts of the proposed project and project construction activities are not those of a project that "demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the CRHR as determined by the lead agency for purposes of CEQA." (CEQA Guidelines section 15064.5(b)(2)(C)). This impact would be ***less than significant***.

Mitigation: None required.

Cumulative Impacts

Impact C-CR-1, relating to archeological resources, human remains, and tribal cultural resources, is included in Appendix B, Initial Study, of this EIR.

Impact C-CR-2: The impacts of the proposed project, in combination with those of past, present, and reasonably foreseeable future projects, would materially alter, in an adverse manner, some of the physical characteristics of the Third Street Industrial District that justify its inclusion in the California Register of Historical Resources, resulting in a cumulative impact. (*Significant and Unavoidable with Mitigation*)

The analysis of cumulative impacts to historic architectural resources addresses all past, present, and reasonably foreseeable future projects within the boundaries of the Third Street Industrial District, that, in addition to the proposed project, may contribute to a significant, adverse cumulative impact to the integrity of the Third Street Industrial District. As stated in the Setting, above, four contributing buildings to the Third Street Industrial District have been demolished or substantially altered since the district was documented in 2008. One of these resources was the 1930 Pump House (which was located on the project site), identified as a district contributor in 2008 but demolished by 2010. The other three district contributors that were demolished and are no longer contributory to the district's significance include the Seaside Oil Co. building at 2121 Third Street (demolished ca. 2012), the Joseph Levin and Sons Warehouse at 2255 Third Street (demolished except for the façade, ca. 2013), and the Bowie Switch Co. building at 815-825 Tennessee Street (demolished except for the façade, ca. 2015).

In addition to the foregoing completed demolitions and alterations, there are seven proposed projects within the Third Street Industrial District but outside the project boundary that, along with the proposed project, have the potential to result in a significant adverse cumulative impact on the integrity of the district. Many of the projects within the district that have completed CEQA review and were found to be consistent with the Secretary's Standards or otherwise to have a less-than-significant effect, individually, on the district with respect to new construction. The projects that would or will affect, or have affected, contributors to the Third Street Industrial District are:

- 2250 Third Street (Case No. 2014-001299ENV; proposed demolition of district contributor; new construction is under review)
- 2290 Third Street (Case No. 2005.0408E; approved demolition of district contributor; new construction would not adversely affect the district)
- 2530 Third Street (Case No. 2017-011476; proposed alteration of a district contributor; currently under review)

The three above projects are depicted in Figure 4.D-1.

Other cumulative projects not adversely affecting the Third Street Industrial District (and therefore not shown in Figure 4.D-1) include the following:

- 2146 Third Street (Case No; 2013.1109E; approved demolition of a non-contributor to the district; new construction found to be compatible with the district, determined to have no impact on the district)
- 2177 Third Street/590 19th Street (Case No. 2013.0784E; demolition of two district non-contributors complete; new construction found to be compatible with the district, with no impact found to the district; under construction)

- 2230 Third Street (Case No. 2013.0531E; approved demolition of a non-contributor to the district; new construction found to be compatible with the district, with a less-than-significant impact to the district)
- 2420 Third Street (Case No. 2013.0673E; proposed new construction on a vacant lot in the Third Street Industrial District; new construction found to be compatible with the district, with a less-than-significant impact on the district)

At present, the Third Street Industrial District includes 53 properties, 25 of which are contributing resources (approximately 47 percent) and 28 of which are non-contributing resources (approximately 53 percent).[24] The three projects listed above would further reduce the number of contributors from 25 to 22, meaning there will have been seven contributing resources lost to demolition or substantial alteration since the district was documented in 2008. The project site occupies 29 acres and accounts for approximately half of the land within the boundary of the Third Street Industrial District. The project proposes to demolish approximately 20 buildings on the project site, only four or possibly five of which are contributing resources to the Third Street Industrial District. The proposed project in combination with the cumulative projects described above would result in 45 architectural resources remaining in the district, 17 of which are contributing resources (approximately 38 percent) and 28 of which are non-contributing resources (approximately 62 percent).

According to the HRER, the loss of 12 district contributors (up to five due to the proposed project plus the seven either already lost or proposed for demolition or substantial alteration) since the Third Street Industrial District's designation in 2008 "would substantially reduce the number of overall contributors and weaken the architectural and spatial cohesion of the district," and would therefore result in a significant cumulative impact.

Since the proposed project would result in the loss of up to five of the 12 district contributors already lost or proposed for demolition, and all district contributors associated with early power generation in San Francisco, and would result in a physical gap between remaining district contributors along the waterfront and the bulk of the district along Third Street, the proposed project would make a considerable contribution (i.e., significant) to the cumulatively significant impact to the Third Street Industrial District.

Concerning the adjacent Union Iron Works Historic District, as described in Impact CR-7, the proposed project would not adversely affect the Union Iron Works Historic District because of the physical separation afforded both by distance between new construction on the project site and the nearest remaining Union Iron Works Historic District contributor and by intervening new construction within the Pier 70 Mixed-Use District project site. Accordingly, together the two projects would result in a *less-than-significant* cumulative impact on the Union Iron Works Historic District.

There is no additional feasible mitigation beyond mitigation measures listed above for Impacts CR-4, CR-5, and CR-6. Demolition of these resources would result in material impairment to the

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[24] The 25 existing contributors include 23 of the original 27 contributors, less the four already demolished or substantially altered, plus the newly added Unit 3 Power Block and the Boiler Stack.

Third Street Industrial District. Mitigation Measures M-NO-4a, 4b, and 4c regarding vibration monitoring and vibration controls would be required to ensure that the retained and rehabilitated historic resources as well as any nearby resources would be protected during construction of the rest of the development. This EIR concludes that the project's contribution to the cumulative impact on the Third Street Industrial District would be ***significant and unavoidable, with mitigation***.

Mitigation Measure M-CR-5a: Documentation (see Impact CR-5, above)

Mitigation Measure M-CR-5b: Video Recordation (see Impact CR-5, above)

Mitigation Measure M-CR-5c: Public Interpretation and Salvage (see Impact CR-5, above)

Mitigation Measure M-CR-5d: Rehabilitation of the Boiler Stack (see Impact CR-5, above)

Mitigation Measure M-CR-5e: Historic Preservation Plan and Review Process for Alteration of the Boiler Stack (see Impact CR-5, above)

Mitigation Measure M-CR-6: Design Controls for New Construction (see Impact CR-6, above)

Mitigation Measure M-NO-4a: Construction Vibration Monitoring (see Section 4.F, Noise and Vibration, Impact NO-4)

Mitigation Measure M-NO-4b: Vibration Control Measures During Controlled Blasting and Pile Driving (see Section 4.F, Noise and Vibration, Impact NO-4)

Mitigation Measure M-NO-4c: Vibration Control Measures During Use of Vibratory Equipment (see Section 4.F, Noise and Vibration, Impact NO-4)

Significance after Mitigation: Implementation of Mitigation Measures M-CR-5a through M-CR-6 and M-NO-4b would assist in reducing project impacts, but would not reduce cumulative impacts to a less-than-significant level because only avoidance of demolition of, or substantial adverse changes to, a historical resource would reduce impacts to less-than-significant levels. Therefore, even with implementation of these mitigation measures, the project's contribution to the cumulative impact on historic architectural resources would be ***significant and unavoidable***.

4.E Transportation and Circulation

4.E.1 Introduction

This section presents the existing transportation and circulation conditions and analyzes the potential project-level and cumulative impacts on transportation and circulation during construction and operation of the proposed project. Transportation-related issues of study include vehicle miles traveled (VMT), traffic hazards, transit, bicycles, pedestrians, loading, emergency access, parking, and construction activities that would affect the transportation network. Supporting detailed technical information is included in Appendix C, Transportation Supporting Information.

4.E.2 Environmental Setting

The transportation study area is the area near the project site where the project could potentially affect transportation and circulation, generally bounded by 18th Street to the north, Pennsylvania Avenue to the west, Cesar Chavez Street to the south, and the San Francisco Bay to the east. See **Figure 4.E-1**, **Transportation Study Area and Study Intersections**.

Regional and Local Roadways

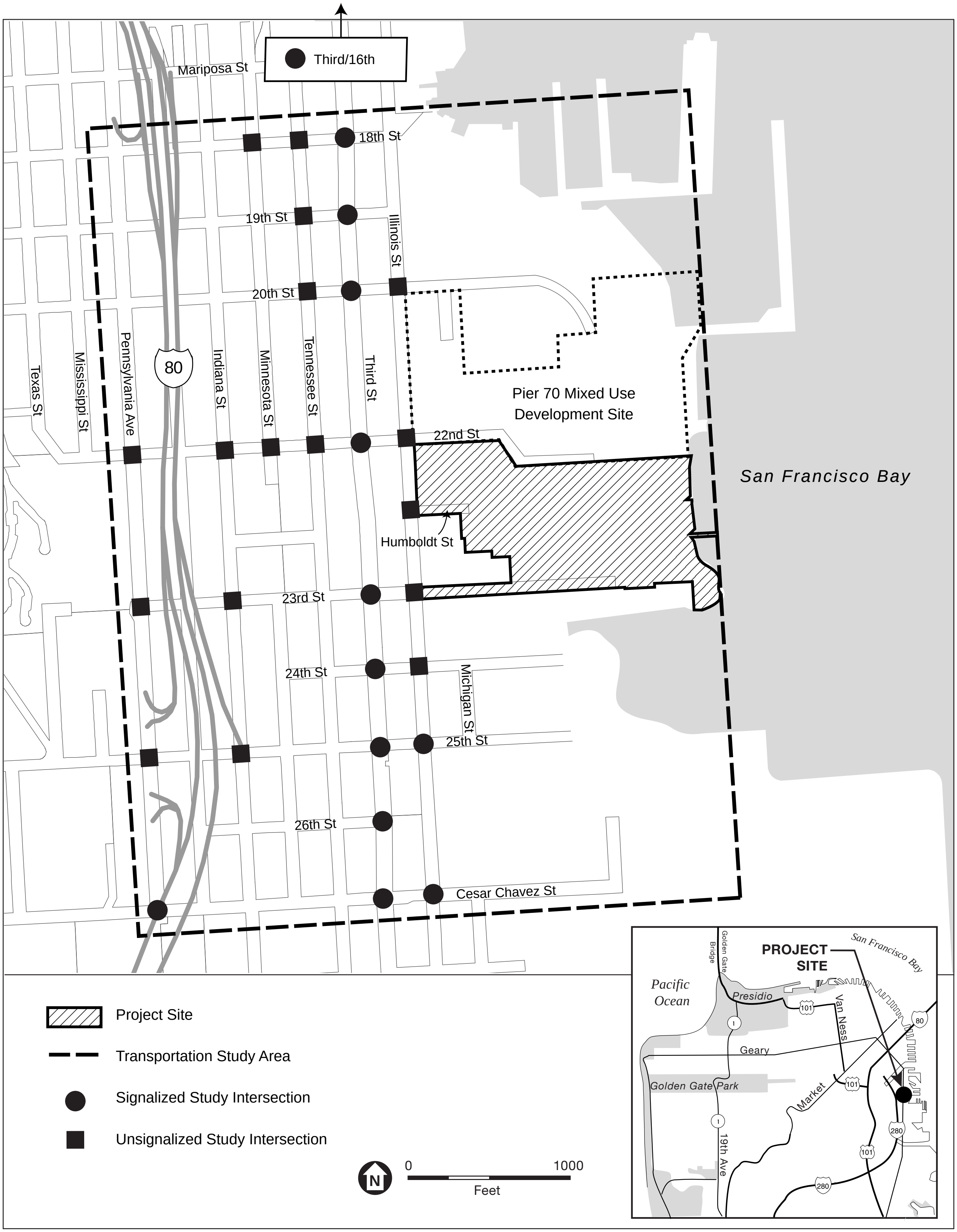
Regional Access

Interstate 280 (I-280) is a generally north-south freeway that connects San Francisco with the Peninsula and the South Bay. I-280 crosses Highway 101 approximately one mile southwest of the project site and ends at San Francisco surface streets in the South of Market/Mission Bay areas. Near the project site, I-280 is a six- to eight-lane facility. The closest access to I-280 is provided at Pennsylvania Street/Cesar Chavez Street (from the south), at Pennsylvania Street/25th Street (from the north and to the south), and at Indiana Street/25th Street (to the north).

Interstate 80 (I-80) and **U.S. Highway 101 (U.S. 101)** provide regional access to the Mission Bay area. U.S. 101 serves San Francisco and the Peninsula/South Bay, and extends north via the Golden Gate Bridge to the North Bay. Van Ness Avenue serves as U.S. 101 between Market Street and Lombard Street. I-80 connects San Francisco to the East Bay and points east via the San Francisco-Oakland Bay Bridge. U.S. 101 and I-80 merge west of the project site. Northbound access is provided via off-ramps at Cesar Chavez Street/Bayshore Boulevard, Mariposa Street (at Vermont Street), on-ramps at Cesar Chavez Street, and on-ramps and off-ramps at Bryant and Harrison Streets.

Local Access

This section provides a description of the existing local roadway system in the vicinity of the project site, including the San Francisco General Plan roadway designation, number of travel lanes, traffic flow directions, and presence of bicycle facilities. Appendix C includes the street classifications and San Francisco General Plan street designations for other local streets in the study area.



SOURCE: Adavent Consulting/Fehr & Peers/LCW Consulting, 2018

Potrero Power Station Mixed-Use Development Project

Figure 4.E-1
Transportation Study Area and Study Intersections

Illinois Street is a two-way, north-south roadway to the east of Third Street that extends between 16th Street and Cargo Way. The roadway has one travel lane each way with on-street parking on both sides of the street. Bicycle lanes (class II facility)[1] are provided in both directions, between Cargo Way and Mariposa Street/Terry A. Francois Boulevard. San Francisco Municipal Railway (Muni) tracks are currently under construction between 19th and 20th streets, as part of Muni's Mission Bay Loop project.

Third Street is the principal north-south arterial in the southeast part of San Francisco, extending from its interchange with U.S. 101 and Bayshore Boulevard to the south, to its intersection with Market Street at the north. Near the project site Third Street has two travel lanes each way and has on-street parking on both sides of the street. In the San Francisco General Plan, Third Street is designated as a Major Arterial in the Congestion Management Program network, a Metropolitan Transportation System Street, a Primary Transit Preferential Street (Transit Important Street between Market and Townsend Streets, and 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. South of China Basin, the T Third light rail operates in a semi-exclusive center median right-of-way, with the exception of the segment between Kirkwood Avenue and Thomas Avenue, where the light rail runs within a mixed-flow lane. A shared lane bicycle route (class III facility) runs on Third Street between China Basin and Townsend Street.

Tennessee Street is a north-south roadway between Mariposa and Marin streets that runs discontinuously. Near the project site Tennessee Street has one travel lane in each direction and on-street parking on both sides of the street.

Sixteenth Street is an east-west arterial that runs between Terry A. Francois Boulevard and Castro Street. In the Mission Bay area to the north of the project site, 16th Street has one travel lane and one transit-only lane in each direction, and on-street parking is prohibited on both sides of the street; dedicated left turn lanes are provided at all intersections. Bicycle lanes (class II facility) are provided both ways between Third Street and Mississippi/Seventh Streets. Sixteenth Street is currently being extended from Illinois Street to Terry A. Francois Boulevard as part of the construction of the Chase Center. Sixteenth Street is a Primary Transit Oriented Preferential Street between De Haro and Church streets and a Neighborhood Commercial Pedestrian Street between Bryant and Church streets.

Twentieth Street is an east-west roadway that runs discontinuously between San Francisco Bay/Pier 70 site and Douglass Street. Twentieth Street has one travel lane each way and on-street parking on both sides of the street. The north side of 20th Street between Third Street and Tennessee Street is designated as a Muni bus stop/layover stop for the 22 Fillmore bus line.

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[1] Class I bikeways are bike paths with exclusive right-of-way for use by bicyclists. Class II bikeways are bike lanes striped within the paved areas of roadways and established for the preferential use of bicycles. Class III bikeways are signed bike routes that allow bicycles to share the travel lane with vehicles. Class IV bikeways, sometimes referred to as cycle tracks, are for the exclusive use of bicycles, physically separated from motor traffic with a vertical feature. The separation may include, but is not limited to, grade separation, flexible posts, inflexible barriers, or on-street parking.

Twenty-second Street is an east-west roadway that runs discontinuously between Illinois Street and Grand View Avenue. Near the project site 22nd Street has one travel lane each way and on-street parking on both sides of the street.

Humboldt Street is an east-west roadway that starts at Illinois Street and extends into the project site. However, Humboldt Street is currently gated 400 feet east of Illinois Street. Humboldt Street has one travel lane in each direction, and on-street parking is not permitted on either side of the street.

Twenty-third Street is an east-west roadway that runs discontinuously between San Francisco Bay and Grand View Avenue. Near the project site 23rd Street has one travel lane each way and on-street parking on both sides of the street.

Twenty-fifth Street is an east-west roadway that runs discontinuously between Illinois Street and Grand View Avenue. Near the project site 22nd Street has one travel lane each way and on-street parking on both sides of the street.

Cesar Chavez Street is a major east-west arterial that runs between Douglass Street to the west and, to the east, the Port of San Francisco North Container Terminal at Pier 80. Near the project site Cesar Chavez Street has one to two travel lanes each way, with a center median at some locations. The General Plan designates Cesar Chavez Street as a Major Arterial in the Congestion Management Program network from San Jose Avenue to Third Street, as a Secondary Arterial east of Third Street, and as part of the Metropolitan Transportation System network. It is identified in the General Plan as a Freight Traffic Route[2] east of U.S. 101. Cesar Chavez Street has class II bicycle lanes between Guerrero and Third streets.

Indiana Street runs north-south from Mariposa Street to Tulare Street through the Dogpatch neighborhood. Indiana Street has one northbound lane and one southbound lane from Mariposa Street to 23rd Street with on-street parking on both sides of the street. The southbound lane ends mid-way between 23rd Street and 25th Street. Indiana Street is one way northbound between 25th and Cesar Chavez streets, and two-way for the two blocks between Cesar Chavez and Tulare streets. North of Cesar Chavez Street, Indiana Street is a shared lane bicycle route (class III facility) with *sharrows*.[3]

Minnesota Street runs north-south discontinuously between Mariposa and Cesar Chavez streets. Near the project site Minnesota Street is discontinuous between just south of 22nd and 23rd streets.

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[2] San Francisco does not have a network of signed truck routes, although the San Francisco Municipal Transportation Agency (SFMTA) has identified major Freight Traffic Routes in the Transportation Element of the General Plan that are not designed or signed truck routes. (See General Plan Transportation Element Map 15, attached in Appendix C and at, *http://www.sf-planning.org/ftp/General_Plan/images/I4.transportation/tra_map15.pdf*) Nevertheless, a number of streets in San Francisco, particularly in the Bayview, have "Truck Route" signage. More commonly, streets are designated with truck weight restrictions to discourage through truck traffic from using these streets. Streets with truck weight restrictions are identified in the San Francisco Transportation Plan, section 501, available at *http://www.sf-planning.org/ftp/General_Plan/I4_Transportation.htm*, accessed September 24, 2018.

[3] Sharrows are pavement markings within the travel lane that are intended to help bicyclists better position themselves in a shared travel lane for safety considerations and to alert drivers to the presence of bicyclists. The standard shared lane marking is the bike-and-chevron sharrow (both standard and green-backed).

Minnesota Street has one northbound lane and one southbound lane and on-street parking on both sides of the street.

Tennessee Street is a north-south roadway that runs discontinuously between Mariposa and Marin streets. Near the project site Tennessee Street is discontinuous between Tubbs and 22nd streets and between 25th and Cesar Chavez streets. Tennessee Street has one northbound lane and one southbound lane with on-street parking on both sides of the street.

Traffic Volumes

Intersection turning movement counts were collected at the 30 study intersections presented in Figure 4.E-1 in October 2017 (18 study intersections) and in April 2018 (12 study intersections) during the a.m. (7 a.m. to 9 a.m.) and p.m. (4 p.m. to 6 p.m.) peak periods. Appendix C has the detailed vehicle count information. **Table 4.E-1, Existing A.M. and P.M. Peak Hour Traffic Volumes,** summarizes the existing a.m. and p.m. peak traffic hour volumes on streets near the project site.[4] The table also shows that traffic volumes are greatest on Third Street with about 1,200 to 1,400 vehicles per hour in both directions during the peak hours. Traffic volumes on Illinois Street are substantially lower, with about 300 to 400 vehicles per hour in both directions of travel. Traffic volumes on the east-west streets (20th, 22nd, and 23rd streets), are lower, and range between 150 and 300 vehicles per hour during the peak hours. Traffic volumes on the east-west streets are slightly greater (up to 60 vehicles per hour) to the west of Third Street than to the east.

TABLE 4.E-1
EXISTING A.M. AND P.M. PEAK HOUR TRAFFIC VOLUMES

Street	a.m. Peak Hour	p.m. Peak Hour	a.m. Peak Hour	p.m. Peak Hour
	Between 19th and 20th Streets		***Between 22nd and 23rd Streets***	
Illinois Street	333	422	372	409
Third Street	1,177	1,270	1,277	1,403
	Between Illinois and Third Streets		***Between Third and Tennessee Streets***	
20th Street	267	173	271	224
22nd Street	165	220	202	265
23rd Street	151	148	175	208

NOTE: Volumes shown are two-way traffic volumes on identified street segments.

SOURCE: Adavant Consulting/Fehr & Peers/LCW Consulting, 2018.

Vehicle Miles Traveled

The San Francisco County Transportation Authority's (Transportation Authority) San Francisco Chained Activity Modeling Process (SF-CHAMP) travel demand model was used to estimate existing average daily VMT per capita for different land uses for the *traffic analysis zone* (TAZ)[5] in

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[4] The peak hour traffic volume is the volume of vehicles during the peak 60 minutes of the two-hour a.m. or p.m. peak period during which the highest volumes of vehicles were observed.

[5] Transportation Analysis Zones (TAZs) are used by planners as part of transportation planning models for transportation analyses and other planning purposes. The TAZs vary in size from single city blocks in the downtown core, multiple blocks in outer neighborhoods, to even larger zones in historically industrial areas such as the Hunters Point Shipyard area.

which the project is located. VMT per capita ratio is used as a measure of the amount and distance that a resident, employee, or visitor drives, accounting for the number of passengers within a vehicle. Many factors affect travel behavior, including density, diversity of land uses, design of the transportation network, access to regional destinations, distance to high quality transit, development scale, demographics, and transportation demand management. Typically, low density development at great distances from other land uses, located in areas with poor access to non-private vehicular modes of travel, generate more automobile travel compared to development located in urban areas, where a higher density, mix of land uses, and travel options other than private vehicles are available. Given the travel behavior factors described above, San Francisco has a lower average VMT ratio than the nine-county San Francisco Bay Area region. In addition, for the same reasons, different areas of the city have different VMT ratios and some areas of the city have lower VMT ratios than other areas of the city.

Table 4.E-2, **Daily VMT per Capita – Existing Conditions**, presents the existing average daily VMT per capita for residents, employees, and visitors for the nine-county San Francisco Bay Area and for TAZ 559, the TAZ in which the project site is located (i.e., the area generally bounded by 24th Street, Illinois Street, Terry A. Francois Boulevard, and the San Francisco Bay). As shown on Table 4.E-2 within TAZ 559, the current average daily VMT per capita for the various trip types are less than the regional Bay Area averages for the nine-county San Francisco Bay Area.

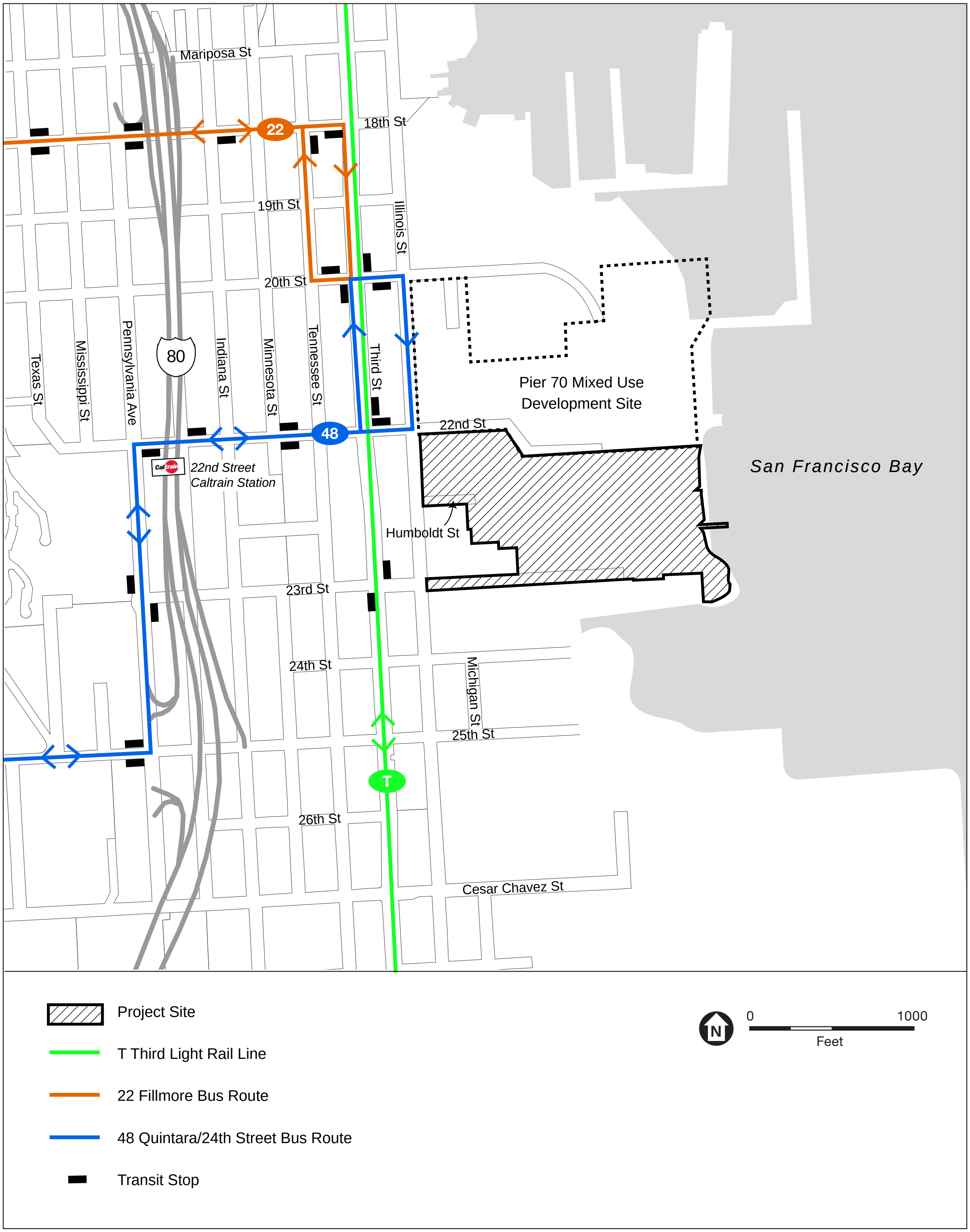
TABLE 4.E-2
DAILY VMT PER CAPITA - EXISTING CONDITIONS

Trip Type (Land Use)	Bay Area Regional Average	TAZ 559
Households (residential)	17.2	8.8
Employment (office)	19.1	14.6
Visitors (retail)	14.9	10.8

SOURCE: San Francisco Planning Department, Transportation Information Map, *http://www.sftransportationmap.org*.

Transit Service

Local transit service in San Francisco is provided by Muni, the transit division of the San Francisco Municipal Transportation Agency (SFMTA). Muni bus, cable car and light rail lines can be used to access regional transit operators. Service to and from the East Bay is provided by Bay Area Rapid Transit District (BART), AC Transit, and Water Emergency Transportation Authority (WETA) ferries; service to and from the North Bay is provided by Golden Gate Transit buses and ferries, as well as Blue & Gold, and WETA ferries; and service to and from the Peninsula and the South Bay is provided by Caltrain, SamTrans, BART, and WETA ferries. **Figure 4.E-2**, **Existing Transit Network**, illustrates the existing transit route network near the project site.



SOURCE: SFMTA, 2018

Figure 4.E-2
Existing Transit Network

**TABLE 4.E-3
EXISTING MUNI ROUTES IN PROJECT VICINITY**

Line/Route	Headways[a] (in minutes) AM Peak Period[b]	PM Peak Period[b]	General Hours of Operation	Neighborhoods Served
T Third	8	8	4:40 to 12:20 a.m.	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 Visitacion Valley West of Twin Peaks Western Addition
22 Fillmore	8	8	24 hours	Castro/Upper Market Marina Mission Pacific Heights Potrero Hill South of Market Western Addition
48 Quintara/ 24th Street	10	14	6:30 a.m. to 11:30 p.m.	Bayview, Bernal Heights, Castro/Upper Market, Diamond Heights, Lakeshore, Mission, Noe Valley Parkside Potrero Hill Twin Peaks West of Twin Peaks

NOTE:

[a] Headway refers to the scheduled time interval between any two revenue transit vehicles operating in the same direction on a route.
[b] The AM peak period for Muni operations is between 7 a.m. and 10 a.m., and the p.m. peak period is between 3 p.m. and 6 p.m.

SOURCE: SFMTA, Adavant Consulting/Fehr & Peers/LCW Consulting, 2018.

Local Muni Service

Muni service near the project site includes the T Third light rail line that runs along Third Street with stops at 20th, 23rd, and Marin streets, as well as the 22 Fillmore and 48 Quintara/Street bus routes.

Near the project site the T Third light rail operates in a semi-exclusive center median right-of-way with center platform stops at 20th and 23rd streets. The nearest bus stop to the project site for the 22 Fillmore is a curbside stop the north side of 20th Street between Third and Tennessee streets (i.e., traveling in the westbound direction). This stop is also a layover facility for the 22 Fillmore.

The nearest stop for the 48 Quintara/24th Street route is a pole stop on the north side of 22nd Street between Illinois and Third streets (i.e., traveling in the westbound direction).[6]

Regional Service

Regional Service Providers

East Bay

Transit service to and from the East Bay is provided by BART, AC Transit, and WETA. BART operates regional rail transit service between the East Bay (from Pittsburg/Bay Point, Richmond, Dublin/Pleasanton and Fremont) and San Francisco, and between San Mateo County (Millbrae and the San Francisco Airport) and San Francisco. The nearest BART stations to the project site are the

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[6] A pole stop (also referred to as a flag stop) is defined as a transit stop without a designated curbside zone and where parking is generally not restricted. Some pole stops are located on streets without parking, in which case the bus can either stop in the mixed-flow travel lane or pull over to the curb. At pole stops adjacent to on-street parking, all passengers must board and exit the bus in the street since the bus cannot pull to the curb.

24th Street station located 1.8 miles to the southwest of the project site and accessed via the 48 Quintara/24th Street bus route, and the 16th Street station located 1.9 miles to the northwest of the project site and accessed via the 22 Fillmore bus route). AC Transit is the primary bus operator for the East Bay, including Alameda and western Contra Costa counties. AC Transit operates 37 routes between the East Bay and San Francisco, all of which terminate at the new Transbay Transit Center. WETA ferries provide service to between San Francisco and Alameda and between San Francisco and Oakland from the Ferry Building. The Transbay Terminal and the Ferry Building can be accessed via the T Third light rail line.

South Bay

Transit service to and from the South Bay is provided by BART, SamTrans, Caltrain, and WETA. SamTrans provides bus service between San Mateo County and San Francisco, including 14 bus lines that serve San Francisco (12 routes serve the downtown area). In general, SamTrans service to downtown San Francisco operates along South Van Ness Avenue, Potrero Avenue, and Mission Street to the Transbay Terminal. SamTrans cannot pick up northbound passengers at San Francisco stops. Similarly, passengers boarding in San Francisco (and destined to San Mateo) may not disembark in San Francisco. SamTrans routes stop at the northbound and southbound bus stops on Mission Street. WETA ferries provide service between South San Francisco and the San Francisco Ferry Building, which can be accessed via the T Third light rail line.

Caltrain provides commuter heavy-rail passenger service between Santa Clara County and San Francisco. Caltrain currently operates 38 trains each weekday, with a combination of express and local service. Two Caltrain stations are located near the project site: the 22nd Street station (0.5 mile north of the project site) and the terminus at Fourth and King streets (1.5 miles northwest of the project site; approximately 30 percent of all the weekday trains 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, and 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 morning and evening peak periods, ferries run between Larkspur and San Francisco and between Sausalito and San Francisco. WETA ferries provide service between Vallejo and San Francisco.

Local and Regional Transit Analysis — Existing Conditions

Existing conditions for both Muni and regional transit service are evaluated using capacity utilization analysis. The capacity utilization analysis is conducted by calculating the existing capacity utilization (riders as a percentage of capacity) at the maximum load point, the point of greatest demand. Capacity utilization relates the number of passengers per transit vehicle to the design capacity of the vehicle. Section 4.E.4, below, under "Approach to Impact Analysis Methodology," presents the analytical methodology for the transit capacity utilization analysis.

Local Muni Service

A transit analysis was conducted for the T Third light rail line, and the 22 Fillmore and 48 Quintara/24th Street bus routes that serve the project vicinity. **Table 4.E-4**, **Muni Transit Route Analysis at the Maximum Load Point**, presents the capacity utilization analysis for the weekday a.m. and p.m. peak hour conditions at the maximum load point, for travel towards and away from the proposed project site. Muni's established capacity utilization standard for peak period operations is 85 percent. The 85 percent capacity utilization includes seated and standing passengers, so at 85 percent utilization all seats are taken and there are many standees. As indicated in Table 4.E-4, under existing conditions, capacity utilization for the bus routes during the two analysis periods is lower than Muni's 85 percent capacity utilization standard. The T Third light rail line currently operates at more than the 85 percent capacity utilization standard towards downtown (i.e., outbound from the project site) during the a.m. peak hour (Van Ness station has the maximum load point), and both towards and away from downtown during the p.m. peak hour (with the maximum load point in both directions at the platforms on The Embarcadero at Harrison Street).

TABLE 4.E-4
SAN FRANCISCO MUNICIPAL RAILWAY (MUNI) TRANSIT ROUTE ANALYSIS AT THE MAXIMUM LOAD POINT
EXISTING CONDITIONS – WEEKDAY A.M. AND P.M. PEAK HOUR

	Inbound (toward project site)			Outbound (from project site)		
Peak Hour/Route[a]	**Ridership**	**Capacity**	**Capacity Utilization**	**Ridership**	**Capacity**	**Capacity Utilization**
a.m. Peak Hour						
T Third[b]	519	793	65.4%	**822**	**793**	**103.7%**
22 Fillmore[c]	264	441	59.9%	313	504	62.1%
48 Quintara/24th Street[d]	237	315	66.1%	250	378	75.2%
p.m. Peak Hour						
T Third	**945**	**793**	**119.2%**	**783**	**793**	**98.7%**
22 Fillmore	342	567	60.3%	301	567	53.1%
48 Quintara/24th Street	158	315	50.2%	226	378	59.8%

NOTES:

[a] Routes with capacity utilization that equals or exceeds Muni's 85 percent capacity utilization standard are highlighted in **bold**.

[b] For the T Third the inbound direction towards the project site is from downtown and southbound on Third Street, and the outbound direction is northbound on Third Street towards downtown. Existing conditions do not reflect Central Subway service which would integrate into the T Third line. The Central Subway is scheduled to be operational in 2019.

[c] For the 22 Fillmore route the inbound direction towards the project site is eastbound and southbound and the outbound direction is northbound and westbound. Conversely, for the 22 Fillmore route, Muni's designation of "inbound" is away from the project site, towards the Marina.

[d] For the 48 Quintara/24th Street route the inbound direction towards the project site is eastbound and southbound and the outbound direction is northbound and westbound.

SOURCE: SFMTA, Fall 2015 Baseline Data, 2017.

Local Muni Facilities

There are three Muni vehicle storage and maintenance facilities near the project site -- the Woods and Islais Creek motor coach yards, and the Muni Metro East light rail yard.

The Woods motor coach facility consists of 8.2 acres and is located at 1095 Indiana Street on the two blocks bounded by 22nd, Tennessee, 23rd and Iowa streets, approximately 0.40 miles west of the project site. The site currently accommodates about 250 30-foot and 40-foot long motor coaches and includes bus maintenance bays. Vehicles access the facility from Indiana Streets and Tubbs Street. The Islais Creek motor coach facility consists of 8.3 acres and is located at 1301 Cesar Chavez Street on the blocks bounded by Cesar Chavez Street, Indiana Street, I-280 and Islais Creek, approximately 0.6 miles southwest of the project site. The site currently accommodates about 165 40-foot and 60-foot long motor coaches and includes bus maintenance bays. Vehicles access the facility from two driveways on Indiana Street. The Muni Metro East light rail vehicle facility consists of 16.9 acres and is located at 601 25th Street on the blocks bounded by Illinois Street, 25th Street, Cesar Chavez Street and Pier 80, approximately 0.2 miles south of the project site. The site currently accommodates about 125 light rail and historic streetcar vehicles and includes rail car maintenance bays. The Muni Metro East site also includes an expansion area. Vehicles access the facility via the intersection of Illinois Street/25th Street and at a driveway on Cesar Chavez Street.

Peak period vehicle (including autos, trucks and buses), bicycle and pedestrian counts were conducted on October 5, 2017 at the driveways to the three Muni facilities during two three-hour periods, from 6 a.m. to 9 a.m. and from 3 p.m. to 6 p.m., to determine overall vehicle (including transit), pedestrian and bicycle activity at the sites during the peak periods. At all three facilities, the peak hour of transit vehicle activity was generally between 6 a.m. and 7 a.m. during the three-hour morning period, and between 3 p.m. and 4 p.m. during the three-hour evening period. A summary of the peak hour volumes at the driveways is included in Appendix C. In general, the peak period for buses leaving the Muni yards to access their routes is between 4 a.m. and 7 a.m., with the majority leaving between 5 a.m. and 6 a.m. Buses generally return to the yard in the evening between 7 p.m. and 9 p.m. Thus, the majority of peak hour transit vehicle access to and from the three facilities occurs prior to the a.m. peak hour for adjacent street traffic, which is generally between 8 a.m. and 9 a.m. and after the p.m. peak hour, which is generally between 5 p.m. and 6 p.m.

- At the Woods facility, approximately 30 buses entered, and 52 buses exited the facility between 6 a.m. and 7 a.m., and eight buses entered and ten buses exited the facility between 3 p.m. and 4 p.m. Most buses traveled on Indiana and Tennessee streets south of Tubbs Street to and from the facility; only one bus during the a.m. peak hour and three buses during the p.m. peak hour traveled north towards 22nd Street. In addition, there were 13 buses during the a.m. peak hour and two buses during the p.m. peak hour that crossed Indiana Street between the west and east portions of the facility.

- At the Islais Creek facility, one bus entered and 25 buses exited the facility between 8 a.m. and 9 a.m., and one bus entered and 14 buses exited the facility between 3 p.m. and 4 p.m.

- At the Muni Metro East facility, 20 light rail vehicles exited the Muni Metro East facility between 6 a.m. and 7 a.m., and one light rail vehicle exited between 3 p.m. and 4 p.m.

At all three facilities, in addition to the transit vehicle activity described above, there were between 10 and 20 automobiles entering and exiting each site during the peak hours. The number of bicyclists and people walking adjacent to these sites during the two survey periods is very low (fewer than two bicyclists and five people walking per hour, with the exception of at the Woods facility where there were about 50 people walking, presumably Muni employees accessing the facility), and no conflicts between vehicles accessing the facilities with pedestrians or bicyclists were observed.

Regional Transit

The assessment of regional transit conditions for proposed projects in San Francisco is typically performed by analyzing the ability of regional transit (BART, AC Transit, Golden Gate Transit, SamTrans, Caltrain, and ferry service) to accommodate additional riders.[7] For the purposes of this analysis, the ridership and capacity at the three regional screenlines was identified for the peak direction of travel and passenger loads, which corresponds with the morning commute in the inbound direction from the region to downtown San Francisco, and with the evening commute in the outbound direction from downtown San Francisco to the region. For all regional transit operators, the capacity is based on the number of seated passengers per vehicle. All of the regional transit operators have a one-hour load factor standard of 100 percent, which would indicate that all seats are full.

As indicated in **Table 4.E-5**, **Regional Transit Screenline Analysis**, with the exception of BART, all regional transit providers operate at less than their load factor standards during the a.m. and p.m. peak hours. BART ridership capacity utilization in the inbound direction to San Francisco during the a.m. peak hour and in the outbound direction from San Francisco during the p.m. peak hour exceeds the 100 percent capacity utilization standard, which indicates that all seats are occupied and many passengers are standing.

Walking/Access Conditions

There are limited pedestrian facilities, such as sidewalks, within the project site. On the north side of 23rd Street, sidewalks ranging between 12 and 24 feet in width extend about 550 feet east of Illinois Street; there are no sidewalks on the remaining portion of 23rd Street to the east. There are no sidewalks on the south side of 23rd Street east of Illinois Street. On the south side of the street, 90-degree parking is provided for about 400 feet (about forty 90-degree parking spaces, and three parallel spaces), and east of that there are loading facilities associated with the Storage San Francisco and the DHL Express facilities.

Along Illinois Street between 22nd and 23rd streets, sidewalks ranging between 12 and 14 feet in width are provided on both sides of the street. However, the sidewalk on the east side of Illinois Street between 22nd and 23rd streets (i.e., adjacent to the project site) is asphalt, in poor condition, and sloped downward from east to west.

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[7] The concept of screenlines is used to describe the magnitude of travel to or from the greater downtown area, and to compare estimated transit ridership to available capacities. Screenlines are hypothetical lines that would be crossed by persons traveling between downtown and its vicinity and other parts of San Francisco and the region.

TABLE 4.E-5
REGIONAL TRANSIT SCREENLINE ANALYSIS – EXISTING CONDITIONS –WEEKDAY A.M AND P.M. PEAK HOURS

Regional Screenline/ Provider	a.m. Peak Hour Inbound Screenlines (to San Francisco)			p.m. Peak Hour Outbound Screenlines (from San Francisco)		
	Ridership	Capacity	Capacity Utilization[a]	Ridership	Capacity	Capacity Utilization
East Bay						
BART	**25,399**	**23,256**	**109.2%**	**24,488**	**22,784**	**107.5%**
AC Transit	1,568	2,829	55.4%	7,037	3,926	57.5%
Ferries	810	1,170	69.2%	5,337	1,615	49.8%
East Bay Subtotal	**27,777**	**27,255**	**101.9%**	27,549	28,325	97.3%
North Bay						
Buses	1,330	2,543	52.3%	1,384	2,817	49.1%
Ferries	1,082	1,959	55.2%	968	1,959	49.4%
North Bay Subtotal	2,412	4,502	53.6%	2,352	4,776	49.2%
South Bay						
BART	14,150	19,367	73.1%	13,500	18,900	71.4%
Caltrain	2,171	3,100	70.0%	2,377	3,100	76.7%
SamTrans	255	520	49.0%	141	320	44.1%
Ferries	0	0	0.0%	0	0	0.0%
South Bay Subtotal	16,576	22,987	72.1%	16,018	22,320	71.8%
Regional Total	46,765	54,744	85.4%	45,919	55,421	82.9%

NOTES:

[a] Capacity utilization exceeding 100 percent highlighted in **bold**.

SOURCE: SF Planning Department Memoranda, Transit Data for Transportation Impact Studies, May 2015 and Updated BART Regional Screenlines, October 2016.

There are no sidewalks on Humboldt Street or on 22nd Street east of Illinois Street. There are no traffic signals at the intersection of Illinois Street/22nd Street; however, marked crosswalks and curb ramps are provided. There are no sidewalks on either side of 22nd Street, east of Illinois Street. The intersection of Illinois Street/Humboldt Street is a T intersection, although it operates as a driveway with the east crosswalk of Illinois Street continuing through the intersection without a grade change. At this intersection there are no curb ramps or crosswalk markings. Humboldt Street currently primarily provides vehicular access to PG&E facilities and the project site, and there is very limited pedestrian activity on Humboldt Street.

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,[8] and all corners have ramps that comply with the Americans with Disabilities Act,[9] referred to as ADA

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[8] A leading pedestrian interval is a signal phase at signalized intersections that typically provides pedestrians a 3 to 5-second head start when entering an intersection with a corresponding green signal in the same direction of travel. For vehicle drivers the leading pedestrian intervals make it easier to see people walking in the intersection and reinforce their right-of-way over turning vehicles.

[9] The Americans with Disabilities Act (ADA) became law in 1990. The act is a civil rights law that prohibits discrimination against individuals with disabilities in all areas of public life, including jobs, schools, transportation, and all public and private places that are open to the general public (e.g., streets and sidewalks).

compliant ramps. On Third Street, the northbound light rail stop is located within the median north of 23rd Street, while the southbound light rail stop is located south of 23rd Street. East of Third Street, the walking network is incomplete, and many streets have missing or substandard sidewalks, limited crosswalks, and largely industrial or auto-centric land uses. Vehicles parked perpendicular to buildings often obstruct people walking through so individuals have to step off the sidewalk and walk in the travel lanes.

Counts of people walking within the crosswalks at the 30 study intersections (see Figure 4.E-1, p. 4.E-2, above) were conducted as part of the a.m. and p.m. peak period traffic volume counts conducted in October 2017 and April 2018. Walking activity near the project site is low, and is related primarily to employees and visitors to the various industrial and light industrial uses (e.g., trips to and from parked vehicles, deliveries). Near the project site, the volume of people walking is generally greater during the p.m. peak hour than during the a.m. peak hour, and ranges between three and 110 pedestrians per hour at the crosswalks at the study intersections near the project site. **Table 4.E-6**, **Pedestrian Crosswalk Volumes – Existing Conditions**, **A.M. and P.M. Peak Hours**, presents the volumes of people crossing at the study intersections nearest the project site; at the intersections of Third Street and Illinois Street with 22nd and 23rd streets. During both the a.m. and p.m. peak hours, there are many more people walking on Third Street than Illinois Street.

TABLE 4.E-6
PEDESTRIAN CROSSWALK VOLUMES – EXISTING CONDITIONS, WEEKDAY A.M. AND P.M. PEAK HOURS

Intersection/Crosswalk Location	a.m. Peak Hour Pedestrians per Hour	p.m. Peak Hour Pedestrians per Hour
Illinois Street/22nd Street		
North	13	35
South	3	23
East	9	14
West	28	31
Illinois Street/23rd Street		
North	34	18
South	15	10
East	13	12
West	15	26
Third Street/22nd Street		
North	45	111
South	35	86
East	42	90
West	38	104
Third Street/23rd Street		
North	32	41
South	10	35
East	30	46
West	12	52

NOTES:

[a] All pedestrian counts conducted in October 2017. All study intersection locations and volumes from a.m. and p.m. period counts included in Appendix C.

SOURCE: Adavant Consulting/Fehr & Peers/LCW Consulting, 2018.

Moderate concentrations of pedestrian volumes (i.e., around 20 to 100 pedestrians per hour) were also observed at bus stop locations and at the Third Street light rail station. Field observations conducted in March 2018 indicated no incidents of overcrowding on the sidewalks or at the platforms or bus stops near the project area.

Bicycle Conditions

The study area in the vicinity of the project site is flat, with minimal changes in grades, facilitating bicycling within and through the area. However, to the west of Pennsylvania Avenue, the change in grade associated with the Potrero Hill and the U.S. 101 freeway create discontinuities in the east-west roadway network. There are several bicycle routes near the project site. These include city routes that are part of the San Francisco Bicycle Network and regional routes that are part of the San Francisco Bay Trail system. **Figure 4.E-3**, **Existing Bicycle Network**, identifies the bicycle facilities within the study area. Bicycle facilities are typically classified as class I, class II, class III or class IV facilities.[10] Class I bikeways are bike paths with exclusive right-of-way for use by bicyclists and pedestrians. Class II bikeways are bicycle lanes striped within the paved areas of roadways and established for the preferential use of bicycles. They include a striped, marked and signed bicycle lane buffered from vehicle traffic. These facilities are located on roadways and reserve 4 to 5 feet of space exclusively for bicycle traffic. Class III bikeways are signed bicycle routes that allow bicyclists to share travel lanes with vehicles, and may include sharrow markings. A class IV bikeway is an exclusive bicycle facility that is separated and protected from vehicular traffic and parked cars by a buffer zone (sometimes referred to as a cycle track).

Class II bicycle lanes currently run both ways on Illinois Street and Terry A. Francois Boulevard. A pending realignment of Terry A. Francois Boulevard in 2018-2019 will include two-way protected bicycle lanes (class IV facility) on the east side of the street. Class II bicycle lanes also run on both sides of 16th Street between Illinois and Seventh streets. West of Seventh Street, the bicycle lanes shift to 17th Street via Mississippi Street. At completion of the Chase Center project (i.e., Warriors arena) in 2019, a class II bicycle lane will be provided in each direction of 16th Street between Illinois Street and Terry A. Francois Boulevard.

As shown on Figure 4.E-3, class III facilities (shared lane bicycle routes) are located on portions of Mariposa, Indiana, 23rd, and Minnesota streets. The SFMTA, as part of the Central Indiana Bikeway Connection Project, will be implementing improvements to bicycle facilities on Indiana Street in 2018 to provide protected bicycle facilities (see "Cumulative Transportation Network Changes" p. 4.E-54 under "Approach to Analysis," below). In addition, a class III facility is provided on Cesar Chavez Street between Illinois and Third streets, and class II bicycle lanes or class IV protected bikeways are provided on Cesar Chavez Street west of Third Street.

Figure 4.E-3 also shows the San Francisco Bay Trail. The San Francisco Bay Trail is designed to create recreational pathway links to the commercial, industrial and residential neighborhoods that abut 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

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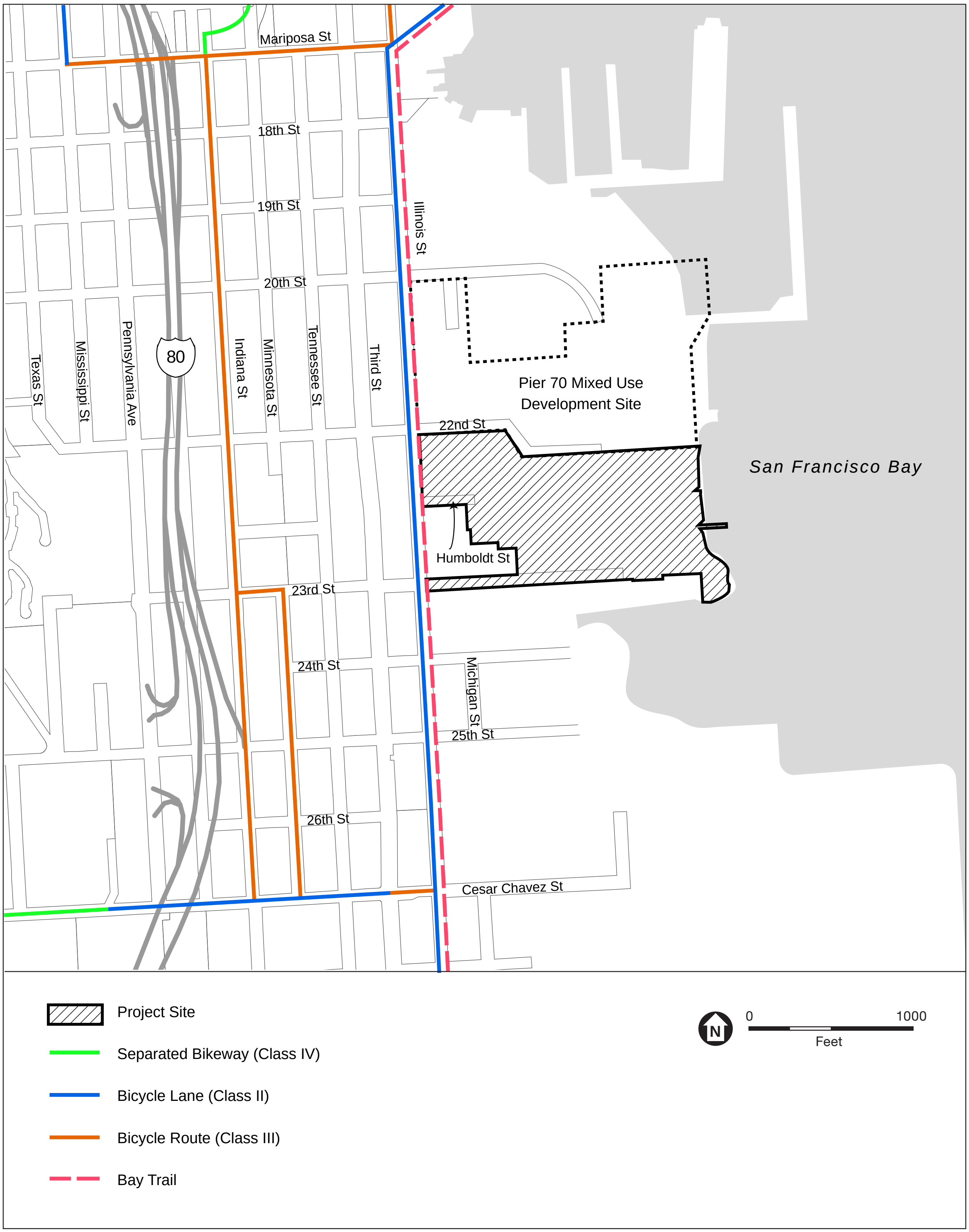
[10] Bicycle facilities are defined by the State of California in the California Streets and Highway Code section 890.4.



SOURCE: SFMTA, 2018

Figure 4.E-3
Existing Bicycle Network

and wildlife preserves. At various locations, the Bay Trail consists of paved multi-use paths, dirt trails, bicycle lanes, sidewalks or city streets signed as bicycle routes. In the project vicinity, the Bay Trail currently runs as an on-street segment along Illinois Street between Cargo Way and Terry A. Francois Boulevard, where it continues north as a paved path along the shoreline within the area currently being developed as part of the Mission Bay Plan as the Bayfront Park.

Table 4.E-7, **Bicycle Volumes – Existing Conditions, A.M. and P.M. Peak Hours**, presents the existing hourly bicycle volumes on streets in the study area. Bicycle volume counts were conducted at the 30 study intersections during the a.m. and p.m. peak periods in October 2017 and April 2018. Near the project site, the highest bicycle volumes during the peak hours were observed within the bicycle lanes on Illinois Street (between 10 and 60 bicyclists per hour in each direction), although some bicyclists were observed riding on the sidewalks and within the mixed-flow lanes of Third Street (between four and 16 bicyclists per hour in each direction). Existing bicycle volumes on 23rd Street east of Illinois Street are very low (fewer than five bicyclists during the peak hours). In general, bicycle conditions were observed to be operating at acceptable conditions, however, existing construction activities on Illinois Street as part of the SFMTA Mission Bay Loop project (anticipated to be completed by 2019) impeded bicycle travel through the construction zone.

TABLE 4.E-7
BICYCLE VOLUMES – EXISTING CONDITIONS, WEEKDAY A.M. AND P.M. PEAK HOURS

Segment	a.m. Peak Hour Bicyclists per hour	p.m. Peak Hour Bicyclists per hour
Illinois Street between 20th and 22nd Streets		
Northbound	63	28
Southbound	14	47
Illinois Street between Humboldt and 23rd Streets		
Northbound	62	23
Southbound	13	48
Illinois Street between 24th and 25th Streets		
Northbound	58	21
Southbound	12	41
Third Street between 22nd and 23rd Streets		
Northbound	4	4
Southbound	10	14
Indiana Street between 22nd and 23rd Streets		
Northbound	19	8
Southbound	8	15
Indiana Street between 23rd and 25th Streets		
Northbound	20	6
Southbound	0	5
23rd Street east of Illinois Street		
Westbound	1	2
Eastbound	3	0

NOTES:

[a] All bicycle counts conducted in October 2017. All study intersection locations and volumes from a.m. and p.m. period counts included in Appendix C.

SOURCE: Adavant Consulting/Fehr & Peers/LCW Consulting, 2018.

There are no on-street (i.e., class 2 bicycle parking) bicycle racks on 23rd Street or on the east side of Illinois Street adjacent to the project site. On the west side of Illinois Street, and on 22nd Street between Third and Illinois streets, there are a few bicycle racks. On Third Street there are bicycle racks on the sidewalk, as well as a bicycle corral within the parking lane at the entrance to the Museum of Craft and Design at 2501 Third Street. The closest bike share stations are located at the Caltrain station at 22nd and Iowa streets, and at Esprit Park at 19th and Minnesota streets.

Loading Conditions

Commercial Vehicle Loading

Commercial loading activities for existing land uses on the project site occur within the site and are not conducted on-street on 23rd Street or Illinois Street. The project site is currently fenced, and gated access is provided about 900 feet east of Illinois Street.

There are no marked on-street commercial loading spaces on 23rd Street east of Illinois Street. However, on the south side of the street, east of where 90-degree on-street parking is currently permitted, there are loading docks fronting 23rd Street for the Storage San Francisco and the DHL Express facilities. Here the docks are flush with the outside wall of the building, and trucks park perpendicular to the building. During daytime field surveys, some trucks were observed to utilize these docks; however, trucks were also observed entering the onsite parking area and accessing the facilities from within the sites. Trucks were also observed parking parallel to the loading docks with loading/unloading activities occurring adjacent to the docks.

On Illinois Street, there are no on-street commercial loading spaces on either side of the street between 22nd and 23rd streets. On the west side of the street between 22nd and 23rd streets, there are 11 loading bays primarily serving the ground floor tenants within the south building of the American Industrial Center, a large, multi-tenant light industrial building that occupies the majority of the block bounded by 22nd, Illinois, 23rd, and Third streets. These bays are interior to the building. Larger trucks are not always accommodated with the bay, and trucks extend partially onto the sidewalk, although they do not impede pedestrian travel on the sidewalk (sidewalks are about 14 feet wide). On the southern portion of the block there is an accessory surface parking facility for the American Industrial Center for private vehicle parking and vehicle parking and staging for tenants of the building. There are also off-street loading docks primarily serving the upper floors of the building. These loading docks accommodate larger trucks (e.g., semi-tractor trailers) and access to the off-street loading area is from Illinois Street.

On Third Street in the vicinity of the project site, on-street parking is limited, and on-street commercial loading spaces are not provided. The American Industrial Center building has some off-street loading docks with access from Third Street, but their number and use are limited. To the west of Third Street, the area is substantially industrial, and loading activities occur within the structures, within the off-road areas adjacent to the buildings, and on-street.

Passenger Loading

There are no on-street passenger loading/unloading zones adjacent to or near the project site.

Parking Conditions

Existing on-street parking supply and occupancy were examined within the parking study area bounded by 20th Street to the north, Indiana Street to the west, 25th Street to the south, and San Francisco Bay to the east. Surveys were conducted in October 2017 for weekday midday (12 p.m. to 2 p.m.) and evening (6 p.m. to 8 p.m.) conditions. **Table 4.E-8**, **Parking Study Area On-Street Parking Supply and Occupancy**, presents the summary of on-street parking supply and occupancy by block. Detailed parking supply and occupancy information are included in Appendix C. Overall, there are about 1,600 on-street parking spaces within the parking study area, of which about 75 percent were generally unrestricted at the time of the surveys. On some streets overnight parking is not permitted. The average on-street parking occupancy for the parking study area is about 84 percent during the midday period, and it decreases to about 55 percent during the evening period.

TABLE 4.E-8
PARKING STUDY AREA ON-STREET PARKING SUPPLY AND OCCUPANCY

	Supply	Midday		Evening	
Study Area Street[a]	**Spaces**	**Occupied**	**%**	**Occupied**	**%**
20th Street	84	66	79%	50	60%
22nd Street	135	124	92%	78	58%
23rd Street	214	170	79%	90	42%
24th Street	116	94	81%	53	46%
25th Street	98	75	77%	27	28%
Indiana Street	156	138	88%	105	67%
Minnesota Street	220	180	82%	103	47%
Tennessee Street	237	210	89%	161	68%
Third Street	100	80	80%	64	64%
Illinois Street	177	168	95%	117	66%
Michigan Street	41	28	68%	15	37%
Total	**1,578**	**1,333**	**84%**	**863**	**55%**

NOTES
[a] Parking study area bounded by 20th Street, Indiana Street, 25th Street, and San Francisco Bay. Surveys conducted in October 2017.
SOURCE: Adavant Consulting/Fehr & Peers/LCW Consulting, 2018.

The SFMTA recently implemented the Dogpatch Parking Management Plan.[11] Elements of the plan included revisions to on-street parking regulations and time limits, as well as creation of a new Residential Permit Parking Area "EE" that was created to expand the existing Residential Permit Parking Area "X". **Figure 4.E-4**, **Existing On-Street Parking Regulations**, presents the current on-street parking regulations implemented as part of the Dogpatch Parking Management Plan. Near the project site, general parking is permitted on Illinois and Third streets, however, with a four-hour time

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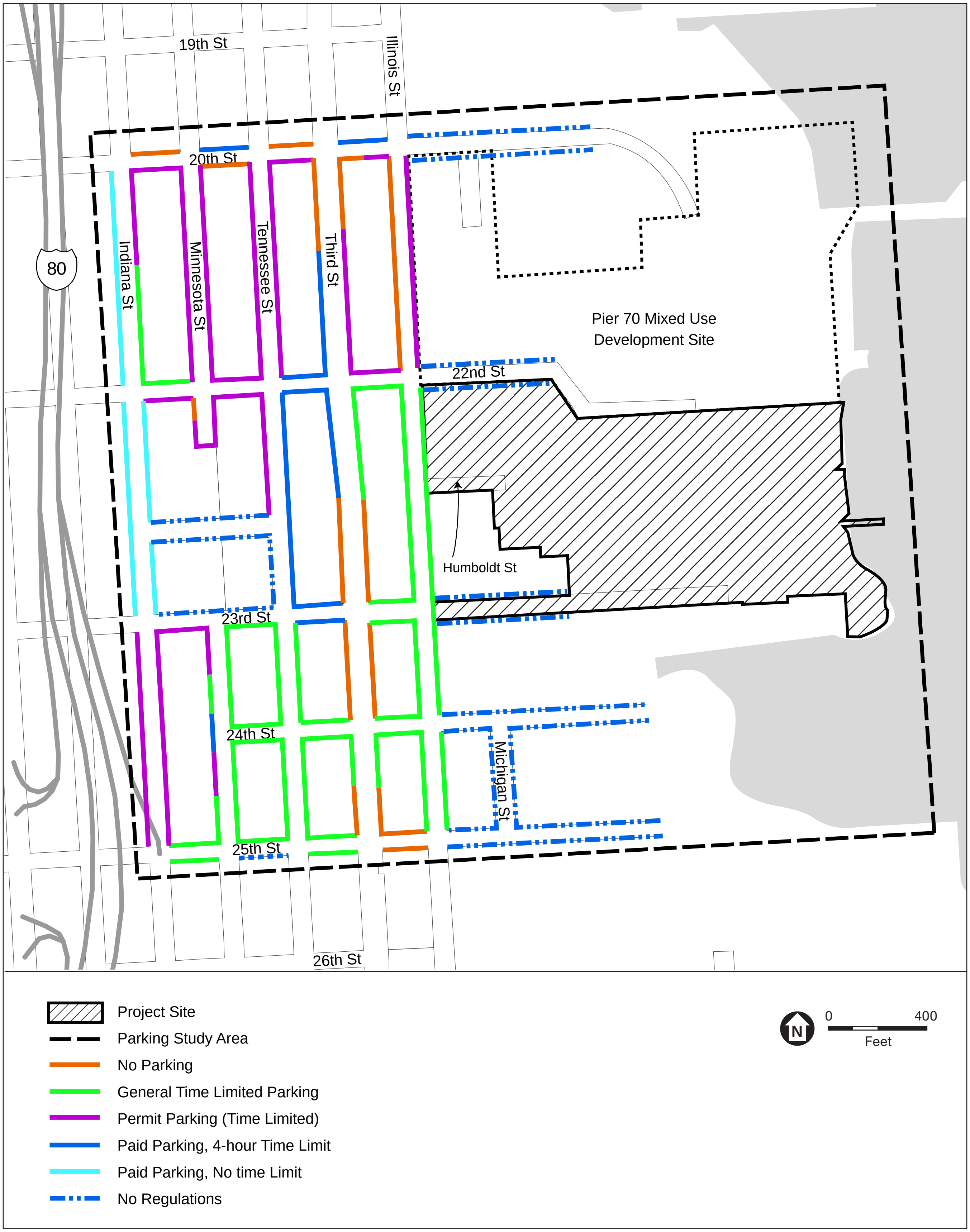
[11] The Dogpatch Parking Management Plan was approved by the SFMTA Board on April 17, 2018. The signs and meters were installed in August 2018, and enforcement began in September 2018. Email from Kathryn Studwell, SFMTA Program Manager, Residential Parking Policy, Sustainable Streets to Luba Wyznyckyj, LCW Consulting, August 16, 2018.



SOURCE: SFMTA, 2018

Potrero Power Station Mixed-Use Development Project

Figure 4.E-4
Existing On-Street Parking Regulations

limit. It is anticipated that with implementation of the new regulations, vehicles would be parked for shorter periods, which will increase the number of spaces available for short-term parking throughout the day, by promoting more vehicle turnover. Therefore, the parking occupancies identified in Table 4.E-8 above could be lower on some streets.

Within the parking study area, there is one off-street public parking facility located on the southeast corner of the intersection of Illinois Street/20th Street. This surface parking lot contains about 175 parking spaces, and during field surveys in April 2018, was about 95 percent occupied during the weekday midday period and less than 60 percent occupied during the evening period. This parking lot is within the Pier 70 Mixed-Use District project site and will be removed once construction for the Pier 70 development starts. In addition to this off-street public parking facility, there are a number of private off-street surface parking lots supporting the industrial uses in the area.

Emergency Access Conditions

The project site has frontages on three streets – 23rd Street, Illinois Street, and 22nd Street. Emergency access to the project site via 22nd, Humboldt, and 23rd streets is primarily from Third Street, which has two travel lanes each way, and from Illinois Street, which has one travel lane each way. The nearest fire stations to the project site are: Station 25 at Third Street and Cargo Way (about 0.7 mile south of the project site), Station 4 at Mission Rock Street between Third Street and Terry A. Francois Boulevard (about 1.2 miles north of the project site), Station 29 at 299 Vermont Street between 15th and 16th streets (about 1.3 miles northwest of the project site), and Station 37 at Wisconsin Street at 22nd Street (about 0.7 mile west of the project site). The project site is located within the Bayview Police District, and the Bayview station is located at 201 Williams Avenue (about 2.0 miles southwest of the project site).

4.E.3 Regulatory Framework

This section summarizes the plans and policies of the City and County of San Francisco and regional and state agencies that have policy and regulatory control over the project site. There are no federal regulations that address transportation impacts associated with the project.

State Regulations

CEQA Section 21099(b)(1) (Senate Bill 743)

CEQA section 21099(b)(1) requires 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 greenhouse gas 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 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.[12] On March 3, 2016, based on compelling evidence in that document and on the City'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). (Note: The VMT metric does not apply to the analysis of impacts on non-automobile modes of travel such as riding transit, walking, and bicycling.)

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 (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.

Local Regulations and Plans

Transit First Policy

In 1998, the San Francisco voters amended the City Charter (charter article 8A, section 8A.115) to include a Transit First Policy, which was first articulated as a City priority policy by the San Francisco Board of Supervisors in 1973. The Transit First Policy is a set of principles that underscore the City's commitment that travel by transit, bicycle, and foot be given priority over the private automobile. These principles are embodied in the policies and objectives of the Transportation Element of the San Francisco General Plan. All City boards, commissions, and departments are required, by law, to implement transit-first principles in conducting City affairs.

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[12] OPR, *Revised Proposal on Updates to the CEQA Guidelines on Evaluating Transportation Impacts in CEQA, Implementing Senate Bill 743 (Steinberg, 2013)*, January 20, 2016.

Vision Zero Policy

Vision Zero is San Francisco's road safety policy.[13] The City adopted Vision Zero as a policy in 2014, committing to build better and safer streets, educate the public on traffic safety, enforce traffic laws, and adopt policy changes that save lives. The objective is to create a culture that prioritizes traffic safety and to ensure that mistakes on roadways do not result in serious injuries or death. The goal of this collaborative citywide effort will be safer, more livable streets as San Francisco works to eliminate traffic fatalities by 2024.

San Francisco General Plan

The Transportation Element of the San Francisco General Plan is composed of objectives and policies that relate to the eight aspects of the citywide transportation system: General Regional Transportation, Congestion Management, Vehicle Circulation, Transit, Pedestrian, Bicycles, Citywide Parking, and Goods Management. The Transportation Element references San Francisco's Transit First Policy in its introduction and contains objectives and policies that are directly pertinent to consideration of the proposed project, including objectives related to locating development near transit investments, encouraging transit use, and traffic signal timing to emphasize transit, pedestrian, and bicycle traffic as part of a balanced multimodal transportation system. The San Francisco General Plan also emphasizes alternative transportation through positioning of building entrances, making improvements to the pedestrian environment, and providing safe bicycle parking facilities.

Objectives and policies in the Transportation Element that pertain to the proposed project include the following:

- **Objective 2:** Use the transportation system as a means for guiding development and improving the environment.

  ***Policy 2.1*:** Use rapid transit and other transportation improvements in the city and region as the catalyst for desirable development and coordinate new facilities with public and private development.

  ***Policy 2.4*:** Organize the transportation system to reinforce community identity, improve linkages among interrelated activities, and provide focus for community activities.

  ***Policy 2.5*:** Provide incentives for the use of transit, carpools, vanpools, walking, and bicycling and reduce the need for new or expanded automobile and automobile parking facilities.

  ***Policy 2.6*:** Provide for a balanced, multimodal transportation system that is consistent with the planned land use and the local and regional transportation system.

- **Objective 8**: Maintain and enhance regional pedestrian, hiking, and biking access to the coast, the Bay, and ridge trails.

  ***Policy 8.1*:** Ensure that the Coast Trail, Bay Trail, and Ridge Trail remain uninterrupted.

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[13] Additional information on Vision Zero available at *http://visionzerosf.org/about/what-is-vision-zero/*.

Policy 8.2: Clearly identify the citywide pedestrian and bicycle networks where they intersect with the Coast, Bay, and Ridge Trails.

- **Objective 11:** Establish public transit as the primary mode of transportation in San Francisco and as a means through which to guide future development and improve regional mobility and air quality.

  Policy 11.3**:** Encourage development that efficiently coordinates land use with transit service, requiring that developers address transit concerns as well as mitigate traffic problems.

- **Objective 14:** Develop and implement a plan for operational changes and land use policies that will maintain mobility and safety, despite a rise in travel demand that could otherwise result in system capacity deficiencies.

  Policy 14.2**:** Ensure that traffic signals are timed and phased to emphasize transit, pedestrian, and bicycle traffic as part of a balanced multimodal transportation system.

  Policy 14.3**:** Improve transit operation by implementing strategies that facilitate and prioritize transit vehicle movement and loading.

  Policy 14.4**:** Reduce congestion by encouraging alternatives to the single-occupancy auto through the reservation of right-of-way and enhancement of other facilities dedicated to multiple modes of transportation.

  Policy 14.7**:** Encourage the use of transit and other alternative modes of travel to the private automobile through the positioning of building entrances and the convenient location of support facilities that prioritizes access from these modes.

- **Objective 16:** Develop and implement programs that will efficiently manage the supply of parking at employment centers throughout the city so as to discourage single-occupant ridership and encourage ridesharing, transit and other alternatives to the single-occupant automobile.

  Policy 16.1**:** Reduce parking demand through the provision of comprehensive information that encourages the use of alternative modes of transportation.

  Policy 16.5**:** Reduce parking demand through limiting the absolute amount of spaces and prioritizing the spaces for short-term and ride-share uses.

  Policy 16.3: Reduce parking demand through the provision of incentives for the use of carpools and vanpools at new and existing parking facilities throughout the City.

  Policy 16.6**:** Encourage alternatives to the private automobile by locating public transit access and ride-share vehicle and bicycle parking at more close-in and convenient locations on-site, and by locating parking facilities for single-occupant vehicles more remotely.

- **Objective 19:** Establish a street hierarchy system in which the function and design of each street are consistent with the character and use of the adjacent land.

  Policy 19.2**:** Design streets for a level of traffic that serves, but will not cause a detrimental impact on, adjacent land uses or eliminate the efficient and safe movement of transit vehicles and bicycles.

  Policy 19.5**:** Mitigate and reduce impacts of automobile traffic in and around parks and along shoreline recreation area.

- **Objective 24:** Improve the city's pedestrian circulation system to provide for efficient, pleasant, and safe movement.

  ***Policy 24.1*:** Every surface street in San Francisco should be designed consistent with the Better Streets Plan for safe and convenient walking, including sufficient and continuous sidewalks and safe pedestrian crossings at reasonable distances to encourage access and mobility for seniors, people with disabilities and children.

  ***Policy 24.2*:** Widen sidewalks where intensive commercial, recreational, or institutional activity is present and where residential densities are high.

  ***Policy 24.3*:** Maintain a strong presumption against reducing sidewalk widths, eliminating crosswalks, and forcing indirect crossings to accommodate automobile traffic.

  ***Policy 24.6*:** Ensure convenient and safe pedestrian crossings by minimizing the distance pedestrians must walk to cross a street.

- **Objective 25:** Improve the ambiance of the pedestrian environment.

  Policy 25.2: Maintain and expand the planting of street trees and the infrastructure to support them.

  ***Policy 25.3*:** Install pedestrian-serving street furniture where appropriate.

- **Objective 29:** Ensure that bicycles can be used safely and conveniently as a primary means of transportation, as well as for recreational purposes.

  ***Policy 29.5*:** Make available bicycle route and commuter information and encourage increased use of bicycle transportation.

  ***Policy 29.8*:** Encourage biking as a mode of travel through the design of safer streets. Educational programs and targeted enforcement.

  ***Policy 29.9*:** Identify and expand recreational bicycling opportunities.

- **Objective 30:** Provide secure and convenient parking facilities for bicycles.

  ***Policy 30.1*:** Provide secure bicycle parking in new governmental, commercial, and residential developments.

  ***Policy 30.3*:** Provide parking facilities which are safe, secure, and convenient.

- **Objective 32:** Ensure that the provision of new or enlarged parking facilities does not adversely affect the livability and desirability of the city and its various neighborhoods.

  ***Policy 32.1*:** Assure that new or enlarged parking facilities meet need, locational, and design criteria.

  ***Policy 32.5*:** In any large development, allocate a portion of the provided off-street parking spaces for compact automobiles, vanpools, bicycles, and motorcycles commensurate with standards that are, at a minimum, representative of their proportion of the city's vehicle population.

  ***Policy 32.8*:** Consider lowering the number of automobile parking spaces required in buildings where class 1 bicycle parking is provided.

- **Objective 36:** Relate the amount of parking in residential areas and neighborhood commercial districts to the capacity of the city's street system and land use patterns.

> ***Policy 36.1*****:** Regulate off-street parking in new housing so as to guarantee needed spaces without requiring excesses and to encourage low auto ownership in neighborhoods that are well served by transit and are convenient to neighborhood shopping.
>
> ***Policy 36.3*****:** Permit minimal or reduced off-street parking for new buildings in residential and commercial areas adjacent to transit centers and along transit preferential street.

- **Objective 37:** Meet short-term parking needs in neighborhood shopping districts consistent with preservation of a desirable environment for pedestrians and residents.

> ***Policy 37.1*****:** Provide convenient on-street parking specifically designed to meet the needs of shoppers dependent upon automobiles.
>
> ***Policy 37.2*****:** Assure that new neighborhood shopping district parking facilities and other auto-oriented uses meet established guidelines.

- **Objective 42:** Enforce a parking and loading strategy for freight distribution to reduce congestion affecting other vehicle traffic and adverse impacts on pedestrian circulation.

> ***Policy 42.1*****:** Provide off-street facilities for freight loading and service vehicle on the site of new buildings sufficient to meet the demands generated by the intended uses. Seek opportunities to create new off-street loading facilities for existing buildings.
>
> ***Policy 42.4*****:** Driveways and curb cuts should be designed to avoid maneuvering on sidewalks or in street traffic, and when crossing sidewalks, they should only be as wide as necessary to accomplish this function.
>
> ***Policy 42.5*****:** Loading docks and freight elevators should be located conveniently and sized sufficiently to maximize the efficiency of loading and unloading activity and to discourage deliveries into lobbies or ground floor locations except at freight-loading spaces.
>
> ***Policy 42.8*****:** Provide limited curbside loading spaces to meet the need for short-term courier deliveries/pickup.

The Central Waterfront Area Plan of the San Francisco General Plan includes objectives and policies specific to the changing neighborhood, including to:

- Improve public transit to better serve existing and new development in the Central Waterfront.
- Increase transit ridership by making it more comfortable and easier to use.
- Establish parking policies that improve the quality of neighborhoods and reduce congestion and private vehicle trips by encouraging travel by non-auto modes.
- Support the circulation needs of existing and new PDR and maritime uses in the Central Waterfront.
- Consider the street network in the Central Waterfront as a city resource essential to multimodal movement and public open space.
- Support walking and bicycling as key transportation modes by improving walking and bicycling circulation.
- Encourage alternatives to car ownership and the reduction in private vehicle trips.
- Facilitate movement of autos while striving to reduce the negative impact of vehicles.

San Francisco Bicycle Plan

The San Francisco Bicycle Plan describes a City program to provide the safe and attractive environment needed to promote bicycling as a transportation mode. The San Francisco Bicycle Plan identifies the citywide bicycle route network and establishes the level of treatment (i.e., class I, class II or class III facility) on each route. The bicycle plan also identifies near-term improvements that could be implemented within the five years after plan adoption, as well as policy goals, objectives and actions to support these improvements. It also includes long-term improvements and minor improvements that would be implemented to facilitate bicycling in San Francisco.

Better Streets Plan

The San Francisco Better Streets Plan (Better Streets Plan) focuses on creating a positive pedestrian environment through measures such as careful streetscape design and traffic calming measures to increase pedestrian safety. The Better Streets Plan includes guidelines for the pedestrian environment, which it defines as the areas of the street where people walk, sit, shop, play, or interact. Generally, the guidelines are for design of sidewalks and crosswalks; however, in some cases, the Better Streets Plan includes guidelines for certain areas of the roadway, particularly at intersections.

San Francisco Regulations for Working in San Francisco Streets (Blue Book)

The San Francisco Regulations for Working in San Francisco Streets (the Blue Book) contains regulations that are prepared and regularly updated by the San Francisco Municipal Transportation Agency (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 pedestrians, bicycle, 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. 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 shall be held accountable and responsible if such controls do not meet the guidance and requirements established by this manual and any applicable state requirements.

San Francisco Transportation Sector Climate Action Strategy

With the passage of Proposition A in 2007, SFMTA was directed to develop a Climate Action Strategy every two years that identifies the climate action strategies and describes the progress towards reducing greenhouse gas emissions from the transportation sector. The 2017 Transportation Sector Climate Action Strategy meets the 2007 directive by identifying seven climate mitigation program areas which contain a diverse array of implementable actions that aim to reduce greenhouse gas emissions across the sector and five climate adaption program area that provide the framework for building a more resilient transportation system. The Strategy contains a mode share goal of shifting 80 percent of all trips to environmentally sustainable modes by 2030. The 2017 Transportation Sector Climate Action Strategy supports the Department of the Environment's Climate Action Strategy, which includes goals to source 100 percent of electricity from renewable sources, make 80 percent of all trips outside of personal vehicles, and achieve San Francisco's zero waste goal.

Transportation Demand Management Ordinance

In January 2017, the San Francisco Board of Supervisors approved an amendment to the City's Planning Code requiring most new development projects in San Francisco to incorporate "design features, incentives, and tools" intended to reduce VMT. New development projects meeting the applicability requirement are required to choose measures from a menu of options to develop an overall Transportation Demand Management (TDM) plan. Each development project's TDM plan require routine monitoring and reporting to the planning department to demonstrate compliance.

4.E.4 Impacts and Mitigation Measures

Significance Criteria

The criteria for determining the significance of impacts in this analysis are consistent with the environmental checklist in Appendix G of the CEQA Guidelines, as modified by the San Francisco Planning Department. For the purpose of this analysis, the following questions were used to determine whether implementing the project would result in a significant impact on transportation and circulation. Implementation of the proposed project would have a significant effect on transportation and circulation if the project would:

- Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit;
- Conflict with an applicable congestion management program, including but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways;
- Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks;
- Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses;
- Result in inadequate emergency access; or
- Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

As discussed above in Section 4.E.3, Regulatory Framework, under "State Regulations," beginning on page 4.E-4.E-21 the San Francisco Planning Commission replaced automobile delay (vehicle level of service) with the VMT criteria (resolution 19579). Accordingly, this analysis does not contain a discussion of automobile delay impacts. Instead, a VMT and induced automobile travel impact analysis is provided.

As part of implementing CEQA requirements within San Francisco, the City uses the following significance criteria, organized by transportation mode to facilitate the transportation analysis and address the aforementioned questions. The transportation significance criteria are similar to those in Appendix G of the CEQA Guidelines as listed above, except for the criteria related to traffic hazards and VMT. The criteria are as follows:

- **Vehicle Miles Traveled (VMT)**
  - The project would have a significant effect on the environment if it would cause substantial additional VMT.
  - The project would have a significant effect on the environment if it would substantially induce additional automobile travel by increasing physical roadway capacity in congested areas (i.e., by adding new mixed-flow travel lanes) or by adding new roadways to the network.
- **Traffic Hazards.** The project would have a significant effect on the environment if it would cause major traffic hazards.
- **Transit.** The project would have a significant effect on the environment if it would cause a substantial increase in transit demand that could not be accommodated by adjacent transit capacity, resulting in unacceptable levels of transit service; or cause a substantial increase in operating costs or delays such that significant adverse impacts in transit service levels could result.
- **Walking/Accessibility.** The project would have a significant effect on the environment if it would create potentially hazardous conditions for people walking, or otherwise interfere with accessibility of people walking to and from the project site and adjoining areas.
- **Bicycles.** The project would have a significant effect on the environment if it would create potentially hazardous conditions for bicyclists or otherwise substantially interfere with bicycle accessibility to the site and adjoining areas.
- **Loading.** The project would have a significant effect on the environment if it would result in a loading demand during the peak hour of loading activities that could not be accommodated within the proposed onsite off-street loading facilities or within convenient on-street loading zones, and if it would create potentially hazardous conditions affecting traffic, transit, bicycles, or pedestrians, or significant delays affecting transit.
- **Parking.** A project would have a significant effect on the environment if it would result in a substantial parking deficit that could create hazardous conditions affecting traffic, transit, bicycles or pedestrians, or significant delays affecting transit and where particular characteristics of the project or its site demonstrably render use of other modes infeasible.
- **Emergency Access.** A project would have a significant effect on the environment if it would result in inadequate emergency access.
- **Construction.** Construction of the project would have a significant effect on the environment if, in consideration of the project site location and other relevant project characteristics, the

temporary construction activities' duration and magnitude would result in substantial interference with pedestrian, bicycle, or vehicle circulation and accessibility to adjoining areas thereby resulting in potentially hazardous conditions.

Approach to Analysis

Due to the location of the project site, there would be no impact related to the following question, for the reasons described below:

- ***Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks.*** The project site is not located in sufficient proximity to an airport nor would it involve any air traffic. Therefore, the project would not result in a change in air traffic patterns and would not affect air traffic safety risks, and consequently, this question is not discussed further in this environmental impact report (EIR).

Project Features

Environmental impacts related to transportation and circulation could result from implementation of many of the proposed project elements described in Chapter 2, Project Description. This section further describes those features of the proposed project that relate to the transportation and circulation impact analysis. Chapter 2, Project Description, summarizes the elements of the project description related to transportation features (e.g., onsite vehicle and bicycle parking spaces and truck loading spaces) and circulation improvements, including street network design and onsite circulation, pedestrian and bicycle access, offsite streetscape improvements, provision of a shuttle service, and the project Transportation Demand Management Plan (TDM plan); these elements are re-iterated and expanded upon in this section. The project's proposed TDM plan is included in its entirety in Appendix C**.** The project transportation features (including construction of the proposed street network, and pedestrian, transit, and bicycle facilities) would be constructed in phases in conjunction with project buildout.

Roadway Network Improvements

The proposed project includes buildout of the roadway network within the project site. Figure 2-10, Proposed Street Type Plan, p. 2-26 in Chapter 2, Project Description, presents the proposed street network plan. The primary north-south streets would include Georgia, Maryland, and Delaware streets. Georgia Street would connect to 22nd Street to the north. Maryland Street would connect at grade to a planned extension of Maryland Street within the planned Pier 70 Mixed-Use District project site to the north. Louisiana Street would extend north from Humboldt Street, and may or may not ultimately continue into the Pier 70 site. Louisiana and Delaware streets would connect to, and terminate at, Craig Lane - a proposed one-way westbound service lane along the north boundary of the project site, straddling the property line with the Pier 70 Mixed-Use District project. To the south, Georgia Lane, and Maryland and Delaware streets would connect to, and terminate at, 23rd Street. Humboldt Street, Maryland Street, Delaware Street south of Humboldt Street, and Georgia Street north of Humboldt Street are proposed as neighborhood commercial streets; and 23rd Street is proposed as a mixed-use street. Louisiana Street and Delaware Street north of Humboldt Street are proposed as shared streets or alleys.[14] Georgia Lane and Craig Lane are proposed as alleys. All streets would be designed consistent with the San Francisco Better Streets Plan standards.[15]

All streets would be two-way with a single travel lane each way, with the exception of Craig Lane, which would be one-way westbound. Streets would have sidewalks ranging from 10 to 19 feet wide. Alleys (Delaware Street north of Humboldt Street, Louisiana Street, Craig Lane, and Georgia Lane) would have sidewalks ranging from 4 to 9 feet wide. As noted above, Louisiana Street and Delaware Street north of Humboldt Street would be shared streets or alleys. Appendix C illustrates the proposed cross-sections for the project streets.

Outside of the project site, the intersections of Illinois Street/23rd Street (currently stop-controlled at the eastbound and westbound approaches to the intersection) and Illinois Street/Humboldt Street (a T intersection with Humboldt Street functioning as a driveway) would be signalized as part of the proposed project.

Transit Network Improvements

The proposed project includes a curbside bus layover facility that would include a bathroom facility nearby for drivers in the event that at some point in the future a Muni bus route is extended into the project site. The location and length of this facility was determined in consultation with the SFMTA. The bus layover would be located on the north side of 23rd Street between Maryland and Delaware streets, and would accommodate two transit vehicles (i.e., two standard 40-foot buses).

The proposed project includes implementation of a transit shuttle service, with service between 7 a.m. and 8 p.m., and with minimum service of 15-minute intervals during weekday morning and evening peak periods (7 a.m. to 9 a.m. and 4 p.m. to 6 p.m., respectively).

The shuttle service would provide access between the project site, the 22nd Street Caltrain station, and the 16th Street BART station. As shown on Figure 2-14, Proposed Transit Shuttle Plan, p. 2-32 in Chapter 2, Project Description, shuttle service would initially be provided along 23rd Street, with a stop at the bus layover facility on 23rd Street.[16] When the proposed project roadway network connects with the planned Pier 70 Mixed-Use District project's street network, it may be possible to connect the project's shuttle service with the shuttle service that the Pier 70 Mixed-Use District project will provide. The proposed shuttle service is included as part of the impact analysis presented below.

The integrated roadway networks would also allow for extension of Muni bus service into the proposed project site and Pier 70 Mixed-Use District project site. Figure 2-13, Preliminarily Proposed Transit Bus Plan, p. 2-31 in Chapter 2, Project Description, presents potential routing within the sites, with a bus stop within the Pier 70 Mixed-Use District project site and a stop at the

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[14] A shared street is a street that minimizes the segregation between modes of travel (e.g., vehicles, people walking, bicyclists, and other modes). Shared streets have low vehicle travel speed and volumes, and reinforce their shared nature through materials and targeted design enhancements.

[15] San Francisco Better Streets Plan, adopted December 2010.

[16] The project sponsor has also considered alternate locations for the shuttle service stop on Humboldt Street and Delaware Street. See Appendix C for map of alternate shuttle service stop locations.

proposed bus layover facility on 23rd Street. While the proposed project is designed to accommodate Muni bus service on Maryland, Humboldt, Delaware and 23rd streets, service into the site is not proposed as part of the proposed project, and is not included as part of the impact analysis.

Pedestrian Network Improvements

All streets within the project site would include sidewalks, with sidewalk widths ranging from 10 to 19 feet, as shown on Figure 2-12, Proposed Pedestrian Network, p. 2-30 in Chapter 2, Project Description. As shown in Figure 2-12, the project would also reconstruct the existing sidewalk on the east side of Illinois Street, between Humboldt Street and 22nd Street, to comply with the Better Streets Plan. Delaware Street north of Humboldt Street, Louisiana Street, Craig Lane, and Georgia Lane (with a Better Streets Plan street classification as alleys) would have sidewalks ranging from 4 to 9 feet wide. At intersections within the project site, the project would provide curb extensions (i.e., bulbouts) consistent with the Better Streets Plan.

Within the project site, raised street segments[17] are proposed on Humboldt, Maryland, and Delaware streets adjacent to the Waterfront Park to provide additional traffic calming and pedestrian priority in areas where more intensive pedestrian activities are anticipated to occur. Within the raised street areas, specific crosswalk locations are proposed to designate where pedestrians have priority to cross. The vehicle travel zones would be delineated from the pedestrian areas by 4-inch curbs. Additionally, other vertical elements such as street trees or street furniture would delineate between the pedestrian and vehicle zones.

At the intersections of Illinois Street/23rd Street and Illinois Street/Humboldt Street, where new traffic signals are proposed, the project would install crosswalks with the continental design and pedestrian countdown signals.

Bicycle Network Improvements

The proposed project would include bicycle facilities connecting the existing and planned network of bicycle facilities near the project. These are designed to allow for safe bicycling throughout the project site. As shown on Figure 2-11, Proposed Bicycle Facilities Plan, p. 2-28 in Chapter 2, Project Description, the proposed project would include bicycle lanes on 23rd Street, the primary east-west street in the project site, extending between Illinois Street and the waterfront. On the north side of the street, a parking protected 5-foot wide bicycle lane (class IV facility) would be provided along the entire stretch between Illinois Street and the waterfront, while on the south side of the street a 5-foot wide parking protected bicycle lane would be provided between Illinois Street and Georgia Lane (i.e., a class IV facility), and which would transition to a 5-foot wide class II bicycle lane to the east (i.e., between Georgia Lane and the waterfront). Maryland Street would include northbound and southbound 5-foot wide class II bicycle lanes, while Georgia Lane would include a 6-foot wide class II bicycle lane in the northbound direction and a class III shared lane bicycle route in the southbound direction. Class III shared facilities would also be provided on Delaware, Humboldt,

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[17] Raised street segments, or speed tables, are midblock traffic calming devices that raise the entire wheelbase of a vehicle to reduce its travel speed. Speed tables are longer than speed humps and are flat-topped. When speed tables are combined with a pedestrian crossing at an intersection or midblock, they are called raised crossings.

and Georgia streets. The proposed project would also construct the Bay Trail/Blue Greenway multi use path (class I facility) along the waterfront within the project site. No bicycle network improvements are proposed outside of the project site.

Transportation Demand Management (TDM) Plan

The project sponsor has proposed a TDM plan to support sustainable land use development and reducing vehicle trips generated by the proposed project. The plan prioritizes pedestrian and bicycle access and identifies measures to encourage alternative modes of transportation and to support a dense, walkable, mixed-use, transit-oriented development that prioritizes safety, especially for bicyclists and pedestrians. The proposed TDM plan[18] outlines the measures that the project sponsor would implement as part of the proposed project (see Appendix C). Most measures in the plan are consistent with the measures identified as part of the TDM Ordinance's Appendix A,[19] and are supplemented with additional TDM strategies specific to the project. The proposed measures include:

Information Services

- Strategic multimodal signage/wayfinding
- Real time travel information
- Transportation welcome packet and ongoing transportation marketing

Active Transportation

- Improved walking conditions
- Bicycle parking in compliance with Planning Code
- Showers and lockers for employees
- Bicycle repair stations

Parking Management and Policies

- Unbundled parking
- Minimize parking supply

High Occupancy Vehicle Measures

- Shuttle bus service

Car Share and Scooter Share

- Onsite car and scooter share parking

Family-Supportive Measure

- Onsite child care

Delivery-Supportive Measure

- Cold/dry storage for grocery and package deliveries

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[18] Potrero Power Station TDM Plan, August 2018. See Appendix C.

[19] TDM Program Standards: Appendix A, Transportation Demand Management Measures

Additional TDM Measures

- TDM Coordinator
- Provision of fresh food shops and vendors
- Bus layover facility
- Bike share stations
- Completion of Bay Trail/Blue Greenway through the site
- Onsite affordable housing

Approach to Impact Analysis Methodology

This section describes the methodology for analyzing transportation impacts and information considered in developing travel demand for the proposed project. The impacts of the proposed project on the surrounding transportation network were analyzed using the San Francisco Transportation Impact Analysis Guidelines issued by the planning department in 2002 and subsequent updates and San Francisco Planning Commission Resolution 19579, which provide direction for analyzing transportation conditions and in identifying the transportation impacts of a proposed project.

Analysis Scenarios and Periods

The analysis of the proposed project was conducted for "existing plus project" and 2040 cumulative conditions. The "existing plus project" conditions assess the near-term impacts of the proposed project, while "2040 cumulative" conditions assess the near-term and long-term impacts of the proposed project in combination with other reasonably foreseeable development. Year 2040 was selected as the future analysis year because 2040 is the latest year for which travel demand forecasts were available from the San Francisco County Transportation Authority travel demand forecasting model.

Per the Transportation Impact Analysis Guidelines, the weekday p.m. peak hour is the standard analysis period for development projects in San Francisco and was analyzed for the proposed project. Although the weekday p.m. peak hour typically has a higher travel demand than the a.m. peak hour, the weekday a.m. peak hour was also analyzed in this case, given the size of the project.

Methodology for Analysis of Construction Impacts

Potential short-term construction impacts were assessed based on preliminary construction information for the project site. The construction impact evaluation addresses the staging and duration of construction activities, estimated daily truck volumes, truck routes, roadway and/or sidewalk closures, and evaluates the effects of construction activities on transit facilities and service, bicycle circulation, travel lanes and pedestrians.

Methodology for Analysis of Operational Impacts

VMT Analysis Methodology

VMT Assessment

The following identifies thresholds of significance and screening criteria used to determine if a land use project would result in significant impacts under the VMT metric.

For residential projects, a project would generate substantial additional VMT if it exceeds the regional household VMT per capita minus 15 percent.[20] For office projects, a project would generate substantial additional VMT if it exceeds the regional VMT per employee minus 15 percent. As documented in the Revised Proposal on Updates to the CEQA Guidelines on Evaluating Transportation Impacts in CEQA ("proposed transportation impact guidelines"), a 15 percent threshold below existing development is "both reasonably ambitious and generally achievable."[21] For retail projects, the planning department uses a VMT efficiency metric approach for retail projects: a project would generate substantial additional VMT if it exceeds the regional VMT per retail employee minus 15 percent. This approach is consistent with CEQA section 21099 and the thresholds of significance for other land uses recommended in the Office of Planning and Research's proposed transportation impact guidelines. For mixed-use projects, each proposed land use is evaluated independently, per the significance criteria described above.

The Office of Planning and Research's proposed transportation impact guidelines provides screening criteria to identify types, characteristics, or locations of land use projects that would not exceed these VMT thresholds of significance. The Office of Planning and Research recommends that if a project or land use proposed as part of the project meets any of the below screening criteria, then VMT impacts are presumed to be less than significant for that land use and a detailed VMT analysis is not required. The screening criteria applicable to the project and how they are applied in San Francisco are described below:

- ***Map-Based Screening for Residential, Office, and Retail Projects.*** The Office of Planning and Research recommends mapping areas where VMT is less than the applicable threshold for that land use. Accordingly, the Transportation Authority has developed maps depicting existing VMT levels in San Francisco for residential, office, and retail land uses based on the SF-CHAMP 2012 base-year model run. The Planning Department uses these maps and associated data to determine whether a proposed project is located in an area of the city that is below the VMT threshold.
- ***Proximity to Transit Stations.*** The Office of Planning and Research recommends that residential, retail, and office projects, as well as projects that are a mix of these uses, proposed within one-half mile 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

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[20] OPR's proposed transportation impact guidelines state a project would cause substantial additional VMT if it exceeds both the existing city household VMT per capita minus 15 percent and existing regional household VMT per capita minus 15 percent. In San Francisco, the City's average VMT per capita is lower (8.4) than the regional average (17.2). Therefore, the City average is irrelevant for the purposes of the analysis.

[21] State of California Governor's Office of Planning and Research, *Revised Proposal on Updates to the CEQA Guidelines on Evaluating Transportation Impacts in CEQA*, January, 20, 2016, page III:20.

not result in a substantial increase in VMT. 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.[22]

The Office of Planning and Research's proposed transportation impact guidelines do not provide screening criteria or thresholds of significance for other types of land uses, other than those projects that meet the definition of a small project. Therefore, the Planning Department provides additional screening criteria and thresholds of significance to determine if land uses similar in function to residential, office, and retail would generate a substantial increase in VMT. These screening criteria and thresholds of significance are consistent with CEQA section 21099 and the screening criteria recommended in the Office of Planning and Research's proposed transportation impact guidelines.

The Planning Department applies the Map-Based Screening and Proximity to Transit Station screening criteria to the following land use types:

- ***Tourist Hotels***. Trips associated with this land uses typically function similarly to residential. Therefore, this land uses is treated as residential for screening and analysis.
- ***Childcare and Production, Distribution, and Repair (PDR)***. Trips associated with these land uses typically function similarly to office. While some of these uses may have some visitor/customer trips associated with them (e.g., childcare drop-off), those trips are often a side trip within a larger tour. For example, the visitor/customer trips are influenced by the origin (e.g., home) and/or ultimate destination (e.g., work) of those tours. Therefore, these land uses are treated as office for screening and analysis.
- ***Grocery Stores, Local-Serving Entertainment Venues, and Parks***. Trips associated with these land uses typically function similar to retail. Therefore, they are treated as retail for screening and analysis.

Induced Automobile Travel Assessment

Transportation projects may substantially induce additional automobile travel. The following identifies thresholds of significance and screening criteria used to determine if transportation projects would result in significant impacts by inducing substantial additional automobile travel.

Pursuant to the Office of Planning and Research's proposed transportation impact guidelines, a transportation project would substantially induce automobile travel if it would generate more than 2,075,220 VMT per year. This threshold is based on the fair share VMT allocated to transportation projects required to achieve California's long-term greenhouse gas emissions reduction goal of 40 percent below 1990 levels by 2030.

The Office of Planning and Research's proposed transportation impact guidelines includes a list of transportation project types that would not likely lead to a substantial or measurable increase in VMT. If a project fits within the general types of projects (including combinations of types) described below, then it is presumed that VMT impacts would be less than significant and a detailed VMT

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[22] A project is considered to be inconsistent with the Sustainable Communities Strategy if development is located outside of areas contemplated for development in the Sustainable Communities Strategy.

analysis is not required. Accordingly, a project would not result in a substantial increase in VMT if it would include any or a combination of the following components and features.

- ***Active Transportation, Rightsizing (aka Road Diet), and Transit Projects*:**
  - Infrastructure projects, including safety and accessibility improvements, for people walking and bicycling.
  - Installation or reconfiguration of traffic calming devices.
  - Creation of new or addition of roadway capacity on local or collector streets provided the project also substantially improves conditions for people walking, bicycling, and, if applicable, riding transit (e.g., by improving neighborhood connectivity or improving safety).
- ***Other Minor Transportation Projects*:**
  - Rehabilitation, maintenance, replacement and repair projects designed to improve the condition of existing transportation assets (e.g., highways, roadways, bridges, culverts, tunnels, transit systems, and bicycle and pedestrian facilities) and that do not add additional motor vehicle capacity.
  - Installation, removal, or reconfiguration of traffic lanes that are not for through traffic, such as left, right, and U-turn pockets, or emergency breakdown lanes that are not used a through lanes.
  - Installation, removal, or reconfiguration of traffic control devices, including Transit Signal Priority features.
  - Timing of signals to optimize vehicle, bicycle or pedestrian flow on local or collector streets.
  - Addition of transportation wayfinding signage.
  - Removal of off-street or on-street parking spaces.
  - Adoption, removal or modification of on-street parking or loading restrictions (including meters, time limits, accessible spaces, and referential/reserved parking permit programs).

Traffic Hazards Analysis Methodology

In assessing traffic hazards, the proposed project buildings and changes to the transportation network within and near the site were reviewed to determine whether they would obstruct, hinder, or impair reasonable and safe views by vehicle drivers traveling on the same street, or restrict the ability of a driver to stop the motor vehicle short of a collision.

In addition, a quantitative analysis of the district parking garage operations in terms of queuing was conducted for the proposed garage location on Block 5, as well as alternate locations on Blocks 1 and 13 (see figure in section 9 of Appendix C). The assessment considered whether the design of the district parking garage entry locations would accommodate vehicles accessing the garage without spilling back into the adjacent travel lanes or blocking sidewalks.

Transit Analysis Methodology

Capacity Utilization

The impact of additional transit ridership generated by the proposed project on local and regional transit providers was assessed by comparing the projected ridership to the available transit capacity at the maximum load point. Transit "capacity utilization" refers to transit riders as a percentage of the capacity of the transit line, or group of lines combined and analyzed as screenlines across which transit lines travel.

For service provided by Muni, the capacity includes seated passengers and an appreciable number of standing passengers per vehicle (the number of standing passengers is between 30 and 80 percent of the seated passengers depending upon the specific transit vehicle configuration). Muni has established a capacity utilization standard of 85 percent. The 85 percent capacity utilization includes seated and standing passengers, so at 85 percent capacity utilization all seats are taken and there are many standees. The transit analyses were conducted for both directions of travel (i.e., toward and away from the project site) for both the a.m. and p.m. peak hour conditions.

The existing peak hour ridership and capacity data were obtained from Muni. For the existing plus project analysis, the peak hour ridership and capacity utilization that would occur following completion of the Central Subway project in 2019 was assumed, as the Central Subway project is under construction and is scheduled to become operational in 2019.

The Central Subway project will extend the Muni Metro T Third light rail line and provide a direct transit link between Mission Bay, SoMa, Union Square, and Chinatown. Four new stations will be constructed along the new 0.7-mile long alignment. The Central Subway will extend the T Third line northward from its current terminus at Fourth and King streets to a surface station south of Bryant Street and go underground at a portal under U.S. 101. From there it will continue north to stations at Moscone Center, Union Square—where it will provide passenger connections to the Muni/BART Powell station — and in Chinatown, where the line will terminate on Stockton Street at Clay Street. Construction is currently underway and is scheduled to be completed in 2018. Revenue service is scheduled for 2019.

Weekday a.m. and p.m. peak hour ridership and capacity for the regional transit service providers at the three regional screenlines were based on the Transportation Impact Analysis Guidelines regional screenline data. All regional transit providers have a peak hour capacity utilization standard of 100 percent. For regional transit service providers capacity is based on seated capacity for buses and a combination of seated and standing passenger capacity for ferry and rail transit vehicles.

The proposed project was determined to have a significant transit impact if project-generated transit trips would cause the Muni routes serving the project site or the regional screenlines that operate at less than their capacity utilization standards under existing conditions, to operate above their capacity utilization standards with implementation of the project. For routes or screenlines operating at more than the capacity utilization standard under existing conditions, the proposed project's contribution to that condition was assessed to determine whether the project would contribute considerably to ridership at the maximum load point (i.e., a contribution of 5 percent or more to the transit ridership on the route or screenline).

Under 2040 cumulative conditions, the proposed project was determined to have a significant cumulative impact if its implementation would contribute considerably to a route or screenline projected to operate at greater than the capacity utilization standard under 2040 cumulative conditions (i.e., a contribution of 5 percent or more to the transit ridership on the route or screenline). In addition, if it was determined that the proposed project would have a significant project-specific transit impact under existing plus project conditions, then, if significant cumulative impacts are identified, the project would also be considered to contribute substantially to significant cumulative conditions.

Transit Operations Analysis

Impacts of the proposed project on transit operations were measured in terms of increases to transit travel times. In San Francisco, increases to transit travel times are associated with the following three factors:

- ***Traffic congestion delay***—Traffic congestion associated with increases in traffic slows down transit vehicles and results in increased transit travel times. Traffic congestion delays are calculated by summing the average vehicular delay caused by the project at each intersection along the transit routes within the transportation study area. The increase in total route segment delay is equal to the increase in travel time associated with traffic generated by the proposed project.
- ***Transit reentry delay***—Transit vehicles typically experience delays after stopping to pick up and drop off passengers while waiting for gaps in adjacent street traffic in order to pull out of bus stops. As traffic volumes on the adjacent streets increase, reentering the flow of traffic becomes more difficult and transit vehicles experience increased delays. Transit reentry delay is calculated using empirical data in the 2000 Highway Capacity Manual. Total transit reentry delay for each route is calculated as the sum of transit reentry delay at each stop within the transportation study area.
- ***Passenger boarding delay***—Although increases in transit ridership are generally viewed positively, the amount of time a transit vehicle has to stop to pick up and drop off passengers (i.e., the transit vehicle dwell time) is directly correlated to the number of passengers boarding the vehicle. As general transit ridership grows, vehicles would have to spend more time at stops, which may increase overall transit travel times. Passenger boarding delay was calculated assuming four seconds per passenger boarding. Increases in passenger boardings associated with the project were determined from the transit assignment for the project.

The proposed project would be determined to have a significant impact if it would increase existing transit travel times on a route so that additional transit vehicles would be required to maintain the existing headways. This was assumed to be the case if the proposed project's travel time increases on a particular route would be greater than half of the existing route headway, or the added travel time would require the provision of one or more additional transit vehicles in order to maintain scheduled service, as determined by SFMTA's scheduling spreadsheet. If it was determined that the proposed project would have a significant travel time impact under existing plus project conditions, then, if a significant impact was identified in the cumulative scenario, the project would also be considered to contribute substantially to significant cumulative conditions.

Walking/Accessibility Analysis Methodology

Walking/accessibility conditions were assessed qualitatively. The qualitative assessment included assessment of safety and right-of-way issues, potential worsening of existing, or creation of new, safety hazards, and conflicts with bicycles, transit, and vehicles, and whether the project would interfere with the accessibility of people walking to the site or adjoining areas.

Bicycle Analysis Methodology

Bicycle conditions were assessed qualitatively as they relate to the project area, including bicycle routes, safety and right-of-way issues, potential worsening of existing or creation of new safety hazards, and conflicts with vehicles and commercial vehicle loading activities.

Loading Analysis Methodology

The loading analysis was conducted by comparing the proposed commercial vehicle loading supply to the projected demand that would be generated by the proposed project, while the proposed passenger loading/unloading supply was assessed qualitatively. If the project's supply meets the estimated demand, no further assessment is necessary. If not, then the effects of the commercial vehicle and passenger loading supply on safety and right-of-way issues, potential worsening of existing or creation of new safety hazards, and conflicts with bicycle, transit, and vehicles were assessed qualitatively.

Parking Analysis Methodology

A parking assessment was conducted by comparing the proposed parking supply to the parking demand generated by proposed project land uses to determine if the project would result in a substantial parking deficit. If the project would not result in a substantial parking deficit, no further assessment is necessary. If the project would result in a substantial parking deficit, the effects of the proposed street network changes on the on-street parking supply and area wide parking conditions was assessed, as well as the effects of increased parking demand and changes in on-street parking supply on safety and right-of-way issues.

Emergency Access Analysis Methodology

Potential impacts on emergency access were assessed qualitatively. Specifically, the analysis assessed whether the proposed street network changes and/or travel demand associated with the proposed project would impair, hinder, or preclude adequate emergency vehicle access.

Project Travel Demand Methodology and Results

Project travel demand refers to the new vehicle, transit, pedestrian, and bicycle trips generated by the proposed project. The memorandum containing the detailed methodology and information used to calculate the project travel demand is included in Appendix C. This section summarizes the information and analysis contained in the travel demand memorandum[23] and presents

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[23] Potrero Power Station Mixed-Use Development Project Estimation of Project Travel Demand, Final Memorandum, April 2018. Case No. 2017.011878ENV. See Appendix C.

estimates of project-generated person trips by various modes of travel, as well as the number of project-generated vehicle trips. In addition, this section presents the vehicle parking demand and estimates of daily truck and service vehicle trips and the associated demand for loading spaces to accommodate the truck and service vehicle demand.

Travel Demand Assumptions

Existing Site

As described in Chapter 2, Section 2.D, Existing Land Uses and Site History, the project site currently consists primarily of vacant land with scattered vacant buildings and facilities. Current uses include warehousing, vehicle parking, vehicle storage, office space, and storage and housing of power transmission equipment. In addition, PG&E is undertaking environmental remediation activities that will continue through 2023 to achieve a commercial/industrial land use standard at the project site under the oversight of the San Francisco Regional Water Quality Control Board (see Section 4.K, Hazards and Hazardous Materials for further discussion). As a conservative assessment, the existing person and vehicle trips traveling to and from the project site were not subtracted from the travel demand generated by the proposed new uses.

Project Trips

The travel demand forecasts are based on the methodology in the Transportation Impact Analysis Guidelines and supplemented with information that accounts for the large-scale and mixed-use qualities of the proposed project, and project-specific land uses. The methods commonly used for forecasting travel demand for development projects in San Francisco are based on the Transportation Impact Analysis Guidelines. The Transportation Impact Analysis Guidelines are based on a number of detailed travel behavior surveys conducted within San Francisco. The data in the Transportation Impact Analysis Guidelines are generally accepted as more appropriate for use in transportation impact analyses for San Francisco development projects than conventional transportation planning data because of the unique mix of uses, density, availability of transit, and cost of parking in San Francisco.

Therefore, due to the substantial size of the project site (i.e., 29 acres), mix of residential and non-residential uses, and intensity of the land use program (approximately 5.4 million square feet of development over 14 blocks), refinements were made to the travel demand model to account for the specific characteristics of the project, such as its land use integration, provision of shuttle bus service to nearby transit hubs, and reduced parking supply. The travel demand methodology applied to the proposed project is consistent with recent analyses of larger developments in San Francisco, including the adjacent Pier 70 Mixed-Use District project, and the Mission Rock project at Seawall Lot 337, about 1.5 miles north of the project site. This travel demand model methodology was first used in San Francisco to analyze the land use program for the Presidio Trust Management Plan Final Environmental Impact Statement, May 2002, and has been subsequently updated and enhanced to analyze other mixed-use development projects in the northeast and southeast quadrants of San Francisco.

The travel demand model for the proposed project follows. The four main steps are outlined first, followed by additional explanation.

- ***Step 1: Total Trip Generation.*** Total person trip generation was calculated. The person-trip generation estimates for the proposed project include residents, guests, employees, and visitors associated with the proposed development.
- ***Step 2: Internal and Linked Trip Adjustments.*** The trip generation rates used in step 1 represent the number of person trips that would be generated by each project component as a standalone use, which are considered external trips.[24] However, some of these trips would be made by individuals already within the project site; these are referred to as internal or linked trips, or internal trips. The total trip generation calculated in step 1 was therefore refined to separately account for internal and external trips.
- ***Step 3: Trip Distribution and Mode of Travel.*** The person trips estimated in the steps above were allocated to travel modes to determine the number of trips by auto, transit, and other modes. The "auto" mode includes persons traveling by private auto, carpool, app-based ride hailing services (e.g., Uber, Lyft), etc., while the "transit" mode includes local and regional public means of transportation. The "other" category includes walking, bicycling, motorcycling, and additional modes, such as taxis or limousines. The directional distribution is based on the origins and destinations of trips for each specific land use, which was then distributed to the four superdistricts[25] of San Francisco (Superdistrict 1 – northeast quadrant, Superdistrict 2 – northwest quadrant, Superdistrict 3 – southeast quadrant, Superdistrict 4 – southwest quadrant), the East Bay, North Bay, South Bay, and outside the region.
- ***Step 4: Trip Assignment.*** The pedestrian, transit, and vehicle trips and directional distribution obtained in step 3 were then used as the basis for assigning project-generated trips to the local streets and transit routes in the study area. The transit trip assignment also considered the proposed shuttle service as an additional transit option for riders during the a.m. and p.m. peak periods.

Step 1: Trip Generation

As presented in Chapter 2, Project Description, the proposed development program includes about 2,682 residential units, 220 hotel rooms, 1.3 million square feet of commercial office uses (including general office, research and development [R&D], and production, distribution and repair [PDR] uses), 25,000 square feet of entertainment/assembly uses, 107,439 square feet of retail uses, and 100,938 square feet of community facilities.

Retail and community facility uses cover a range of different types of facilities with different travel demand characteristics. For the purpose of the travel demand analysis, these uses were disaggregated into more specific land uses. As shown in **Table 4.E-9**, **Proposed Project Person Trip Generation by Land Use and Time Period**, the 107,439 square feet of retail uses include general retail, supermarket and restaurant uses, and the 100,938 square feet of community facility uses include childcare, library and other community facilities such as a recreational center or community center use.

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[24] Trips that arrive at or leave the project site are referred to as external trips.

[25] Superdistricts are travel analysis zones established by the Metropolitan Transportation Commission (MTC) that provide geographic subareas for planning purposes in San Francisco. A map showing the boundaries of the four planning superdistricts in San Francisco (referred to as Superdistricts 1 through 4) is provided in Appendix C.

TABLE 4.E-9
PROPOSED PROJECT PERSON TRIP GENERATION BY LAND USE AND TIME PERIOD

Land Use Type	Land Use Quantity	Person Trips[a]		
		Daily	a.m. Peak Hour	p.m. Peak Hour
Residential (studio/1-bedroom units)	1,547 d.u.	11,603	1,651	2,007
Residential (2 or more bedroom units)	1,135 d.u.	11,350	1,615	1,964
Hotel	220 rooms	1,540	136	154
General Office	597,723 gsf	10,819	963	920
Research & Development	645,738 gsf	5,166	942	827
PDR	45,040 gsf	815	73	69
General Retail[b]	10,744 gsf	1,612	38	145
Supermarket[b]	42,975 gsf	12,764	334	932
Sit-down Restaurant/Assembly[b,c]	41,116 gsf	6,223	67	622
Quick Service Restaurant[b]	37,604 gsf	22,562	244	2,256
Childcare[d]	15,000 gsf	1,005	179	181
Library[d]	10,000 gsf	1,950	39	315
Community Center [d]	75,938 gsf	6,075	368	823
Open Space	6.3 acres	126	16	11
Total Person Trips		**93,609**	**6,665**	**11,218**
Internal versus External Person Trips[e]				
Trips Internal to project site		25,795	1,526	3,395
Trips External (leaving from and arriving to the site)		67,814	5,139	7,823
Total Person Trips		**93,609**	**6,665**	**11,218**

NOTES: d.u. = dwelling units; gsf = gross square feet

[a] Numbers may not sum to total due to rounding.
[b] The 107,439 gsf of retail space has been analyzed as general retail (10,744 gsf), supermarket (42,975 gsf), sit-down restaurant (16,116 gsf), and quick service restaurant (37,604 gsf)
[c] The 25,000 gsf of assembly space has been analyzed as sit-down restaurant, assuming a 60 percent occupancy factor (i.e., 15,000 gsf of sit-down restaurant space).
[d] The 100,938 gsf of community facility use has been analyzed as childcare, (15,000 gsf), library (10,000 gsf), and community center (75,938 gsf) uses.
[e] Internal trips represents those who occur within the project site, generally by walking or bicycling, while external trips are those whose origin or destination is outside the project site.

SOURCE: Technical Memorandum – Potrero Power Station Mixed-Use Development Project Estimation of Project Travel Demand, April 2018. See Appendix C.

Trip generation rates for land uses not included in the Transportation Impact Analysis Guidelines, such as libraries, community centers and open space, were obtained from other nationally recognized sources, such as the Trip Generation[26] manual, published by the Institute of Transportation Engineers or the San Diego Association of Governments data on trip generation[27]. Trip generation information for R&D uses was obtained from the Mission Bay Final Supplemental

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[26] Institute of Transportation Engineers, *Trip Generation* (9th Edition), Washington D.C., 2012.
[27] San Diego Association of Governments, *Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region*, April 2002.

EIR,[28] prepared for the San Francisco Planning Department in 1998. Because the San Francisco Transportation Impact Analysis Guidelines do not include trip generation rates for the a.m. peak hour, rates were developed for the proposed land uses using information provided in the Trip Generation Manual.

Table 4.E-9 presents the daily and a.m. and p.m. peak hour person trip generation. The proposed project would generate 93,609 person-trips on a weekday daily basis, 6,665 person-trips during the a.m. peak hour, and 11,218 person-trips during the p.m. peak hour. The number of p.m. peak hour trips is generally greater than during the a.m. peak hour because during the p.m. peak hour, there are typically more purposes for travel, such as shopping, dining and services (e.g., a visit to the doctor). Most of the a.m. travel is related to work, since many retail establishments are closed before 9 a.m.

Step 2: Internal and Linked Trip Adjustments

As noted above, a portion of the project trips would occur completely within the project site between the various land uses. The travel demand analysis included a multi-step iterative process to account for trips that would be conducted between the various land uses on the project site (e.g., between residential units and a grocery store), as well as trips that would be made as intermediate stops on the way from an origin to a primary destination (e.g., an individual that stops at a café or retail store on the trip from home to work, or vice versa). The trips that occur within the project site are referred to as internal trips, while trips that have an origin or destination outside of the project site are referred to as external trips. The amount of trip internalization and linkage for a project is dependent on the quantity and mix of land uses, as well as the varying levels of activities they generate at various times of the day, and, therefore, is generally different between the a.m. and p.m. peak periods.

The methodology applied to the total trip generation to account for the internal and linked trips is described in detail in the technical memorandum included in Appendix C. The internal and linked trip factors that were applied to the various land uses were obtained from various sources such as the Institute of Transportation Engineers, the Transportation Research Board, and San Diego Association of Governments.

The split between project-generated internal and external trips are also presented on Table 4.E-9 above. With implementation of the proposed project, the total number of person trips that would start or end outside of the project site (external trips) would be about 67,814 trips on a typical weekday, 5,139 trips during the a.m. peak hour, and 7,823 trips during the p.m. peak hour. About 38 percent of the daily person trips, 30 percent of the a.m. peak hour person trips, and 43 percent of the p.m. peak hour person trips are forecasted to be made within the project site.

Step 3: Trip Distribution and Mode of Travel

The internal and external person-trips were allocated to origins and destinations and travel modes as follows:

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[28] San Francisco Planning Department, *Final Mission Bay Subsequent Environmental Impact Report*, Appendix D-Transportation, p. D.32, Case No. 96.771E, Final Certification Date: September 17, 1998.

- ***Internal trips.*** The internal trips would be expected to occur for the most part by walking and bicycling, as opposed to auto and transit, and would all occur within the project site.
- ***External trips.*** The external trips were assigned to travel modes based on the origins and destinations of trips for each specific land use.
  - For the residential uses, the total mode split and geographic distribution were based on data obtained from the U.S. Census for census tract 226 where the project site is located (census tract 226 is bounded by 16th Street to the north, I-280 to the west, 25th Street to the south, and San Francisco Bay to the east).[29]
  - For the hotel, office, R&D, PDR, general retail, supermarket, restaurant, community center, and entertainment/assembly uses, the place of origin or destination and the mode of travel percentages were based on an average of the rates contained within the *SF Guidelines* for projects located in Superdistrict 1 (northeast quadrant) and Superdistrict 3 (southeast quadrant) for work and non-work trips.
  - The San Francisco Transportation Impact Analysis Guidelines identifies different mode of travel ratios, trip origin/ destination factors, and average vehicle occupancy for work and visitor trips, which are different for each of the four San Francisco superdistricts, so that factors that influence travel behavior such as transit accessibility, walkability, roadway and transit infrastructure, etc. are properly accounted for in the analysis. For example, work trips originating in or destined to Superdistrict 1 exhibit the highest transit usage in San Francisco, while those to or from Superdistrict 3 have the lowest. While the project site is located entirely within Superdistrict 3, the average mode of travel and vehicle occupancy rates between Superdistrict 1 and Superdistrict 3 were used, to properly account for recent and ongoing transit improvements that have occurred and will be completed in the area, as well as the transportation enhancements that would be implemented by the project, such as a transit shuttle service.
  - For the childcare and library uses, the trip distribution and mode share for visitor trips assumed local trips, all within Superdistrict 3.
  - The trip distribution and travel modes for employee trips were based on an average of the rates contained in the Transportation Impact Analysis Guidelines for Superdistrict 1 and Superdistrict 3 for work trips.

As shown in **Table 4.E-10**, **Proposed Project Trip Distribution Patterns by Land Use**, the majority of the project-generated trips would be within San Francisco, with the largest proportion of trips within Superdistrict 3, which includes the project site (and includes the internal trips remaining within the site). These trip distribution patterns were used as the basis for assigning project-generated vehicle trips to the study intersections (see Figure 4.E-1, p. 4.E-2 above) and the project-generated transit trips to the local and regional transit routes.

Table 4.E-11, **Proposed Project Travel Mode Split**, presents the overall travel modes for the project-generated person trips on a daily basis, as well as for the a.m. and p.m. peak hours. As shown in the table, the non-auto person trips represent approximately two thirds of all the trips made during each period; this includes the non-motorized trips occurring within the project site.

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[29] U.S. Census, *2011-2015 American Community Survey 5-Year Estimate*, Census Tract 226, supplemented with information from the 1990 and 2000; Summary of relevant results is provided in Appendix C.

TABLE 4.E-10
PROPOSED PROJECT TRIP DISTRIBUTION PATTERNS BY LAND USE

Place of Trip Origin or Destination	Residential	Hotel/Office/R&D /PDR/Community Center/Open Space	Retail/ Supermarket/ Restaurant/ Assembly	Childcare/ Library	Total All Land Uses
San Francisco					
Superdistrict 1	25.4%	7.2%	6.5%	4.1%	11.0%
Superdistrict 2	3.8%	13.5%	8.2%	9.8%	8.3%
Superdistrict 3[a]	43.3%	33.7%	39.9%	57.0%	41.2%
Superdistrict 4	3.8%	7.9%	4.2%	5.1%	4.9%
All San Francisco	*76.3%*	*62.3%*	*58.8%*	*75.9%*	*65.4%*
East Bay	6.5%	12.8%	7.5%	7.6%	8.3%
North Bay	1.9%	4.0%	3.6%	2.3%	3.1%
South Bay	14.9%	12.3%	9.0%	6.4%	10.8%
Outside of Bay Area	0.4%	8.7%	21.2%	7.9%	12.3%
Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

NOTES:

[a] Internal trips are accounted for within Superdistrict 3.

SOURCE: Technical Memorandum – Potrero Power Station Mixed-Use Development Project Estimation of Project Travel Demand, April 2018. See Appendix C.

TABLE 4.E-11
PROPOSED PROJECT TRAVEL MODE SPLIT – INTERNAL AND EXTERNAL TRIPS

Mode	Daily	AM Peak Hour	PM Peak Hour
Auto[a]	35.7%	37.0%	34.2%
Transit	17.1%	27.0%	19.8%
Other modes[b]	47.2%	36.0%	46.0%
Total	**100.0%**	**100.0%**	**100.0%**

NOTES:

[a] Auto mode includes persons traveling by private auto, carpool, app-based ride-hailing services (e.g., Uber, Lyft)

[b] Other modes include walk, bicycle, motorcycle, and additional modes such as taxis. Internal trips, generally by walking and bicycling, are also included within the “other” mode.

SOURCE: Technical Memorandum – Potrero Power Station Mixed-Use Development Project Estimation of Project Travel Demand, April 2018. See Appendix C.

Table 4.E-12, **Proposed Project Trip Generation by Mode**, **Land Use**, **and Time Period** presents the external daily and a.m. and p.m. peak hour person and vehicle trips by the various land uses, while **Table 4.E-13**, **Proposed Project Trip Generation by Mode and Place of Origin**, presents this same information by place of origin. Trips that occur within the site are not included in these tables (see Table 4.E-9, p. 4.E-43 above). During the a.m. peak hour, the residential, and general office, R&D, and PDR uses would generate the greatest number of person and vehicle trips. During the p.m. peak hour, retail activity would be greater than during the a.m. peak hour, and therefore the overall number of project-generated person and vehicle trips during the p.m. peak hour would be greater

than during the a.m. peak hour. The majority of a.m. and p.m. peak hour trips would be within Superdistrict 3, to and from Superdistrict 1 (the northeast quadrant which includes downtown), and to and from the East Bay and South Bay.

TABLE 4.E-12
PROPOSED PROJECT TRIP GENERATION BY MODE, LAND USE AND TIME PERIOD - EXTERNAL TRIPS ONLY[a,b]

Analysis Period/Land Use	Person Trips by Travel Mode				Vehicle Trips
	Auto	Transit	Other[c]	Total	
Daily					
Residential	6,343	5,812	2,535	14,690	5,772
Hotel	529	239	218	986	255
General Office	4,525	2,385	1,745	8,655	2,522
Research & Development/PDR	2,502	1,319	965	4,785	1,394
General Retail/Supermarket	5,817	1,708	3,975	11,500	2,868
Restaurant/Entertainment/Assembly	11,197	3,296	7,602	22,094	5,514
Community Facilities/Open Space	2,583	1,211	1,311	5,105	1,196
Total Daily	**33,495**	**15,969**	**18,351**	**67,814**	**19,522**
a.m. Peak Hour					
Residential	1,112	1,067	484	2,662	1,012
Hotel	58	31	22	111	33
General Office	431	259	69	758	295
Research & Development/PDR	454	273	73	799	311
General Retail/Supermarket	134	44	82	260	69
Restaurant/Entertainment/Assembly	117	44	60	221	64
Community Facilities/Open Space	166	79	82	327	79
Total a.m. Peak Hour	**2,472**	**1,796**	**871**	**5,139**	**1,862**
p.m. Peak Hour					
Residential	1,209	1,133	504	2,846	1,100
Hotel	62	34	14	110	39
General Office	397	236	56	690	271
Research & Development/PDR	387	230	55	672	264
General Retail/Supermarket	384	114	256	754	188
Restaurant/Entertainment/Assembly	1,041	308	698	2,046	511
Community Facilities/Open Space	356	168	181	705	165
Total p.m. Peak Hour	**3,835**	**2,223**	**1,764**	**7,823**	**2,540**

NOTES

[a] Numbers may not sum to total due to rounding.

[b] External trips are those whose origin or destination is outside the project site.

[c] Other modes include walk, bicycle, motorcycle, and additional modes such as taxis.

SOURCE: Technical Memorandum – Potrero Power Station Mixed-Use Development Project Estimation of Project Travel Demand, April 2018. See Appendix C.

TABLE 4.E-13
PROPOSED PROJECT TRIP GENERATION BY MODE AND PLACE OF ORIGIN – EXTERNAL TRIPS ONLY[a,b]

Analysis Period/Place of Origin	Person Trips by Travel Mode				Vehicle Trips
	Auto	Transit	Other[c]	Total	
Daily					
San Francisco					
Superdistrict 1	3,203	3,327	3,796	10,327	2,563
Superdistrict 2	3,629	2,271	1,875	7,775	2,315
Superdistrict 3	6,474	2,496	3,767	12,737	3,467
Superdistrict 4	2,555	1,320	732	4,606	1,534
East Bay	3,903	2,376	1,477	7,757	2,096
North Bay	1,929	521	474	2,924	1,201
South Bay	7,130	2,215	795	10,140	4,544
Out of Region	4,673	1,442	5,434	11,549	1,802
Total Daily Trips	**33,495**	**15,969**	**18,351**	**67,814**	**19,522**
a.m. Peak Hour					
San Francisco					
Superdistrict 1	502	572	347	1,421	447
Superdistrict 2	228	204	80	513	168
Superdistrict 3	291	236	157	684	216
Superdistrict 4	190	143	48	380	130
East Bay	344	268	61	673	205
North Bay	152	51	11	214	108
South Bay	642	272	68	983	529
Out of Region	122	51	98	270	59
Total a.m. Peak Hour Trips	**2,472**	**1,796**	**871**	**5,139**	**1,862**
p.m. Peak Hour					
San Francisco					
Superdistrict 1	526	583	427	1,536	457
Superdistrict 2	384	286	177	847	267
Superdistrict 3	541	285	310	1,136	328
Superdistrict 4	298	184	79	560	193
East Bay	490	340	148	977	283
North Bay	236	72	42	351	157
South Bay	938	345	104	1,387	683
Out of Region	424	128	477	1,029	171
Total p.m. Peak Hour Trips	**3,835**	**2,223**	**1,764**	**7,823**	**2,540**

NOTES
[a] Numbers may not sum to total due to rounding.
[b] External trips are those whose origin or destination is outside the project site.
[c] Other modes include walk, bicycle, motorcycle, and additional modes such as taxis.

SOURCE: Technical Memorandum – Potrero Power Station Mixed-Use Development Project Estimation of Project Travel Demand, April 2018. See Appendix C.

Step 4: Trip Assignment

The vehicle, transit, and pedestrian trips and directional distribution obtained in step 3 were used as a basis for assigning trips to the transportation network. Project-generated vehicle trips were assigned to the local streets near the project site based on the distribution patterns identified in the above step, and project site access via 23rd, Humboldt, and 22nd streets. Travel paths were developed based on the most likely desired routes, number of travel lanes on streets, and knowledge of current travel patterns in the study area. Project vehicle trips traveling northbound and southbound along Third and Illinois streets to access the project site were generally assigned in a 2:1 ratio along Third Street and Illinois Street, respectively, reflecting the comparative capacity of those streets.

Transit trips were assigned to the 22 Fillmore and 48 Quintara/24th Street bus routes and the T Third light rail line that would be used to travel to and from destinations identified in the transit distribution, or to transfer to other bus routes or light rail lines. Transit trips destined to and from the 22nd Street Caltrain station at Iowa Street and the 16th Street BART station were assigned to the proposed project shuttle during the a.m. and p.m. peak periods. In addition, the transit trip assignment considered the proposed shuttle as an additional option during the a.m. and p.m. peak periods for riders accessing the area around the 16th Street BART station. Pedestrian trips, including transit riders walking to and from the nearby transit stops, were assigned to local streets.

Project Vehicle and Transit Trips Used in Quantitative Analysis

As described in Chapter 2, Section 2.E, Project Characteristics and Components**,** the proposed project land use program presented in Table 2-1, p. 2-14, represents the program that the project sponsor anticipates implementing on the project site. However, proposed development controls for the site would allow for flexibility of uses on certain blocks between either residential or commercial office uses, depending on future market conditions. To account for the potential differences in uses on the flex blocks, the travel demand analysis was also conducted for two additional land use program scenarios to determine whether the possible changes in land uses on the flex blocks would result in a higher trip generation than presented above for the proposed project. This analysis is included in the travel demand memorandum prepared for the proposed project and included in Appendix C. The analysis determined that total peak hour travel demand for the proposed project and the two scenarios for the flex blocks would generally be similar (somewhere between 2 and 6 percent of each other), but with greater variation in the number of trips between inbound and outbound directions of travel as a result of the differences in land use characteristics. Therefore, in order for the quantitative analyses to account for the maximum potential impact of the proposed project on transportation, air quality, and noise impact analyses, the maximum inbound and outbound vehicle and transit trips during each peak hour of analysis were used in the transportation impact analyses.

Table 4.E-14, **Proposed Project Vehicle and Transit Trip Generation by Place of Origin**, summarizes the maximum inbound and outbound vehicle and transit trips for the a.m. and p.m. peak hours by place of origin. As noted above, the number of trips are slightly greater than those presented in Table 4.E-12 above, and this represents a conservative analysis scenario. As shown in Table 4.E-14**,** the proposed project would generate a maximum of 2,006 vehicle trips during the a.m. peak hour and 2,644 vehicle trips during the p.m. peak hour, and a maximum of 1,926 transit trips during the a.m. peak hour, and 2,335 transit trips during the p.m. peak hour.

TABLE 4.E-14
PROPOSED PROJECT VEHICLE AND TRANSIT TRIP GENERATION BY PLACE OF ORIGIN[a]

Place of Trip Origin or Destination	a.m. Peak Hour			p.m. Peak Hour		
	Inbound	**Outbound**	**Total**	**Inbound**	**Outbound**	**Total**
Vehicle Trips						
San Francisco						
Superdistrict 1	154	321	475	319	160	479
Superdistrict 2	126	54	180	108	169	277
Superdistrict 3	138	108	247	135	196	331
Superdistrict 4	93	46	139	82	120	202
East Bay	129	91	219	137	159	296
North Bay	72	43	116	72	93	164
South Bay	352	218	570	315	405	720
Outside of Bay Area	39	22	61	77	96	173
Total Vehicle Trips	**1,103**	**904**	**2,006**	**1,245**	**1,399**	**2,644**
Transit Trips						
San Francisco						
Superdistrict 1	203	406	608	404	209	613
Superdistrict 2	151	67	218	116	183	299
Superdistrict 3	134	129	263	147	158	305
Superdistrict 4	98	55	153	81	111	193
East Bay	196	92	287	138	219	358
North Bay	37	17	54	30	46	76
South Bay	137	152	289	201	162	363
Outside of Bay Area	39	13	52	53	77	129
Total Transit Trips	**994**	**932**	**1,926**	**1,170**	**1,164**	**2,335**

NOTE:
[a] Numbers may not sum to total due to rounding.

SOURCE: Technical Memorandum – Potrero Power Station Mixed-Use Development Project Estimation of Project Travel Demand, April 2018. See Appendix C.

Freight Delivery and Service Vehicle Demand

The San Francisco Transportation Impact Analysis Guidelines methodology for estimating commercial vehicle and freight loading demand was used to calculate the daily truck/service vehicle trips and the average hour and peak hour loading space demand for the office, retail, restaurant and community facility uses. Daily truck trips generated per 1,000 square feet were calculated based on the rates contained within the Transportation Impact Analysis Guidelines, then converted to hourly demand based on a nine-hour day and a 25-minute average stay. Average hour loading space demand was converted to a peak hour demand by applying a peaking factor, as specified in the Transportation Impact Analysis Guidelines. Both the R&D and PDR uses were treated as general office, and the assembly use was treated as a restaurant use. Daily and hourly truck trip generation rates were developed for the supermarket use from previously collected field data. See Appendix C.

Table 4.E-15, **Proposed Project Daily Trucks and Service Vehicles and Loading Space Demand by Land Use**, presents the number of trucks generated on a daily basis, and the demand for truck and service vehicle loading spaces during the average hour and peak hour of loading activity for the proposed project. The proposed project would generate about 690 delivery and service vehicle trips per day, which corresponds to a demand for 33 loading spaces during the average hour of loading activity and 42 loading spaces during the peak hour of loading activity.

TABLE 4.E-15
PROPOSED PROJECT DAILY TRUCKS AND SERVICE VEHICLES AND LOADING SPACE DEMAND BY LAND USE[a]

Land Use Type	Daily Trucks and Service Vehicles	Commercial Loading Space Demand	
		Average Hour	Peak Hour[b]
Residential	80	4	5
Hotel	22	1	1
Office/R&D/PDR	271	13	16
General Retail	2	0	0
Supermarket	54	3	5
Restaurant/Entertainment/Assembly	247	12	14
Community Facilities	10	0	1
Total	**686**	**33**	**42**

NOTES:
[a] Numbers may not sum to total due to rounding.
[b] Peak hour of the commercial loading demand, which generally occurs between 10 a.m. and 1 p.m. except the supermarket use, which occurs between 6 a.m. and 11 a.m.

SOURCE: Technical Memorandum – Potrero Power Station Mixed-Use Development Project Estimation of Project Travel Demand, April 2018. See Appendix C.

Vehicle Parking Demand

Vehicle parking demand consists of both long-term demand (typically residents and employees) and short-term demand (typically visitors). Peak parking demand for the proposed uses was estimated for the midday period (12 p.m. to 2p.m.) when parking occupancy is typically greatest for office, R&D, PDR, retail, and community facility uses, and for the evening (7 p.m. to 9 p.m.) period when parking demand is greatest for the residential and hotel uses. Weekday parking demand for the proposed project was determined based on methodologies and rates presented in the Transportation Impact Analysis Guidelines. In order to disaggregate the parking demand for the two analysis periods, the Transportation Impact Analysis Guidelines data was supplemented with information developed by the Urban Land Institute for the evaluation of mixed-use developments and from field-collected data for selected uses. See Appendix C.

Residential and Hotel Uses

Per the Transportation Impact Analysis Guidelines, residential and hotel uses are expected to primarily generate long-term parking demand, attributable to hotel guests and employees.[30]

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[30] Hotels may also generate short-term parking demand if they include convention or meeting facilities catering that are regularly used by non-hotel guests.

Residential parking demand was estimated consistent with the Transportation Impact Analysis Guidelines methodology, adjusted to account for the expected amount of travel to and from the site by automobile, and the limited availability of residential parking supply (i.e., less than one vehicle parking space per unit). Long-term parking demand for the market rate residential units was estimated assuming 0.66 parking space for every studio/1-bedroom unit and 0.9 space for every unit with two or more bedrooms. In addition, consistent with the Transportation Impact Analysis Guidelines, the long-term parking demand for the affordable dwelling units (a minimum of 18 percent of the total number of units) was estimated assuming 0.45 space for every studio/1-bedroom unit and 0.9 space for every unit with two or more bedrooms.

Long-term vehicle parking demand for hotel guests was estimated based on a rate of 0.8 space per room (for Neighborhood-Commercial districts), while the employee parking demand was calculated by determining the number of daytime employees and applying the average mode split and vehicle occupancy from the trip generation estimation.

All Other Uses

Long-term parking demand for the office, R&D, PDR, retail, restaurant, assembly and community facility uses was estimated by applying the average mode split and vehicle occupancy from the trip generation estimation to the number of employees for each of the proposed land uses. Consistent with the *SF Guidelines*, short-term parking for these uses was estimated based on the total daily vehicle visitor trips and an average daily parking turnover rate of 5.5 vehicles per space per day, except for the supermarket use where a parking turnover rate of 11 vehicles per space was assumed.[31]

The peak parking demand estimates for the weekday midday and evening periods are presented in **Table 4.E-16**, **Proposed Project Peak Peaking Demand by Land Use and Time Period**. The proposed project would generate a parking demand for 4,205 spaces during weekday midday period (831 short-term and 3,374 long-term) and 3,009 spaces during the evening period (541 short-term and 2,468 long-term).

Methodology for Analysis of Cumulative Impacts

Foreseeable Nearby Development Projects

In addition to the full buildout of the adjacent Pier 70 Mixed-Use District project (described in Chapter 2, Section 2.D.1, Existing Site Characteristics and Site History), other reasonably foreseeable development projects were considered in the cumulative transportation analysis. These include those future development projects expected to be constructed by 2040, and which are included in the citywide travel demand forecasting (SF-CHAMP) model. Those in closest proximity to the proposed project site are individually described in Section 4.A, Table 4.A-1, Cumulative Projects in the Project Vicinity, p. 4.A-10.

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[31] As an example, a daily turnover rate of 5.5 means that each parking space is utilized by an average of 5.5 vehicles during the day.

TABLE 4.E-16
PROPOSED PROJECT PEAK PARKING DEMAND BY LAND USE AND TIME PERIOD

Land Use Type	Number of Occupied Parking Spaces[a]					
	Midday Period (Noon to 2 p.m.)			Evening Period (7 to 9 p.m.)		
	Short-term[b]	Long-term[c]	Total	Short-term[b]	Long-term[c]	Total
Residential	-	1,391	1,391	-	1,985	1,985
Hotel[d]	-	148	148	-	168	168
General Office	106	897	1,003	6	90	96
Research & Development/PDR	59	728	787	4	73	77
Retail/Supermarket	136	65	201	124	65	189
Restaurant/Entertainment/Assembly	437	80	517	395	79	474
Community Facilities/Open Space	93	65	158	12	8	20
Total Proposed Project	**831**	**3,374**	**4,205**	**541**	**2,468**	**3,009**

NOTES:

[a] Numbers may not sum to total due to rounding.
[b] Visitors and customers.
[c] Residents, hotel guests, and employees.
[d] Assumes that conference rooms or other hotel facilities would not regularly be used by non-guests.

SOURCE: Technical Memorandum – Potrero Power Station Mixed-Use Development Project Estimation of Project Travel Demand, April 2018. See Appendix C.

Cumulative Transportation Network Changes

Pier 70 Mixed-Use District Project Transportation Network Improvements

The Pier 70 Mixed-Use District project includes buildout of its internal roadway network. The primary east-west streets providing access to that site will be 20th and 22nd streets, and a planned new 21st Street within the site will provide secondary access. All streets will include sidewalks, and Maryland, 20th, and 22nd streets will include class II (bicycle lane) or class III (shared lane bicycle route) bicycle facilities. In addition, a multi-use path (i.e., the Bay Trail and Blue Greenway) will be provided along the waterfront and will connect the Pier 70 site to Crane Cove Park to the north, and to the Potrero Power Station project site to the south. Outside of the Pier 70 site, new traffic signals will be installed at the intersections of Illinois Street/20th Street, Illinois Street/ 21st Street, and Illinois Street/22nd Street, and the sidewalk on the east side of Illinois Street between 20th and 22nd streets will be reconstructed. In addition, parking on the east side of Illinois Street will be reconfigured from the existing diagonal to a parallel configuration, and existing traffic signs and poles located at the back of the sidewalk will be relocated adjacent to the curb as part of the Pier 70 Mixed-Use District project. The Pier 70 Mixed-Use District project will include a peak period shuttle route program. The development will be constructed in phases and is expected to be fully built out by 2029.

Indiana Street Bikeway Connection Project

The Indiana Street Bikeway Connection project is a local bicycle connection that would provide a north-south connection on Indiana Street between Cesar Chavez Street and the end of the I-280 ramps to the north (i.e., ramps between 25th and 23rd streets). Between Cesar Chavez Street and 25th Street, northbound and southbound bicycle lanes will be added to the segment by eliminating one northbound travel lane. Between 25th Street and the end of the I-280 ramps to the north, a two-way parking protected bikeway will be installed on the east side of the street. On-street parking and loading spaces will move from the curb. In addition, as part of this project, the SFMTA will also provide a short section of parking protected bikeway to connect Indiana Street to the signalized intersection at Cesar Chavez Street to avoid out of direction travel currently required on Minnesota Street from 23rd to Cesar Chavez streets. A longer-term bikeway project for Dogpatch will be studied. The SFMTA will install the bicycle lanes in late 2018.

The 22nd Street Green Connection Project

Public Work's 22nd Street Green Connection Project will create a new green connection between Illinois Street and the 22nd Street Caltrain station at Iowa Street, and eventually up the hill to the Potrero Hill Parks and Recreation center. The project includes sidewalk widening at corner bulbouts, replacement of sidewalk paving, and full repaving of the roadway. Installation of concrete and permeable unit pavers, plantings, pedestrian lights, bicycle racks, trash receptacles, benches, new painted and decorative crosswalks, and bicycle route markings (sharrows). Construction on the project broke ground in January of 2018, with construction estimated to be completed by the end of 2018.

Dogpatch Parking Management Plan

The SFMTA, in consultation with neighborhood residents, businesses, and key institutions, prepared a Dogpatch Parking Management Plan for the area bounded by Mariposa Street, Illinois Street, Cesar Chavez Street, and Iowa Street/I-280. Elements of the plan include revisions to on-street parking regulations, parking meters, and time limits, as well as creation of a new Residential Permit Parking[32] Area "EE" that expands the existing Residential Permit Parking Area "X". The Dogpatch Parking Management Plan was approved by the SFMTA Board in April 2018, and implementation of the changes to the on-street parking regulations are anticipated to be completed by September 2018.

Central Waterfront-Dogpatch Public Realm Plan

The Draft Central Waterfront-Dogpatch Public Realm Plan, initiated for adoption by the City Planning Commission in June 2018 will go to the Board of Supervisors for general plan amendment adoption in October 2018.[33] The Public Realm Plan is an interagency effort to identify and scope public realm improvements for the Central Waterfront-Dogpatch area to improve transportation and public realm infrastructure, as well as the ongoing shift in land uses and increase in population. The type of transportation projects identified in the plan include new, widened or reconstructed sidewalks on 16 street segments, corner bulbouts at 20 intersections along Illinois, Tennessee, Minnesota, and Indiana streets, and Pennsylvania Avenue, new crosswalk markings at more than 25 intersections, two raised midblock crossings on Tennessee and Minnesota streets, class II and

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[32] The preferential residential parking system (i.e., the Residential Permit Parking program) was established in 1976. The main goal of the program is to provide more parking spaces for residents by discouraging long-term parking by people who do not live in the area. Local regulations regarding the establishment of permit areas and requirements for permits can be found in the *San Francisco Transportation Code*, Division II, Article 900, *https://law.resource.org/pub/us/code/city/ca//0-snapshots/S-44/Transportation.html*.

[33] City and County of San Francisco, Addendum #3 to the Eastern Neighborhoods Rezoning and Area Plans, Final EIR, May 2, 2018. Planning Department Case File No. 2015-001821ENV.

class III bicycle facilities on 19th, Minnesota, and 24th streets, and a boardwalk over the wetlands within Warm Water Cove Park. Improvements would be implemented pending technical feasibility analyses and as funding becomes available.

Central Subway Project

This project will extend the Muni Metro T Third light rail line and provide a direct transit link between Mission Bay, SoMa, Union Square, and Chinatown. Four new stations will be constructed along the new 0.7-mile long alignment. The Central Subway will extend the T Third line northward from its current terminus at Fourth and King streets to a surface station south of Bryant Street and go underground at a portal under U.S. 101. From there it will continue north to stations at Moscone Center, Union Square—where it will provide passenger connections to the Muni/BART Powell station — and in Chinatown, where the line will terminate on Stockton Street at Clay Street. Construction is currently underway and is scheduled to be completed in 2018. Revenue service is scheduled for 2019.

Mission Bay Loop

Located within the Central Waterfront area on the blocks of 18th, Illinois, and 19th streets, this project is a component of the T Third light rail line and Central Subway projects. This project would allow trains to turn around to accommodate additional service between Mission Bay and the Market Street Muni Metro during peak demand periods and for special events. The existing trackway on 18th and 19th streets between Third and Illinois streets will be extended to and on Illinois Street to complete the loop. Pedestrian crosswalks and traffic signals will be installed at the intersections of Illinois Street/18th Street and Illinois Street/19th Street. Construction is currently underway and is scheduled to be completed in late 2018.

Muni Forward

The Muni Forward program includes a series of improvements to the Muni network in order to increase the frequency of services, simplify the network, and make network navigation easier for customers. These improvements include frequency increases for impacted routes, vehicle changes, extended hours for high demand commute routes, improved bus shelters, and changes to route names and numbers. Improvements that have been implemented in the project area include increasing the frequency of the K/T Muni Metro service and adding a new bus route (55 16th Street) between Mission Bay and the 16th Street BART station. Future changes include shifting the 22 Fillmore and 10 Townsend routes to Mission Bay.

16th Street Improvement Project

SFMTA will implement transit priority and pedestrian safety improvements for the 22 Fillmore route along 16th Street (formerly known as the 22 Fillmore Transit Priority Project). This project will include transit-only lanes, transit bulbs and islands, new traffic signals and a number of pedestrian safety upgrades. The project will also integrate infrastructure updates along 16th Street including repaving, utility work, and an extension of the Overhead Contact System from Kansas Street to Third Street to allow for zero-emission transit service into Mission Bay.

The 22 Fillmore Transit Priority Project extends along 16th Street between Third and Church streets. In the segment between Third and Seventh streets, side-running transit-only lanes will be implemented on 16th Street by converting a mixed-flow lane to a transit-only lane. West of Seventh Street, the transit-only lane will be side-running in the westbound direction, and center-running in the eastbound direction. The 22 Fillmore Transit Priority Project will also include corridor-wide transit network improvements such as transit bulbs, new traffic signals, pedestrian signals, sidewalk widening. Initial transit enhancements on 16th Street between Potrero Avenue and Fourth Street were implemented in fall 2017. The first phase of construction (i.e., replace underground utilities, upgrade traffic signals, repave the street, improve pedestrian safety, and plant trees) started in spring 2018. Construction of the project is expected to be substantially completed by summer 2020.

Muni Route XX

When the 22 Fillmore is extended to Mission Bay along 16th Street in 2020 or 2021, the SFMTA will provide replacement service south of 16th Street in the Dogpatch. However, at this time, the SFMTA is no longer considering the Muni Forward 33 Stanyan service improvement, which was to provide the replacement service. SFMTA is developing a new route, identified as "Route XX" in this EIR (specific route name to be determined). The SFMTA Bus Fleet Management Plan has identified the future proposed Route XX vehicle type as hybrid 40-foot buses and the number of vehicles per hour (seven buses during the a.m. and p.m. peak periods in 2020).[34] Additionally, the SFMTA Operating Budget, Fiscal Year 2019 and 2020 has allocated funds for operating the number buses identified on this route.[35] However, the SFMTA Board has not finalized or adopted details related to service route stops for the replacement Route XX. For 2040 cumulative analysis of transit ridership and capacity utilization, the analysis assumed the same service currently provided by the existing 22 Fillmore route. For the 2040 cumulative analysis of transit travel times, the qualitative assessment assumed the same routing as provided in the SFMTA Bus Fleet Management Plan[36] and shown in Figure 2-13, p. 2-31 in Chapter 2, Project Description.

Mission Bay Transportation Network Improvements

Buildout of the roadway network part of the Mission Bay Plan by the master infrastructure developer is nearing completion. Projects completed in June 2018 include the extension of Owens Street between 16th and Mariposa streets, and ramp and traffic signal improvements at the I-280 northbound off-ramp and southbound on-ramp at Mariposa Street. In 2019, the intersection of Minnesota Street/18th Street will be signalized (currently all-way stop sign controlled). In addition, as part of the Mission Bay Infrastructure Plan and the Chase Center construction, Terry A. Francois Boulevard between South Street and 16th Street is currently being improved and realigned, and construction is estimated to be completed in late 2018. Planned improvements include installation of a two-way, protected bicycle lane on the east side of the street.

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[34] City and County of San Francisco, *SFMTA Bus Fleet Management Plan 2017-*2030, March 2017.

[35] SFMTA, *Proposed Operating Budget Fiscal Year 2019 & Fiscal Year 2020*, adopted April 2018, *www.sfmta.com*.

[36] The SFMTA Bus Fleet Management Plan 2017-2030 specifies 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." Figure 23 in the plan shows the Route XX alignment along 16th, Connecticut, 18tht, Minnesota, and 22nd streets.

Chase Center Transportation Network Improvements

The Chase Center (Golden State Warriors' arena) project is currently constructing a variety of transportation network and circulation improvements adjacent to the site. These changes include the reconfiguration of South Street, 16th Street, and Terry A. Francois Boulevard; conversion of many all-way stop-controlled intersections to signalized intersections; and bicycle and pedestrian network improvements. Sixteenth Street will be rebuilt and extended to the realigned Terry A. Francois Boulevard. Sidewalks will be constructed, and new marked crosswalks will be installed in order to improve pedestrian networks in the project vicinity. Additionally, the Mission Bay Shuttle Program will be expanded to serve the site and the SFMTA will develop a special event service plan for the Chase Center. The project also includes the demolition of the existing separate northbound and southbound light rail platforms on Third Street north and south of South Street, and construction of a new center boarding platform on Third Street south of South Street. As part of construction of the new platform, the existing light rail tracks and overhead contact system lines will be reconfigured, two crossover tracks north and south of the new platform will be installed, and a mid-block signal will be installed on Third Street at Campus Lane (i.e., between South and 16th streets).

Mission Bay Ferry Landing and Water Taxi Landing

The proposed Mission Bay Ferry Landing and Water Taxi Landing project is located within Mission Bay near the intersection of Terry A. Francois Boulevard and 16th Street (as noted above, 16th Street will be extended between Illinois Street and Terry A. Francois Boulevard as part of the Chase Center project). The project would involve the construction of a single-float, two-berth ferry landing to provide regional ferry service, and a separate single-float, two-berth water taxi landing to provide local water taxi access to the Mission Bay area and surrounding neighborhoods. Commute service would be provided to/from Alameda-Oakland, Vallejo, and potentially Larkspur by the Water Emergency Transit Authority and the Golden Gate Bridge, Highway and Transportation District. Special event service for the Chase Center is also proposed for all Golden State Warriors' games and approximately 20 additional events per year. The project completed environmental review,[37] and construction of the ferry and water taxi landings is anticipated to commence in the summer of 2019 and be completed in 2021.

Cumulative VMT and Vehicle and Transit Demand

Future year 2040 cumulative VMT per capita were estimated based on cumulative development and growth identified by the San Francisco County Transportation Authority SF-CHAMP travel demand model, using model output that represents existing conditions and model output for 2040 cumulative conditions. The SF-CHAMP model uses 2040 residential and job growth estimates prepared by the Association of Bay Area Governments and adjusted by the San Francisco Planning Department, and the model also includes transportation network changes that are reasonably

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[37] City and County of San Francisco, Mission Bay Ferry Landing and Water Taxi Landing, Final Mitigated Negative Declaration, June 18, 2018. Planning Department Case File No. 2017-008824ENV.

foreseeable, including those in the latest adopted Regional Transportation Plan and the latest adopted San Francisco Transportation Plan, and/or those that are undergoing environmental review.[38]

Future 2040 cumulative traffic volumes were estimated based on cumulative development and growth identified by the San Francisco County Transportation Authority SF-CHAMP travel demand model, using model output that represents existing conditions and model output for 2040 cumulative conditions. The SF-CHAMP model is an activity-based travel demand model that is calibrated to represent future transportation conditions in San Francisco and is updated regularly. The model predicts person travel for a full day based on assumptions of growth in population, housing units, and employment. Future year 2040 intersection turning movement volumes were developed by applying growth values calculated from traffic volume growth between existing and 2040 conditions obtained from the SF-CHAMP model to actual traffic volumes collected in the field. The 2040 cumulative traffic volumes take into account cumulative development projects near the project site. The most recent available version of the SF-CHAMP model does not take into account the additional vehicle trips generated by the proposed project, so those were added separately to appropriately represent future 2040 cumulative traffic conditions with the proposed project.

The 2040 cumulative transit analysis accounts for ridership and/or capacity changes associated with Muni Forward, the Central Subway Project (which is scheduled to open in 2019), the new Transbay Transit Center, the electrification of Caltrain, the extension of Caltrain to the new Transbay Transit Center, expanded Water Emergency Transportation Authority ferry service, and additional capacity planned by BART, AC Transit, SamTrans, and Golden Gate Transit. The 2040 cumulative ridership and capacity for the Muni routes and regional screenline analysis was developed by the SFMTA based on the SF-CHAMP model analysis conducted for the Central SoMa Plan EIR. Similar to the estimation of cumulative traffic volumes, project trips were added to appropriately represent future 2040 cumulative transit conditions with the proposed project.

Impact Evaluation

Construction Impacts

Impact TR-1: Construction of the proposed project would not result in substantial interference with pedestrian, bicycle, or vehicle circulation and accessibility to adjoining areas, and would not result in potentially hazardous conditions. (*Less than Significant*)

The construction impact assessment is based on currently available information from the project sponsor and professional knowledge of typical construction practices citywide. Prior to construction, as part of the building permit process, the project sponsor and construction contractor(s) would be required to meet with San Francisco Public Works and SFMTA staff 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 would be required to meet the City of San Francisco's Regulations for Working in San Francisco

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[38] Manoj Madhavan and Chris Espiritu, San Francisco Planning Department, Memo to Transportation Team, "CEQA – 2040 SF-CHAMP Modeling Methodology Assumptions," April 25, 2016.

Streets, (the Blue Book), including those regarding sidewalk and lane closures, and would meet with SFMTA staff to determine if any special traffic permits would be required.[39] In addition to the regulations in the Blue Book, the contractor would be responsible for complying with all city, state and federal codes, rules and regulations. The project sponsor would be responsible for reimbursing the SFMTA for any temporary striping and signage during project construction.

Construction of the proposed project is expected to occur over the course of 15 years, from about 2020 to 2034 (see Table 2-2, Construction Schedule by Phase p. 2-52 in Chapter 2) and would be conducted in seven overlapping phases. The last six construction phases correspond to areas of the project site, with each consisting of two to three blocks and associated areas for streets and open spaces (see Figure 2-25, Proposed Project Phasing Plan, p. 2-51 in Chapter 2). Construction activities would include, but not be limited to: site demolition, clearing and excavation, grading, dewatering, pile installation and foundation construction, building construction, installation of utilities, paving, interior finishing and exterior streetscape, hardscaping and landscaping.

Construction-related activities would occur up to seven days a week, between 7 a.m. and 8 p.m. Nighttime construction activities would generally occur between 8 p.m. and 3 a.m. and would be limited to 23rd Street in Phase 1, before residential occupancy of the site. The contractor would be required to comply with the San Francisco Noise Ordinance (San Francisco Police Code article 29), in addition to the Blue Book as well as the public works code. In the case of a special permit for night construction, the hours of construction would be stipulated in the conditions of the special permit issued by either the building department if on private property, or public works if on public property, as applicable. Construction staging (staging of construction vehicles, staging of construction materials, construction worker parking, and delivery and haul trucks) would occur onsite mostly within or nearby the block under construction, and would vary by phase. See Appendix C for additional information about construction staging by phase.

During the construction period, building activities would generate traffic volumes from construction workers, truck deliveries of supplies and construction equipment, and hauling of excavated materials during demolition, excavation and grading. During the 15-year period, the number of construction trucks traveling to and from the site would vary, depending on the phase and type of construction activity. The peak number of construction vehicle trips (equipment and materials deliveries, and haul trips) would occur in 2022 with between 100 and 150 trucks per day, and for four months in 2024 with about 200 trucks per day. For about 90 percent of the 15-year construction period, there would be fewer than 100 trucks per day, and for 60 percent of the period there would be fewer than 50 trucks per day. See Appendix C for more information about construction vehicle trips during project construction.

A construction worker parking plan would be required prior to approval of excavation permits for major work per Board of Supervisor Ordinance Number 163-15. Public Works Ordinance 163-15 requires development of a contractor parking plan in order to obtain permits for major excavation work to reduce worker-vehicle demand or temporary parking demand. For the proposed project, the construction worker parking plan would be required to identify the location of construction

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[39] SFMTA, *SFMTA Blue Book*, 8th Edition, 2012, *www.sfmta.com*.

worker parking, as well as the person(s) responsible for monitoring the implementation of the proposed parking plan. The use of on-street parking to accommodate construction worker parking would be discouraged.

The impact of construction truck traffic would be a temporary lessening of the capacities of local streets in the project area due to the slower movement and larger turning radii of trucks. However, construction truck trips would not typically coincide with the peak commute periods. Third Street and Illinois Street would be used to access the site via 23rd Street. It is anticipated that a majority of the construction-related truck traffic would use Third and Illinois streets to travel to and from the U.S. 101 and I-280 ramps on Bayshore and Cesar Chavez, and 23rd and 25th streets to access the I-280 ramps at Pennsylvania and Indiana streets. Truck routes would be reviewed with the SFMTA as part of the permit process prior to construction.

As shown on Table 2-3, Project Daily Construction Workers by Year, (refer to p. 2-56 in Chapter 2), the number of daily construction workers would vary by year (depending on the overlap in phases and types of construction activities being performed) and would range between about 400 workers in 2030 to about 40 in 2033. However, it is anticipated that the addition of the worker-related vehicle- or transit-trips would not substantially affect transportation conditions, as any impacts on the transportation network would be temporary in nature and variable depending on the construction activity. Construction workers who drive to the site could cause a temporary increase in parking demand, although the initial phase of construction would include interim surface parking improvements for use by construction vehicles and other site users prior to the construction of permanent parking facilities. For the majority of the construction period, construction vehicle parking would be accommodated within the designated staging and parking areas within the site, or within the district parking garage following its completion in Phase 4 (2027-2031). The time-limited on-street parking in the vicinity of the project site would limit legal all-day parking by construction personnel.

There are no bus stops located adjacent to the project site on Illinois or 23rd streets, and therefore Muni bus routes would not be affected. The 48 Quintara/24th Street bus route runs southbound on Illinois Street between 20th and 22nd streets, however there are no bus stops on Illinois Street, and therefore relocation of bus stops would not be required. Near the project site the T Third light rail line operates within an exclusive median, and therefore, construction activities on the project site and construction vehicle travel to and from the project site would not affect T Third operations. Prior to construction, the project contractor would coordinate with Muni's Street Operations and Special Events Office to coordinate construction activities and minimize any conflicts with transit operations on Illinois Street to the north of the project site or along Third Street.

Reconstruction of the sidewalk on the east side of Illinois Street between Humboldt and 22nd streets, expected to occur during Phase 6 of the project, would require temporary rerouting of people walking to the west side of Illinois Street or to a temporary walkway within the adjacent parking lane, and on-street parking in this segment would need to be prohibited on both sides of the street for the duration of the sidewalk reconstruction. However, access to the sidewalk by people walking on the west side of Illinois Street would not be affected. Sidewalk and roadway improvements on 23rd Street would be staged as to maintain access to the existing uses on the south side of the street (i.e., the Storage San Francisco and the DHL Express facilities). During construction of 23rd Street, on-street parking would be prohibited, and travel lanes would be shifted to the portion of street not under construction. Any temporary occupancy of the public roadway and/or sidewalk would require either a Street Space Permit or a Temporary Occupancy Permit from San Francisco Public Works.

Overall, proposed project construction would maintain pedestrian circulation and would not require travel lane closures that would disrupt or substantially delay vehicles, including transit, bicyclists, and people walking on Illinois, Third, and 23rd streets. Furthermore, construction activities would be required to meet City rules and guidance (i.e., the Blue Book and public works requirements) so that work can be done with the least possible interference with pedestrians, bicyclists, vehicles and transit, and would therefore not result in potentially hazardous conditions. For the reasons described above, the proposed project's construction-related transportation impacts would be ***less than significant***.

Mitigation: None required.

While the proposed project's construction-related transportation impacts would be less than significant, the following improvement measure would further reduce the proposed project's less-than-significant impacts related to project construction activities.

Improvement Measure I-TR-A: Construction Management Plan and Public Updates

- ***Construction Management Plan***—The project sponsor will develop and, upon review and approval by the San Francisco Municipal Transportation Agency (SFMTA) and San Francisco Public Works, implement a Construction Management Plan, addressing transportation-related circulation, access, staging and hours of delivery. The Construction Management Plan would disseminate appropriate information to contractors and affected agencies with respect to coordinating construction activities to minimize overall disruption and ensure that overall circulation in the project area is maintained to the extent possible, with particular focus on ensuring transit, pedestrian, and bicycle connectivity. The Construction Management Plan would supplement and expand, rather than modify or supersede, the regulations, or provisions set forth by the SFMTA, Public Works, or other City departments and agencies, and the California Department of Transportation. Management practices could include: best practices for accommodating pedestrians and bicyclists, identifying routes for construction trucks to utilize, actively managing construction truck traffic, and minimizing delivery and haul truck trips during the morning (7 a.m. to 9 a.m.) and evening (4 p.m. to 6 p.m.) peak periods (or other times, as determined by the SFMTA).

  If construction of the proposed project is determined to overlap with nearby adjacent project(s) using the same truck access routes in the project vicinity, the project sponsor or its contractor(s) will consult with various City departments, as deemed necessary by the SFMTA, Public Works, and the Planning Department, to develop a Coordinated Construction Truck Routing Plan to minimize the severity of any disruption of access to land uses and transportation facilities. The plan will identify optimal truck routes between the regional facilities and the project sites, taking into consideration truck routes of other development and infrastructure projects and any construction activities affecting the roadway network.

- ***Carpool, Bicycle, Walk, and Transit Access for Construction Workers***—To minimize parking demand and vehicle trips associated with construction workers, the construction contractor will include as part of the Construction Management Plan methods to encourage carpooling, bicycle, walk and transit access to the project site by construction workers. These methods could include providing secure bicycle parking spaces, participating in free-to-employee and employer ride matching program from www.511.org, participating in the emergency ride home program through the City of San Francisco (www.sferh.org), and providing transit information to construction workers.
- ***Project Construction Updates for Nearby Businesses and Residents***—To minimize construction impacts on access to nearby residences and businesses, the project sponsor will provide nearby residences and adjacent businesses with regularly-updated information regarding project construction, including construction activities, peak construction vehicle activities, travel lane closures, and parking lane and sidewalk closures (e.g., via the project's website). A regular email notice will be distributed by the project sponsor that would provide current construction information of interest to neighbors, as well as contact information for specific construction inquiries or concerns.

Operational Impacts

VMT Impacts

Impact TR-2: The proposed project would not cause substantial additional VMT or induced automobile travel. (*Less than Significant*)

VMT Assessment

Land use projects may cause substantial additional VMT. As presented in Table 4.E-2, p. 4.E-6 above, the existing average daily VMT per capita for the traffic analysis zone in which the project site is located (i.e., TAZ 559) is below the existing regional average daily VMT:

- For the residential uses (includes residential units and hotel rooms), the average daily VMT per capita is 8.8, which is about 49 percent below the existing regional average daily VMT per capita of 17.2.
- For the office uses (includes office, R&D, PDR and community facility uses), the average daily work-related VMT per employee is 14.6, which is about 24 percent below the existing regional average daily work-related VMT per employee of 19.1.
- For the retail uses (includes retail, entertainment/assembly, and open space uses), the average daily retail VMT per employee is 10.8, which is about 28 percent below the existing regional average daily retail VMT per employee of 14.9.

Thus, as described above, the project site is located within an area of the city where the existing VMT is more than 15 percent below the regional VMT thresholds, and the proposed project would meet the City's Map-Based Screening for residential, office, and retail projects. As such, the proposed project land uses would not generate a substantial increase in VMT.[40] Furthermore, the project site meets the Proximity to Transit Stations screening criterion, which also indicates the proposed project's uses would not cause substantial additional VMT.[41] Therefore, for the reasons described above, the proposed project's operational impacts related to VMT would be ***less than significant***.

Induced Automobile Travel Assessment

The proposed project is not a transportation project. However, the proposed project would include features that would alter the transportation network. These features include new and reconstructed sidewalks, bicycle facilities, removal of on-street vehicle parking, new internal roadways, on-street commercial and passenger loading/unloading zones, and signalization of two intersections on Illinois Street. These features fit within the general types of projects identified above in "Approach to Analysis," specifically, under "VMT Analysis Methodology," beginning on p. 4.E-35 that would not substantially induce automobile travel. Therefore, proposed project impacts related to induced automobile travel would be ***less than significant.***

Mitigation: None required.

Traffic Hazards Impacts

Impact TR-3: The proposed project would not create major traffic hazards. (*Less than Significant*)

As described in "Approach to Analysis," specifically above under "Traffic Hazards Analysis Methodology," p. 4.E-37 in assessing traffic hazards, the proposed project's building characteristics and changes to the transportation network within the site and in the project vicinity were reviewed to determine whether they would obstruct, hinder, or impair reasonable and safe views by drivers of other vehicles, pedestrians, or bicyclists traveling on the same street, and/or restrict the ability of the driver to stop the motor vehicle without danger of an ensuing collision.

The proposed conceptual street network plans within the project site (see Chapter 2) were developed in consultation with various City agencies to prioritize safe bicycle and pedestrian travel within the site, limit curb cuts into garages and loading facilities, provide adequate turning radii and sight distances at intersections, and locate driveways to provide adequate sight distance for drivers, people walking, and bicyclists. The proposed project's roadways would accommodate

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[40] The Map-Based Screening for Residential, Office, and Retail Projects was applied to the proposed project. The project site is located within TAZ 559, which is within an area of the City where the existing VMT is more than 15 percent below the regional VMT thresholds, as documented in Executive Summary Resolution Modifying Transportation Impact Analysis, Attachment F (Methodologies, Significance Criteria. Thresholds of Significance, and Screening Criteria for Vehicle Miles Traveled and Induced Automobile Travel Impacts), Appendix A (San Francisco County Transportation Authority Memo), March 3, 2016, *http://commissions.sfplanning.org/cpcpackets/Align-CPC%20exec%20summary_20160303_Final.pdf*.

[41] San Francisco Planning Department. Eligibility Checklist: CEQA Section 21099 – Modernization of Transportation Analysis for Potrero Power Station Mixed-Use Development Project, September 13, 2018. This document is available for review at the San Francisco Planning Department, 1650 Mission Street, Suite 400 as part of Case File No. 2017-011878ENV.

various vehicle types, including trucks and buses. Roadway widths would be minimized, and ample sidewalk space would be provided to calm vehicle traffic, shorten pedestrian crossing distances, protect bicycle travel, and encourage walking and bicycling. These design standards and guidelines for development at the project site, which are consistent with the Better Streets Plan policies and design standards, would be established in the Potrero Power Station Design for Development document.

The proposed project street network designs would be required to undergo more detailed design and review to ensure that they are designed to meet City design standards. The street designs would be subject to approval by the SFMTA, Public Works, and the San Francisco Fire Department, along with other City agencies, to ensure that the streets are designed consistent with City policies and design standards and do not result in traffic hazards.

The proposed project also includes installation of two new traffic signals at the intersections of Illinois Street/23rd Street and Illinois Street/Humboldt Street. The traffic signals would be designed consistent with standards, as noted above, and would include pedestrian countdown signals and crosswalks consistent with the continental design. While the proposed project would add vehicle trips to the surrounding roadways, this general increase in traffic volumes would not be considered a traffic hazard.

Garage Operations

A queuing assessment of the district parking garage operations on Block 5 was conducted for a.m. and p.m. peak hour conditions for inbound vehicle arrivals (vehicles exiting the garage would queue within the garage and would not affect on-street operations). The district parking garage would be accessible via two mid-block alleys, one off of Humboldt Street and the other off of Georgia Lane (see Figure 2-9, p. 2-25 in Chapter 2 and also in Appendix C). The assessment assumed one entry lane per driveway and one ticket dispenser/gate control machine, although it is anticipated that for operational reasons (equipment maintenance, malfunction, etc.) a minimum of two ticket dispenser/gate control machines would be provided at each entry. The processing rate (i.e., the rate at which vehicles are able to enter the garage) was estimated at 4.2 vehicles per minute,[42] which accounts for all parkers being unfamiliar with the layout of garage and using the push button to gain access to the facility. This is a conservative assumption since regular users would have remote control access. The resulting 95th percentile queue[43] would be three vehicles at the alley off of Humboldt Street and four vehicles at the alley off of Georgia Lane entry lane. The entry control equipment at each entrance would be set back into the garage by a minimum of 40 feet, with sufficient room for two vehicles to wait inside the garage, which combined with the length of the alley, would accommodate the expected vehicle queuing without spilling back onto Humboldt Street or Georgia Lane.

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[42] *Parking,* Robert A. Weant and Herbert S. Levinson, Eno Transportation Foundation, 1990. Table 9-2, page 186. The processing rate of 4.2 vehicles per minute is based on a push button ticket dispenser entry control for entry design with a sharp turn within 100 feet of either side of the control position and/or parkers unfamiliar with the facility.

[43] The 95th percentile queue, which is customarily used in as a design value for parking garages, is the length of queue that has a probability of 5 percent or less of being exceeded during the analysis hour.

A similar queuing assessment of the alternate locations of the district parking garage on Blocks 1 and 13 was also conducted. As shown in Appendix C and described in Chapter 2, Section 2.E.1 Proposed Land Use Plan, the vehicular access for a district parking garage on these blocks would mostly occur directly from adjacent streets (i.e., Louisiana Street and Craig Lane for Block 1, and Georgia Street and a future mid-block alley for Block 13). Because vehicular access to the district parking garages on Block 1 and the main access on Block 13 would be directly from the adjacent streets, the design of the garage at either location would include two separate access points from different streets with two entry lanes and two entry control mechanisms. At each access point the entry control equipment would be set back into the garage by a minimum of 40 feet to accommodate at least two vehicles queuing within the garage at each entry lane. With this configuration, the resulting 95th percentile queue would be up to two vehicles at each entry lane at each street. Therefore, the design of the district parking garages on Blocks 1 and 13 would accommodate vehicle queuing onsite, without spilling back into the adjacent travel lanes, or blocking sidewalks.

While the proposed project's impacts related to garage operations would be less than significant, **Improvement Measures I-TR-B**, **Monitoring and Abatement of Queues**, would further reduce the less-than-significant impacts related to potential conflicts between vehicles accessing the parking garages and bicyclists, people walking and other vehicles. **Improvement Measure I-TR-B** would include monitoring and abatement of queues, should they affect pedestrian, bicycle or vehicular circulation. Thus, **Improvement Measure I-TR-B** would further reduce the proposed project's less-than-significant impacts related to parking.

Improvement Measure I-TR-B: Monitoring and Abatement of Queues

As an improvement measure to reduce the potential for queuing of vehicles accessing the project garages, it will be the responsibility of the project sponsor to ensure that recurring vehicle queues or vehicle conflicts do not occur adjacent to garage entries. A vehicle queue is defined as one or more vehicles blocking any portion of adjacent sidewalks, bicycle lanes, or travel lanes for a consecutive period of three minutes or longer on a daily and/or weekly basis.

If recurring queuing occurs, the owner/operator of the facility will employ abatement methods as needed to abate the queue. Appropriate abatement methods will vary depending on the characteristics and causes of the recurring queue, as well as the characteristics of the parking facility, the street(s) to which the facility connects, and the associated land uses (if applicable).

Suggested abatement methods include, but are not limited to the following: redesign of facility to improve vehicle circulation and/or onsite queue capacity; employment of parking attendants; installation of "GARAGE FULL" signs with active management by parking attendants; use of valet parking or other space-efficient parking techniques; use of other garages on the project site; use of parking occupancy sensors and signage directing drivers to available spaces; travel demand management strategies; and/or parking demand management strategies such as parking time limits, paid parking, time-of-day parking surcharge, or validated parking.

> If the planning director, or his or her designee, determines that a recurring queue or conflict may be present, the planning department will notify the project sponsor in writing. Upon request, the owner/operator will hire a qualified transportation consultant to evaluate the conditions at the site for no less than seven days. The consultant will prepare a monitoring report to be submitted to the planning department for review. If the planning department determines that a recurring queue or conflict does exist, the project sponsor will have 90 days from the date or the written determination to abate the recurring queue or conflict.

For the above reasons, the proposed project would not create traffic hazards, and therefore, proposed project impacts related to traffic hazards would be ***less than significant.***

> **Mitigation:** None required.

Transit Impacts

Impact TR-4: The proposed project would result in a substantial increase in transit demand that could not be accommodated by nearby Muni transit capacity. (*Significant and Unavoidable with Mitigation*)

As presented in Table 4.E-14 above, the proposed project would generate 1,926 new transit trips during the a.m. peak hour (994 inbound towards the project site and 932 outbound leaving the project site), and 2,335 new transit trips during the p.m. peak hour (1,170 inbound and 1,164 outbound). Due to the close to similar amounts of residential and non-residential development (i.e., about 60 percent residential and 40 percent non-residential), the proportion of inbound versus outbound trips are similar. These new transit trips would utilize the nearby Muni routes and regional lines and would include transfers to other Muni bus routes and light rail lines, or other regional transit service. As described above in "Approach to Analysis," specifically, under "Project Travel Demand Methodology," p. 4.E-40, based on the location of the project site and the anticipated origins and destinations of the new resident, employee, and visitor trips, the transit trips were assigned to Muni and the various regional transit operators (see Appendix C for details).

Table 4.E-17, **Muni Transit Analysis**, presents the transit analysis for a.m. and p.m. peak hour conditions for the T Third light rail line and the 22 Fillmore and 48 Quintara/24th Street bus routes that serve the project vicinity. As noted above, some portion of the project-generated trips would use the project shuttle buses (i.e., trips to and from destinations not directly served at the site by Muni, such as Caltrain's 22nd Street station, BART's 16th Street station, connections with Muni routes in the Mission neighborhood, or service riders with origins or destinations in the Mission neighborhood), and therefore the project shuttle service is also included in the analysis. As shown on Table 4.E-17, during both the weekday a.m. and p.m. peak hours, the project-generated transit trips assigned to the T Third light rail line would be accommodated at the maximum load point without exceeding the 85 percent capacity utilization standard. During the a.m. peak hour, the capacity utilization on the 22 Fillmore and 48 Quintara/24th Street bus routes would exceed the 85 percent capacity utilization standard in the inbound direction towards the project site, while the capacity utilization at the maximum load point with the addition of trips leaving the project site

would not exceed the 85 percent capacity utilization standard. During the p.m. peak hour, the utilization on the 22 Fillmore and 48 Quintara/24th Street bus routes would exceed the 85 percent capacity utilization standard in the outbound direction leaving the project site, while the utilization for trips traveling towards the project site would not exceed the 85 percent capacity utilization standard. The increase in utilization at the maximum load point above the 85 percent capacity utilization standard on the 22 Fillmore and 48 Quintara/24th Street bus routes during both the a.m. and p.m. peak hours as a result of the addition of project-generated transit trips would be considered a *significant* impact.

TABLE 4.E-17
MUNI TRANSIT ANALYSIS – EXISTING PLUS PROJECT CONDITIONS – WEEKDAY A.M. AND P.M. PEAK HOURS

	Inbound To Site				Outbound From Site			
Peak Hour/Route	Project Trips	Total Ridership	Capacity	Capacity Utilization[a]	Project Trips	Total Ridership	Capacity	Capacity Utilization
a.m. Peak Hour								
T Third[b]	333	1,430	3,808	37.6%	401	2,332	3,808	61.2%
22 Fillmore	**159**	**423**	**441**	**95.9%**	94	407	504	80.8%
48 Quintara/24th Street	**83**	**320**	**315**	**101.6%**	60	310	378	82.8%
Proposed Project Shuttle[c]	389	389	450	86.4%	345	345	450	76.7%
Total	964	2,562	5,014	51.1%	900	2,494	5,140	48.5%
p.m. Peak Hour								
T Third[b]	474	2,414	3,808	63.4%	397	2,139	3,808	56.2%
22 Fillmore	136	478	567	84.3%	**186**	**489**	**567**	**86.2%**
48 Quintara/24th Street	78	236	315	74.9%	**96**	**322**	**378**	**85.2%**
Proposed Project Shuttle[c]	446	446	450	91.1%	448	448	450	99.6%
Total	1,134	3,574	5,140	69.5%	1,129	3,398	5,203	65.3%

NOTES:
[a] Muni capacity utilization exceeding 85 percent highlighted in **bold.** Significant project impacts shaded.
[b] Ridership and capacity for the T Third reflect implementation of the Central Subway project.
[c] Proposed project shuttle assumed a capacity of 450 riders each way.

SOURCE: Pier 70 Mixed-Use District Project EIR (certified August 2017), Adavant Consulting/Fehr & Peers/LCW Consulting, 2018

Implementation of **Mitigation Measure M-TR-4, Increase Capacity on the Muni 22 Fillmore and 48 Quintara/24th Street Routes**, would enable the SFMTA to provide additional transit vehicles to accommodate increased ridership demand generated by the proposed project, and would reduce the proposed project's impact to less-than-significant levels. The number of buses required to accommodate the additional demand within the capacity utilization standard was based on an analysis of the ridership and available capacity on the routes. The analysis also determined at what phase of project buildout would the 85 percent standard be exceeded. The calculations are included in Appendix C. However, because implementation of features of the mitigation measure above are outside the control of the project sponsor and would require discretionary approval actions by the SFMTA and other public agencies (including allocation of funds to operate increased frequencies), implementation of this measure is considered uncertain. Public agencies subject to CEQA cannot commit to implementing any part of a proposed project, including proposed mitigation measures, until environmental review is complete. Thus, while the SFMTA has reviewed the feasibility of the options described below, implementation of these options cannot be assured before certification of this EIR. Because it is unknown whether Mitigation Measure M-TR-4, Increase Capacity on the Muni 22 Fillmore and 48 Quintara/24th Street Routes, would be implemented, project-related impacts on the 22 Fillmore and the 48 Quintara/24th Street routes would be ***significant and unavoidable with mitigation***.

Mitigation Measure M-TR-4: Increase Capacity on Muni 22 Fillmore and 48 Quintara/ 24th Street Routes

The project sponsor shall provide capital costs to the San Francisco Municipal Transportation Agency (SFMTA) that allow for increased capacity on each affected route to be provided in a manner deemed acceptable by SFMTA through the following means:

- The project sponsor shall pay the capital costs, adjusted for inflation, for the additional buses that would be necessary to accommodate the projected travel demand within the 85 percent capacity utilization standard. The additional capacity required to reduce the capacity utilization to below the 85 percent standard would be one additional bus on the 48 Quintara/24th Street route when the proposed project is 35 percent built out (i.e., prior to construction of Phase 3 of the project) and one additional bus on the 22 Fillmore route when the project is 65 percent built out (i.e., prior to construction of Phase 5 of the project). While the project sponsor will provide funding for procurement of the two buses, the SFMTA would need to identify funding to pay for the added operating cost associated with operating increased service made possible by the increased vehicle fleet. The source of that funding has not been established.

- Alternatively, if the SFMTA determines that the options described below increase capacity along the route would more effectively address the impacts of the project on affected routes at 35 or 65 percent buildout, the project sponsor shall pay an amount equivalent to the cost of two buses toward completion of one or more of the following options, as determined by the SFMTA:

  - Convert to using higher-capacity vehicles on the 22 Fillmore (or alternative route) and 48 Quintara/24th Street routes. In this case, the project sponsor funding shall be used to pay a portion of the capital costs to convert the route from standard buses (with a capacity of 63 passengers) to articulated buses (with a capacity of 94 passengers). Some bus stops along the routes may not currently be configured to accommodate the longer articulated buses. Some bus zones could likely be extended by removing one or more parking spaces; in some locations, appropriate space may not be available. The project sponsor's contribution may not be adequate to facilitate the full conversion of the route to articulated buses. The source of funding needed to complete the remainder, including improvements to bus stop capacity at all of the bus stops along the route that do not currently accommodate articulated buses, has not yet been established.

  - Increase bus travel speeds along the route. In this case, the project sponsor's funding would be used to fund a study to identify appropriate and feasible improvements and/or implement a portion of the improvements that would increase bus travel speeds sufficiently to increase capacity along the affected route(s) such that the project's impacts along the route(s) would be determined to be less than significant. Increased speeds could be accomplished by funding a portion of the current 16th Street Improvement Project along 16th Street between Church and Kansas streets. Adding a traffic signal with transit signal priority at the intersection of Pennsylvania Avenue/22nd Street may increase travel speeds on this relatively short segment of the 48 Quintara/24th Street bus route. The project sponsor's funding may not be adequate to fully achieve the capacity increases needed to reduce the project's impacts and SFMTA may need to secure additional sources of funding.

- Another option to increase capacity in the vicinity of the project site is to add a new Muni service route in this area. By providing an additional service route, a percentage of the current transit riders on the 22 Fillmore and 48 Quintara/ 24th Street would likely shift to the new route, lowering the capacity utilization below the 85 percent utilization standard for the 22 Fillmore (or the alternative route) and 48 Quintara/24th Street. The SFMTA may need to secure funding to pay for operating the new route.

Significance after Mitigation: Implementation of the proposed project would result in significant transit impacts on Muni capacity utilization on the 22 Fillmore and 48 Quintara/ 24th Street bus routes. Implementation of Mitigation Measure M-TR-4, Increase Capacity on Muni 22 Fillmore and 48 Quintara/24th Street Routes would reduce the effect of increased ridership to less-than-significant levels. However, because it is not known whether SFMTA would be able to provide additional service on the impacted routes to fully mitigate project impacts, the proposed project's transit impact on the 22 Fillmore and the 48 Quintara/24th Street routes would be considered ***significant and unavoidable with mitigation***.

Impact TR-5: The proposed project would result in a substantial increase in delays or operating costs such that significant adverse impacts to Muni would occur. (*Significant and Unavoidable with Mitigation*)

As discussed in "Approach to Analysis," beginning on p. 4.E-30 the impact of the proposed project on Muni transit operations in terms of increased transit travel times was analyzed for the 22 Fillmore and 48 Quintara/24th Street bus routes and the T Third light rail line for a.m. and p.m. peak hour conditions. The analysis assessed the impact of project-generated vehicles and transit ridership on these routes as they travel through the transportation study area. Impacts of the proposed project on transit operations were determined to be significant if under existing plus project conditions transit travel times would increase by 50 percent or more of the existing headway between transit vehicles.

As presented in Table 4.E-14 above, the proposed project would generate about 2,006 vehicle trips during the a.m. peak hour (1,103 inbound to and 904 outbound from the project site) and about 2,644 vehicle trips during the p.m. peak hour (1,245 inbound to and 1,399 outbound from the project site). Third and Illinois streets would be the primary streets used to access the project site via 23rd, Humboldt, and 22nd streets. Along Third Street, project-generated vehicle trips would increase traffic volumes at multiple approaches at these intersections, and the southbound left turn vehicle demand would exceed the ability of the existing left-turn-only pockets at the intersections of Third Street/20th Street and Third Street/23rd Street to accommodate the increased demand. These southbound left turn pockets are currently about 100 to 180 feet in length, and due to right-of-way constraints on Third Street (i.e., light rail tracks, platforms), the roadway cannot be extended to accommodate additional vehicles. As a result, under existing plus project conditions, it is anticipated that some drivers traveling to the project site during the peak periods would change their travel paths to avoid the southbound left queues and the consequential spillback into the adjacent through lane. Instead, drivers would seek alternate routes on streets parallel to Third Street to the west (specifically Tennessee, Minnesota, Indiana, Pennsylvania, and Mississippi streets), and travel eastbound across Third Street at 20th, 22nd, or 23rd streets to access the project site. Under existing plus project conditions, between 90 and 140 vehicles during the a.m. and p.m. peak hours traveling to the project site along Third Street are estimated to divert to alternative routes.

Table 4.E-18, Muni Transit Travel Time Analysis, Existing Plus Project Conditions, Weekday a.m. and p.m. Peak Hours presents the transit travel delay analysis for a.m. and p.m. peak hour conditions for the 22 Fillmore and 48 Quintara/24th Street bus routes and the T Third light rail line for existing plus project conditions. As shown on the table, transit travel times on the 48 Quintara/24th Street route during the a.m. and p.m. peak hours would increase by more than six minutes. However, as shown on Table 4.E-18, this increase would be less than the half of a headway threshold of seven minutes, and therefore, impacts on the 48 Quintara/24th Street would be *less than significant*.

TABLE 4.E-18
MUNI TRANSIT TRAVEL TIME ANALYSIS – EXISTING PLUS PROJECT CONDITIONS – WEEKDAY A.M. AND P.M. PEAK HOURS

	a.m. Peak Hour			p.m. Peak Hour		
Route	**Existing Headway (min)**	**Travel Time (TT) Increase (min:sec)**	**TT Increase as % of Headway**	**Existing Headway (min)**	**Travel Time (TT) Increase (min:sec)**	**TT Increase as % of Headway[a]**
22 Fillmore	8	1:10	15%	8	4:24	55%
48 Quintara/24th Street	10	2:13	22%	14	6:27	46%
T Third[b]	8	1:21	17%	8	1:34	20%

NOTES:

[a] Shaded indicates significant project impact: travel time increases more than 50 percent of the existing transit route headway.

[b] The travel time increases for the T Third are exclusively due to passenger boarding/alighting delay as this route experiences no increase in transit vehicle re-entry delay or intersection delay due to its operation within a dedicated median right-of-way.

SOURCE: SFMTA, Adavant Consulting/Fehr & Peers/LCW Consulting, 2018.

In addition, as shown on Table 4.E-18, travel times increases on the T Third line would not exceed the half of the headway threshold. Near the project site the T Third light rail travels on tracks located within a dedicated median[44] and is subject to traffic signal controls at intersections, which are currently programmed for light rail priority.[45] The transit operations analysis assumed that the amount of green time available to the light rail vehicle would remain the same as under existing conditions. Therefore, the Third light rail would not be substantially affected by increases in congestion within the mixed-flow travel lanes at intersections along Third Street, and project impacts on the T Third would be *less than significant*. This would be the case even if the intersection signal timings at Third Street at both 20th and 23rd streets were to be adjusted to allow the southbound left phase to be 20 seconds in length at all times. The phase duration is currently a default of 20 seconds but is shortened to 13 seconds when transit signal priority is activated by a light rail vehicle approaching the intersection. Fixing the duration of the southbound left turn phase at 20 seconds at all times would accommodate additional vehicles making this turn, but it would commensurately reduce the green time for the northbound through/southbound through phase during which the light rail operates by seven seconds when transit signal priority is activated. This shift of seven seconds from the northbound and southbound through movements is the maximum amount of green time determined by SFMTA to be feasible. Thus, the signal timing change would decrease the effectiveness of the existing transit signal priority timings at the Third Street intersections (i.e., trains would be more likely to arrive at the intersection when the signal is red and wait longer should they arrive at a red signal) and the T Third light rail would experience additional delays, however, travel times would not increase as to exceed the significance threshold (i.e., would not increase to more than half of the headway between trains).

However, as shown on Table 4.E-18, under existing plus project conditions, transit travel times would increase to more than half of the existing headway on the 22 Fillmore route during the p.m. peak hour. This additional delay would be considered a *significant* impact of the project on operations of the 22 Fillmore bus route. Implementation of **Mitigation Measure M-TR-5, Implement Measure to Reduce Transit Delay**, would assist in reducing increased transit travel times along the 22 Fillmore route during the p.m. peak hour by requiring the project sponsor to implement additional TDM measures identified in the City's TDM Program Standards Appendix A (or as such appendix is amended by the Planning Department in the future) that have not yet been included in the project's proposed TDM Plan that would encourage use of non-auto modes, provide onsite services to reduce the need to travel offsite, discourage driving, and reduce availability of onsite vehicle parking. This mitigation measure identifies a performance standard of the maximum number of project-generated p.m. peak hour vehicle trips for each phase of project buildout. This measure provides for monitoring of vehicle trips generated by project operation starting before the beginning of construction and continuing through project buildout. The measure also states that if the additional

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[44] The T Third light rail tracks are in an exclusive median within the street right-of-way, and vehicle travel lanes are located on either side of the right rail median. The exception to this configuration is in the nine-block segment in the Bayview commercial core, where the light rail operates in mixed-flow lanes in order to preserve on-street parking in this area.

[45] There are two components to the light rail transit signal priority along Third Street. 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.

TDM measures do not achieve the performance standard, then the City shall impose additional onsite or offsite capacity improvements intended to reduce vehicle trips from the project. However, because the project-specific effectiveness of the various additional TDM strategies is unknown at this time, the project-related impacts on travel times on the 22 Fillmore route would remain ***significant and unavoidable with mitigation***.

For informational purposes, in addition to the project-specific delays to the individual Muni routes and light rail line providing revenue service in the study area, other Muni non-revenue service vehicles and the project's own shuttle service may also experience delays. Due to the substantial increases in vehicles that would be generated by the proposed project, people driving to and from the project site are anticipated to use multiple north-south and east-west streets in the study area, and, as a result, it is anticipated that vehicular delays would increase along these streets. Muni non-revenue service vehicles use some of these streets to travel between Muni facilities in the study area (i.e., Woods, Islais Creek, and Muni Metro East) and the terminus point where their revenue service begins or ends. While the peak hour of non-revenue transit vehicle access to and from these facilities is outside the a.m. and p.m. peak hours analyzed for analysis of impacts to revenue service in Table 4.E-18, these transit vehicles may also experience delays along these streets. Mitigation Measure M-TR-5 may help reduce impacts related to any delays experienced by those non-revenue service transit vehicles.

Mitigation Measure M-TR-5: Implement Measures to Reduce Transit Delay

Performance Standard. The project sponsor shall be responsible for implementing transportation demand management (TDM) measures to limit the number of project-generated vehicle trips during the p.m. peak hour to a maximum of 89 percent of the EIR-estimated values of each of the phases of project development (performance standard), as shown in the table below. The number of vehicle trips by phase to meet the above stated performance standard shall be included in the approved TDM Plan.

Project Development Phase	Maximum P.M. Peak Hour Vehicle Trips	
	Phase Total	Running Total
Phase 1	380	380
Phase 2	400	780
Phase 3	270	1,050
Phase 4	640	1,690
Phase 5	300	1,990
Phase 6	270	2,260

Monitoring and Reporting. Within one year of issuance of the project's first certificate of occupancy, the project sponsor shall retain a qualified transportation consultant approved by the SFMTA to begin monitoring daily and p.m. peak period (4 p.m. to 7 p.m.) vehicle trips in accordance with an SFMTA and San Francisco Planning Department agreed upon monitoring and reporting plan, which shall be included as a part of the approved TDM Plan. The vehicle data collection shall include counts of the number of vehicles entering and exiting the project site on internal streets at the site boundaries on 22nd, Illinois, and

23rd streets for three weekdays. The data for the three weekdays (Tuesday, Wednesday or Thursday) shall be averaged, and surveys shall be conducted within the same month annually. A document with the results of the annual vehicle counts shall be submitted to the Environmental Review Officer and the SFMTA for review within 30 days of the data collection, or with the project's annual TDM monitoring report as required by the TDM Plan (if the latter is preferable to Environmental Review Officer in consultation with the SFMTA).

The project sponsor shall begin submitting monitoring reports to the Planning Department 18 months following 75 percent occupancy of the first phase. Thereafter, annual monitoring reports shall be submitted (referred to as "reporting periods") until eight consecutive reporting periods show that the fully built project has met the performance standard, or until expiration of the project's development agreement, whichever is earlier.

If the City finds that the project exceeds the stated performance standard for any development phase, the project sponsor shall select and implement additional TDM measures in order to reduce the number of project-generated vehicle trips to meet the performance standard for that development phase. These measures could include expansion of measures already included in the project's proposed TDM Plan (e.g., providing additional project shuttle routes to alternative destinations, increases in tailored transportation marketing services, etc.), other measures identified in the City's TDM Program Standards Appendix A (as such appendix may be amended by the Planning Department from time to time) that have not yet been included in the project's approved TDM Plan, or, at the project sponsor's discretion, other measures not included in the City's TDM Program Standards Appendix A that the City and the project sponsor agree are likely to reduce peak period driving trips.

For any development phase where additional TDM measures are required, the project sponsor shall have 30 months to demonstrate a reduction in vehicle trips to meet the performance standard. If the performance standard is not met within 30 months, the project sponsor shall submit to the Environmental Review Officer and the SFMTA a memorandum documenting proposed methods of enhancing the effectiveness of the TDM measures and/or additional feasible TDM measures that would be implemented by the project sponsor, along with annual monitoring of the project-generated vehicle trips to demonstrate their effectiveness in meeting the performance standard. The comprehensive monitoring and reporting program shall be terminated upon the earlier of (i) expiration of the project's development agreement, or (ii) eight consecutive reporting periods showing that the fully built project has met the performance standard. However, compliance reporting for the City's TDM Program shall continue to be required.

If the additional TDM measures do not achieve the performance standard, then the City shall impose additional measures to reduce vehicle trips as prescribed under the development agreement, which may include on-site or off-site capital improvements intended to reduce vehicle trips from the project. Capital measures may include, but are not limited to, peak period or all-day transit-only lanes (e.g., along 22nd Street), turn pockets, bus bulbs, queue jumps, turn restrictions, pre-paid boarding pass machines, and/or boarding islands, or other measures that support sustainable trip making.

> The monitoring and reporting plan described above may be modified by the Environmental Review Officer in coordination with the SFMTA to account for transit route or transportation network changes, or major changes to the development program. The modification of the monitoring and reporting plan, however, shall not change the performance standard set forth in this mitigation measure.

Significance after Mitigation: Mitigation Measure M-TR-5, **Implement Measures to Reduce Transit Delay**, aims to reduce the impact of project-generated vehicle trips on congestion and transit travel times at intersections by implementing additional TDM measures that would provide onsite services to reduce the need to travel offsite, shift project vehicle trips to non-peak periods, and encourage use of other non-auto modes, including bicycling. Shift of a portion of project-generated vehicles to other modes would reduce projected existing plus project increases in congestion and transit travel times at intersections through which the 22 Fillmore route travels. However, because it is not certain that implementation of these measures, or other capital improvements that would be required if the performance standard is not met by implementation of TDM measures, would effectively reduce project-generated vehicles to mitigate impacts on the 22 Fillmore route to less-than-significant levels, the project-related impacts on the 22 Fillmore route would remain ***significant and unavoidable with mitigation***. Measures that encourage shifts of project-generated trips from auto to transit mode would increase project ridership on bus routes that were identified in Impact TR-4 above to experience significant transit capacity impacts (i.e., on the 22 Fillmore and 48 Quintara/24th Street bus routes).

Impact TR-6: The proposed project would not result in a substantial increase in regional transit demand that could not be accommodated by regional transit capacity and would not result in a substantial increase in delays or operating costs such that significant adverse impacts to regional transit would occur. (*Less than Significant*)

Capacity Utilization

The proposed project would generate 631 new transit trips to and from the East Bay, North Bay, and South Bay during the a.m. peak hour (370 inbound towards the project site and 261 outbound leaving the project site), and 796 new transit trips during the p.m. peak hour (369 inbound and 427 outbound). As described in Approach to Analysis under "Transit Analysis Methodology" the analysis of regional transit assesses the effect of project-generated transit-trips on the three regional screenlines. The regional screenline analysis is conducted for the inbound direction (i.e., towards San Francisco) during the a.m. peak hour, and in the outbound direction (i.e., leaving San Francisco) during the p.m. peak hour. Based on the origins/destinations of the transit trips generated by the proposed project, the regional transit trips were assigned to the three regional screenlines.

Table 4.E-19, **Regional Transit Analysis**, presents the regional screenline analysis for existing plus project conditions for the transit trips for a.m. peak and p.m. peak hour conditions. During the a.m. peak hour, of the 370 inbound trips, 196 would be arriving from the East Bay, 37 from the North Bay, and 137 from the South Bay. Of the 427 outbound trips during the p.m. peak hour, 219 would be destined to the East Bay, 46 to the North Bay, and 162 to the South Bay.

TABLE 4.E-19
REGIONAL TRANSIT ANALYSIS – EXISTING PLUS PROJECT CONDITIONS – WEEKDAY A.M. AND P.M. PEAK HOURS

Scenario/Regional Screenline	a.m. Peak Hour Inbound Regional Screenlines				p.m. Peak Hour Outbound Regional Screenlines			
	Project Trips	Ridership	Capacity	Capacity Utilization[a]	Project Trips	Ridership	Capacity	Capacity Utilization
Existing plus Project								
East Bay								
BART	**176**	**25,575**	**23,256**	**110.0%**	**197**	**24,685**	**22,784**	**108.3%**
AC Transit	14	1,582	2,829	55.9%	15	2,271	3,926	57.9%
Ferries	6	816	1,170	69.7%	7	812	1,615	50.3%
East Bay Subtotal	**196**	**27,973**	**27,255**	**102.6%**	219	27,768	28,325	98.0%
North Bay								
Buses	20	1,350	2,543	53.1%	25	1,409	2,817	50.0%
Ferries	17	1,099	1,959	56.1%	21	989	1,959	50.5%
North Bay Subtotal	37	2,449	4,502	59.4%	46	2,398	4,776	50.2%
South Bay								
BART	116	14,266	19,367	73.7%	136	13,638	18,900	72.2%
Caltrain	21	2,192	3,100	70.7%	24	2,401	3,100	77.5%
SamTrans	0	255	520	49.0%	0	141	320	44.1%
East Bay Subtotal	137	16,713	22,987	72.7%	162	16,180	22,320	72.5%
Regional Total	370	47,135	54,744	86.1%	427	46,436	55,421	83.6%

NOTE:

[a] Capacity utilization on regional providers exceeding 100 percent highlighted in **bold.** Significant project impacts shaded.

SOURCE: SF Planning Department Memoranda, Transit Data for Transportation Impact Studies, May 2015 and Updated BART Regional Screenlines, October 2016, Adavant Consulting/Fehr & Peers/LCW Consulting, 2018

In general, the addition of the project-generated riders would not have a substantial effect on the regional transit providers during either the weekday a.m. or p.m. peak hours, and the overall regional screenlines would continue to operate under 100 percent capacity utilization. However, BART from the East Bay during the a.m. peak hour and to the East Bay during the p.m. peak hour would continue to operate at more than 100 percent capacity utilization. During both peak hours, the project trips would represent less than 5 percent of the total BART East Bay ridership at the screenline (i.e., contributions of 0.7 and 0.8 percent during the a.m. and p.m. peak hours, respectively), which would not be considered considerable, and therefore, impacts would be *less than significant*.

Transit Operations

In the project vicinity, Caltrain operates within an exclusive right-of-way, and there are no regional transit routes operating on streets that could be affected by the proposed project. The majority of the regional bus routes serve downtown, and the closest SamTrans bus routes run along Potrero Avenue (about one mile west of the project site), and SamTrans buses are permitted to travel within the recently-installed transit-only lanes on Potrero Avenue. Therefore, the project would have *no impact* on regional transit operations in the project vicinity.

In summary, for the reasons described above, the proposed project would not substantially affect the capacity utilization or operations of regional transit service providers, and impacts to regional transit would be ***less than significant.***

Mitigation: None required.

Pedestrian Impacts

Impact TR-7: The proposed project would not create hazardous conditions for people walking, or otherwise interfere with accessibility for people walking to the site or adjoining areas, but existing pedestrian facilities could present barriers to accessible pedestrian travel. (*Less than Significant with Mitigation*)

The proposed project would build out the internal street network consistent with Better Streets Plan standards. All streets within the project site would include sidewalks, with widths ranging between 10 and 19 feet wide. On streets designated as private alleys (i.e., Delaware Street north of Humboldt Street, Louisiana Street, and Craig Lane), sidewalks would be between 4 to 9 feet wide and the alleys would be designed to reduce vehicle speeds. Delaware Street north of Humboldt Street and Louisiana Street would be shared streets or alleys. At intersections within the project site, curb extensions (i.e., bulbouts) and crosswalks consistent with the Better Streets Plan would be provided.

Within the project site, raised street segments would be provided on Humboldt, Maryland, and Delaware streets adjacent to the Waterfront Park to provide additional traffic calming and pedestrian priority in areas where more intensive pedestrian activities are anticipated to occur. Chapter 2, Figure 2-12, Proposed Pedestrian Network, presents the proposed pedestrian network within the site and connections to the west, and it also identifies the priority pedestrian zones. Driveway access to garages and off-street loading facilities would be located to meet the minimum width and frequency necessary. In addition, daylighting (i.e., restricting parking adjacent to corners to enhance visibility for people walking, bicyclists, and drivers at intersections) would be implemented at intersections. Thus, the pedestrian-related features of the proposed project would accommodate people walking within the site and would not result in hazardous conditions or present barriers to people walking.

The *Garage Operations* assessment (detailed under Impact TR-3) considered whether vehicle queues generated by the district parking garage would affect pedestrians at garage access points. A queuing assessment of the district parking garage operations on Block 5, as well as on the alternate locations on Blocks 1 and 13, showed that vehicle accessing the garage would not block adjacent sidewalks.

The proposed project also includes signalization of the intersections of Illinois Street/23rd Street and Illinois Street/Humboldt Street, which would include new or reconstructed ADA compliant ramps, as necessary, crosswalks with the continental design, and pedestrian countdown signals.

Table 4.E-13 above presents the number of person trips that would leave the project site (i.e., external trips), and includes people walking to and from local and regional transit stops and other land uses in the project vicinity. During the weekday a.m. peak hour, the proposed project land uses would add up to 2,667 new trips by walking to the sidewalks and crosswalks in the vicinity of the project site (i.e., 1,796 trips to transit and 871 trips by other modes, a portion of which would be by people walking), while during the p.m. peak hour, the proposed project would add up to 3,987 new trips by walking (i.e., 2,223 trips to transit stops and 1,764 trips by other modes, a portion of which would be by people walking).

Outside of the project site, travel paths for people walking would primarily include both sides of 23rd Street between Illinois and Third streets (to/from the T Third light rail stops), along Third Street between 23rd and 20th streets (to/from the 22 Fillmore route stop on 20th Street at Third Street), 22nd Street between Illinois and Minnesota streets (to/from the 48 Quintara/24th Street route stops on 22nd Street), and Illinois Street between 23rd and 22nd streets. Under existing plus project conditions, it is not anticipated that a substantial number of project-generated trips by people walking would be on Illinois Street north of 22nd Street because transit stops serving the project site are located on or south of 22nd Street. In addition, access to the 22 Fillmore stop on 20th Street would be preferable via Third Street, as the addition, the sidewalk on the east side of Illinois Street between 22nd and 20th Street is in poor conditions, while the sidewalk on the west side of Illinois Street between 20th and 22nd streets is open to active loading docks serving the north building of the American Industrial Center (the two-building complex is located on the blocks bounded by 20th, Illinois, 23rd and Third streets).

The existing sidewalk on the east side of Illinois Street is currently in poor condition, and the proposed project would reconstruct the sidewalk between Humboldt and 23rd streets, while PG&E would reconstruct the sidewalk between Humboldt and 22nd streets. The intersection of Illinois Street/22nd Street is currently all-way stop-controlled, with missing ADA compliant curb ramps. These existing conditions, combined with project-generated increases in vehicular travel on Illinois Street between 23rd and 22nd streets, would impede the large number of people walking between the project site and destinations to the north and west (e.g., Muni 48 Quintara/24th Street bus stop on 22nd Street between Illinois and Third Streets, and the 22 Fillmore bus stop on 20th Street between Third and Tennessee streets) and would be considered a *significant* project impact. Implementation of **Mitigation Measure M-TR-7**, **Improve Pedestrian Facilities at the Intersection of Illinois/22nd Street**, would address the access and safety deficiencies for people crossing at this intersection, and would reduce impacts to less than significant. Therefore, with implementation of Mitigation Measure M-TR-7, Improve Pedestrian Facilities at the Intersection of Illinois/22nd Street, proposed project impacts on people walking would be ***less than significant with mitigation***.

Mitigation Measure M-TR-7: Improve Pedestrian Facilities at the Intersection of Illinois Street/22nd Street

In the event that the Pier 70 Mixed-Use District project does not implement improvements at the intersection of Illinois Street/22nd Street, as part of the proposed project's sidewalk improvements on the east side of Illinois Street between 22nd and 23rd streets, the project sponsor shall work with SFMTA to implement the following improvements:

- Install a traffic signal, including pedestrian countdown signal heads at the intersection of Illinois Street/22nd Street.
- Stripe marked crosswalks in the continental design.
- Construct/reconstruct ADA compliant curb ramps at the four corners, as necessary.

In the event that the Pier 70 Mixed-Use District project does not implement these improvements, the project sponsor shall be responsible for costs associated with design and implementation of these improvements. The SFMTA shall determine whether the SFMTA or the project sponsor would implement these improvements.

Significance after Mitigation: Less than Significant.

Bicycle Impacts

Impact TR-8: The proposed project would not result in potentially hazardous conditions for bicyclists, or otherwise interfere with bicycle accessibility to the project site or adjacent areas. (*Less than Significant*)

The proposed project would provide secure bicycle storage either on the ground floor or in the first sub-grade level of each building.[46] For the proposed project uses identified in Chapter 2, Table 2-1, Potrero Power Station Mixed-Use Development Preferred Project Characteristics, a total of 1,577 class 1 bicycle parking spaces would be provided. The proposed project would provide 373 class 2 bicycle parking spaces via bicycle racks on sidewalks adjacent to the buildings or in the publicly accessible open space. Showers and lockers would be provided in commercial buildings for employees bicycling to and from work. In addition, as part of the proposed project TDM Plan, additional facilities that would support bicycling would be implemented, including bicycle repair and bike share stations.

Chapter 2, p. 2-28, Figure 2-11, Proposed Bicycle Facilities Plan, presents the bicycle facilities that would be provided on streets within the project site. Bicycle lanes would be provided on Maryland Street between 23rd Street and the northern boundary with the Pier 70 site, and on the entire length of 23rd Street between Illinois Street and the waterfront. On the north side of 23rd Street, a parking protected 5-foot wide bicycle lane (class IV facility) would be provided along the entire stretch

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[46] As indicated in footnote e. in Table 2-1, Potrero Power Station Mixed-Use Development Preferred Project Characteristics, the proposed project's Design for Development standards for provision of class 1 and class 2 bicycle parking spaces would be consistent with the San Francisco Planning Code requirements, and, depending on the actual uses that are ultimately built, may vary from the supply calculated for the preferred project.

between Illinois Street and Delaware Street, while on the south side of the street a 5-foot wide parking protected bicycle lane would be provided between Illinois and Georgia Lane (class IV facility); this would transition to a 5-foot wide class II bicycle lane between Georgia Lane and Delaware Street. A dashed green zone the width of the bicycle facility would be provided on 23rd Street through the transition zone between the parking-protected bicycle lane west of Georgia Lane to alert drivers to the presence of bicyclists, and to alert bicyclists to the transition from one type of facility and another. Street signs would also alert bicyclists to the transition between facility types. The bicycle lane on the south side of 23rd Street east of Georgia Lane would provide separation between the bicycle right-of-way and the commercial vehicle loading area for buildings located on the south side of 23rd Street east of Georgia Lane. Bicyclists would be able to transition between the bicycle lanes on 23rd Street and the bicycle facilities within the project site at the intersections of 23rd Street with Georgia Lane, Maryland Street, and Delaware Street. At Delaware Street, bicyclists would be able to transition between the bicycle lanes on the north and south side of 23rd Street and the proposed Bay Trail Multi Use Path (class I facility) running along the waterfront via a class I bikeway that would be provided between Delaware Street and the bay.

Georgia Lane would have a 6-foot wide bicycle lane on the east side of the street (northbound direction of travel) and a shared route on the west side (southbound direction of travel). In addition, shared lane bicycle routes (class III bicycle facilities) would be provided on Humboldt, Georgia, and Delaware streets. The entrances to the building garages and loading facilities would be designed to minimize potential for conflicts between bicyclists, pedestrians, and vehicles entering and exiting the garages. Building driveways would be located to meet the minimum widths and frequency, and would have 20 to 25 feet of unobstructed curb on either side of the driveway to provide maximum visibility between vehicles, pedestrians, and bicyclists.

In addition to facilities within the internal street network, a class I bikeway (i.e., a bicycle path with exclusive right-of-way for use by bicyclists) would be provided along the waterfront within the Waterfront Park. As noted above, this bikeway would connect to the bicycle lanes on the north and south side of 23rd Street at Delaware Street. No bicycle network improvements are proposed outside of the project site.

With implementation of the proposed project, bicycle volumes would increase on the adjacent roadway and bicycle facilities. A portion of the “other” trips generated by the proposed project uses would be bicycle trips. As shown on Table 4.E-12 above, the proposed project uses would generate about 871 a.m. peak hour trips and 1,764 p.m. peak hour trips by “other” modes, a portion of which would be by bicycle. The bicycle lanes on 23rd Street would connect with the existing bicycle lanes on Illinois Street, which is the primary north-south bicycle facility in the vicinity. The proposed signalization of the intersection of Illinois Street/23rd Street as part of the proposed project (the intersection is currently two-way stop sign controlled with vehicle and bicyclists on 23rd Street subject to the STOP sign) would facilitate bicycle access across Illinois Street. Bicyclists traveling north on Illinois Street would be able to connect to the bicycle lanes on Terry A. Francois Boulevard, and bicyclists traveling south would be able to connect to bicycle lanes on Cargo Way and Cesar Chavez Street (the one-block segment of Cesar Chavez Street between Illinois and Third Streets is a shared lane bicycle route [class III facility]).

The *Garage Operations* assessment (detailed under Impact TR-3) considered whether vehicle queues generated by the district parking garage would affect cyclists at garage access points. A queuing assessment of the district parking garage operations on Block 5, as well as on the alternate locations on Blocks 1 and 13, showed that vehicle accessing the garage would not block adjacent travel lanes. On Georgia Lane, a striped northbound bicycle lane would be located on the east side of the street, while southbound bicyclists would share the southbound travel lane with motor vehicles (class III facility). Vehicles entering or exiting the district parking garage via Georgia Lane would not cross the bicycle lane located on the east side of the street, and therefore would not conflict with bicyclists traveling on the northbound bicycle lane.

As discussed in Impact TR-9 below, proposed project Block 13, which has a frontage on Illinois Street, would provide commercial vehicle and passenger loading/unloading zones on Humboldt and Georgia streets, and would not change the on-street parking regulations on the east side of Illinois Street (i.e., time-limited general parking spaces). Therefore, the proposed project's commercial and passenger loading/unloading activities would not conflict with the existing bicycle lanes on Illinois Street.

It is anticipated that the existing and proposed bicycle facilities would be well utilized, and although the proposed project would result in an increase in the number of vehicles in the vicinity of the project site, this increase would not be substantial enough to create potentially hazardous conditions for bicyclists, or interfere with bicycle accessibility. Therefore, for the above reasons, impacts of the proposed project on bicyclists would be ***less than significant.***

Mitigation: None required.

Loading Impacts

Impact TR-9: The proposed project would accommodate its commercial vehicle and passenger loading demand, and proposed project loading operations would not create potentially hazardous conditions or significant delays for transit, bicyclists, or people walking. (*Less than Significant*)

Truck Freight and Service Vehicle Loading/Unloading

Loading Supply

The proposed project would provide truck loading facilities consistent with the proposed Design for Development standards for the various land uses,[47] which would be accommodated both

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[47] Per the Potrero Power Station Design for Development, for residential, office, and hotel land uses, one freight loading space would be provided for 100,001 to 200,000 square feet of occupied uses, two loading spaces for 200,001 to 500,000 square feet, and three spaces plus one space for each additional 400,000 square feet for more than 500,001 square feet of residential, office and hotel uses. For PDR and industrial uses, one freight loading space would be provided for 10,001 to 50,000 square feet of occupied uses, and 0.21 spaces per 10,000 square feet of occupied floor area for more than 50,000 square feet of PDR and industrial uses. For retail sales and services uses, one freight loading space would be provided for 10,001 to 30,000 square feet of occupied uses, two loadings spaces for 30,001 to 50,000 square feet of occupied uses, and one spaces per 25,000 square feet of occupied floor area for more than 50,000 square feet of retail sales and services uses.

within buildings (i.e., onsite) and on-street. The on-street commercial loading spaces would be time limited so that the commercial loading spaces remain available throughout the day for active commercial loading/unloading activities. Because the proposed development controls for the site would allow for flexibility of uses on certain blocks between either residential or commercial office uses, depending on future market conditions, the actual number, location and dimensions of loading spaces would reflect the actual uses developed on the block.

For the proposed land use program presented in Chapter 2, Project Description, Table 2-1, a total of 54 loading spaces would be provided, of which 20 standard truck loading spaces would be within buildings and 34 commercial loading spaces would be located on-street (see **Figure 4.E-5**, **Proposed On-street Parking and Loading Plan**). A minimum of one truck loading space would be provided within each building, with the larger residential buildings on Blocks 1, 7 and 13 containing two onsite loading spaces. The buildings on Blocks 2 and 3, envisioned to house laboratory/life sciences uses may include more and larger onsite truck docks, with larger loading dock entries to accommodate the larger trucks associated with these uses. In addition, the potential supermarket use on Block 5 may include more and larger loading docks to accommodate the specific delivery and trash removal needs.

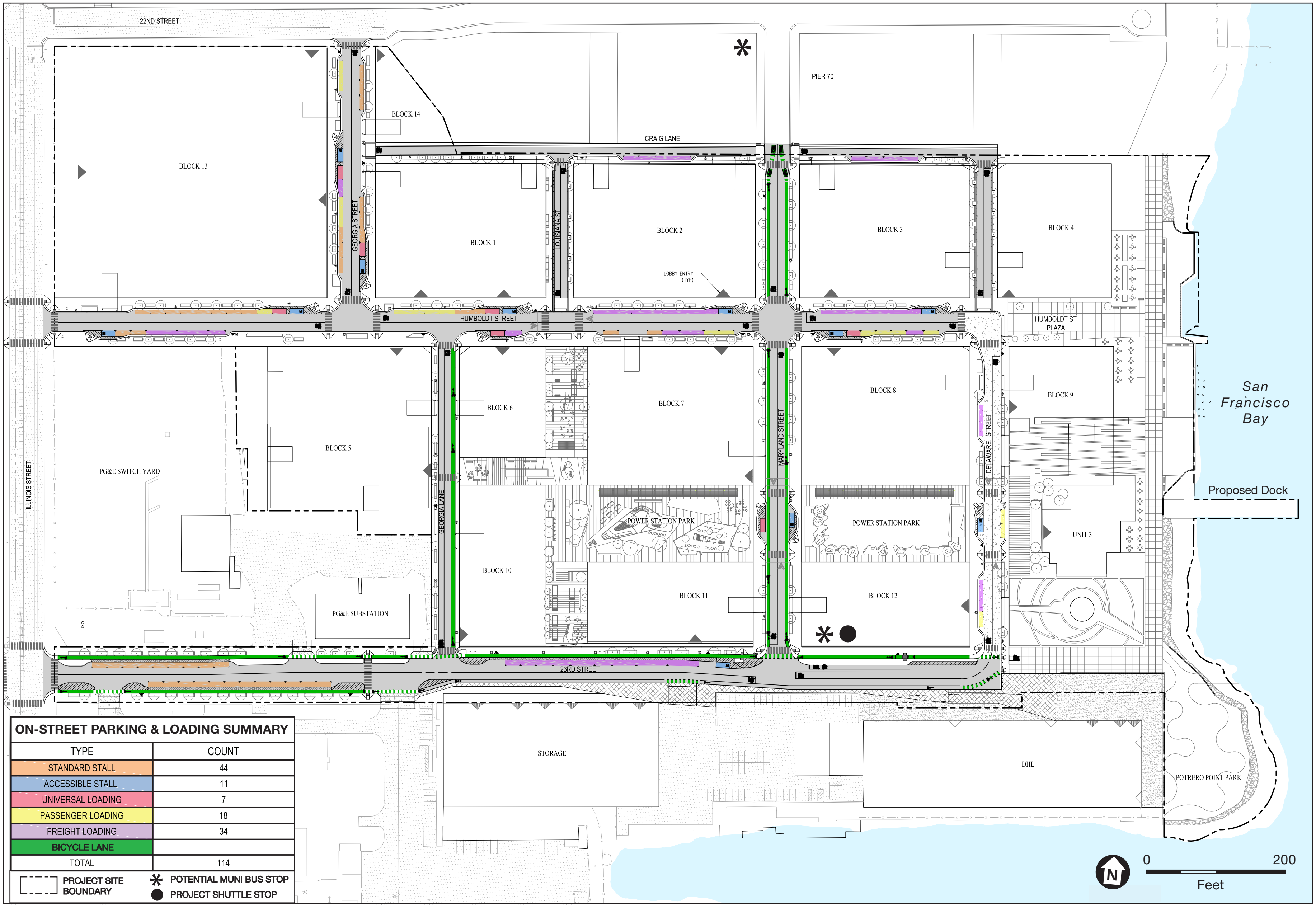
Depending on the proposed uses on the block, driveway access to garages and off-street loading facilities would be combined where possible to meet the minimum width and frequency necessary. The 34 on-street commercial loading spaces would be distributed throughout the project site, and would primarily be located on both sides of Humboldt Street, on the west side of Delaware Street, and on the north side of 23rd Street between Georgia Lane and Maryland Street. Loading facilities for Block 13, which has a frontage on Illinois Street would be onsite and on-street with access via Humboldt and Georgia streets, and would not change the on-street parking regulations on the east side of Illinois Street (i.e., time-limited general parking spaces).

Loading Demand

As presented above in Table 4.E-15, the proposed project land uses would generate about 690 delivery and service vehicle trips per day, which would result in a demand for 42 loading spaces during the peak hour of loading activities. Delivery vehicles would be primarily small trucks and vans, typical of deliveries throughout the city, although as noted above, the laboratory/life sciences uses and supermarket uses would be served by larger trucks.

Residential move-in and move-out activities are anticipated to occur from the onsite loading docks as well as from the on-street commercial loading spaces and passenger loading/unloading zones, depending on the size of the vehicle. Because move-in and move-out activities typically entail multiple hours of activity and could occur via large trucks that can occupy multiple on-street spaces, move-in and move-out activities would be scheduled with building management, and to the extent feasible would be conducted on weekends or on weekdays during off-peak periods.

Thus, the proposed onsite and on-street loading facilities would be sufficient to accommodate the projected demand. Therefore, no secondary impact analysis is necessary.



ON-STREET PARKING & LOADING SUMMARY

TYPE	COUNT
STANDARD STALL	44
ACCESSIBLE STALL	11
UNIVERSAL LOADING	7
PASSENGER LOADING	18
FREIGHT LOADING	34
BICYCLE LANE	
TOTAL	114

SOURCE: Carlson, Barbee & Gibson, Inc., 2018

Potrero Power Station Mixed-Use Development Project

Figure 4.E-5
Proposed On-Street Parking and Loading Plan

Passenger Loading/Unloading

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 activities primarily associated with taxis and app-based ride hailing service vehicles. Proposed passenger loading/unloading was assessed qualitatively considering the number of proposed on-street loading spaces and their distribution within the project site. The proposed project would include about 25 on-street passenger loading/unloading spaces (18 standard and seven universal passenger loading spaces[48]), which, as shown on Figure 4.E-5, Proposed On-street Parking and Loading Plan, would be located primarily along Humboldt Street, Georgia Street, Delaware Street and 23rd Street. Passenger loading/unloading zones would be located in proximity to building entrances. Passenger loading for Block 13, which has a frontage on Illinois Street, would be located on Humboldt and Georgia streets; no passenger loading/unloading zones are proposed for Illinois Street. The seven universal passenger loading spaces would be designed to be universally accessible and ADA compliant. Each space would be 20 feet in length, have adjacent sidewalk clear of obstacles, and have a 10-foot wide loading area with a standard curb.

Thus, the proposed project would accommodate the freight delivery and service vehicle and passenger loading demand and the proposed project's impact would be ***less than significant.***

Mitigation: None required.

Parking Impacts

Impact TR-10: The proposed project would not result in a substantial parking deficit and thus the project's parking supply would not create potentially hazardous conditions or significant delays affecting transit, bicyclists, or people walking. (*Less than Significant*)

Senate Bill 743 amended CEQA by adding Public Resources Code section 21099 regarding the analysis of parking impacts for certain urban infill projects in transit priority areas.[49] Public Resources Code section 21099(d), effective January 1, 2014, provides that "… parking impacts of a residential, 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. As described in Section 4.A, the proposed project meets all of the criteria, and thus the transportation impact analysis does not consider the adequacy of parking in determining the significance of project impacts under CEQA. However, the planning department acknowledges that parking conditions may be of interest to the public and the decision-makers. Therefore, this

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[48] Universal passenger loading spaces are designed to accommodate a broad range of people who would use the spaces and are ADA compliant.

[49] A "transit priority area" is defined as an area within one-half mile of an existing or planned major transit stop. A "major transit stop" is defined in California Public Resources 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 interval of 15 minutes or less during the morning and afternoon peak commute periods.

section presents a parking demand analysis for informational purposes and considers any secondary physical impacts affecting other transportation modes associated with a constrained supply also for informational purposes.

Supply

Existing land uses on the project site include: warehouses, office space, storage and housing for power transmission equipment, vehicle storage, and surface parking. With implementation of the proposed project, all uses, including the existing surface parking spaces would be eliminated. The proposed project would provide about 2,622 off-street vehicle parking spaces, of which 819 spaces would be located within a centralized parking facility (i.e., the district parking garage) located on Block 5 on the southwest corner of the intersection of Georgia Lane/Humboldt Street (see Figure 2-5, Proposed Land Use Plan, in Chapter 2, for location of project blocks). Potential alternative locations for the district parking garage have been identified on Blocks 1 and 13, located on either side of the intersection of Georgia Street/Humboldt Street (see Appendix C). The remaining 1,803 vehicle parking spaces would be distributed within parking garages on the remaining 14 development blocks, as shown in Figure 2-9, p. 2-25 in Chapter 2, with the number of parking spaces per building ranging from about 15 to 420 spaces per garage, depending on the type and amount of land use proposed for the block. All vehicle parking spaces would be accessory to the project land uses. As presented in footnote e on Table 2-1, p. 2-14 in Chapter 2, the proposed project's Design for Development standards include a maximum permitted parking ratio of 0.6 parking spaces per residential unit, one space per 1,500 square feet of commercial office/R&D/life sciences or PDR uses, three spaces per 1,000 square feet of grocery store use, and one space per each 18 hotel guest rooms. No off-street vehicle parking would be assigned to the proposed retail uses on the site, with the exception of the grocery store.

The district parking garage would accommodate project-generated vehicles, and is not intended to be used for event parking for the Chase Center or for the AT&T Ballpark. It is anticipated that the district parking garage would be occupied by employees and visitors to the project's office and retail uses during business hours, and in the evening the parking garage would serve residents and visitors. However, some event attendees that drive may seek parking in the district parking garage. Since the district garage would be occupied by project demand, it is unlikely that a substantial number of vehicle spaces would be available to accommodate event parking.

All off-street parking would be shared and managed by a single operator. The garages would include space-level monitoring and guidance systems to allow the operator to determine availability of spaces, determine parking rates (parking rates would vary in order to maintain a maximum of 95 percent occupancy), and report availability and rates on signs outside of the facility, in the project site's website, and/or in other forms (e.g., via a phone app).

Driveways for the district parking garage and other off-street parking and loading facilities would be located to provide adequate sight distances, and driveways would not be permitted within 30 feet of building corners, except for where a grocery store is provided. A curb cut would be provided for off-street parking and loading facilities that would not exceed 22 feet in width (with the exception of the district parking garage, which would have two entry/exit locations, one each on Humboldt Street and Georgia Lane, and the grocery store, which may have a curb cut wider than 22 feet). Also, where possible, driveways would be located to avoid crossing bicycle lanes.

On-street vehicle parking within the project site would be limited and is anticipated to be fewer than 60 spaces (including 11 ADA compliant spaces) throughout the site and along 23rd Street. On streets that permit curbside parking, much of the curb would be reserved for commercial loading spaces and passenger loading/unloading zones. The approximately 110 existing 90-degree parking spaces on 23rd Street east of Illinois Street (about 71 spaces on the north side of the street and 40 spaces on the south side of the street) would be converted to 21 parking spaces (nine spaces on the north side and 12 spaces on the south side) and would result in a net decrease of about 90 on-street parking spaces on 23rd Street east of Illinois Street. It is anticipated that, similar to recent changes to on-street parking regulations by the SFMTA in the Dogpatch neighborhood, the on-street parking spaces within the project site would be metered. The proposed project does not propose any driveways, commercial loading spaces, or passenger loading/unloading zones on the east side of Illinois Street between 22nd and 23rd streets, and the existing 40 on-street parking spaces would not be affected by the proposed project.

Project Parking Supply and Demand

Table 4.E-20, **Proposed Project Parking Supply and Demand**, summarizes the proposed project vehicle parking demand and supply for weekday midday (12 p.m. to 2 p.m.) and evening (7 p.m. to 9 p.m.) conditions.

TABLE 4.E-20
PROPOSED PROJECT PARKING SUPPLY AND DEMAND

Supply and Demand	Midday Conditions	Evening Conditions
Project Supply	2,622	2,622
Project Demand		
Short-term	831	541
Long-term	3,374	2,468
Total	4,205	3,009
Surplus (Shortfall)	(1,583)	(387)

SOURCE: Adavant Consulting/Fehr & Peers/LCW Consulting, 2018

As shown on Table 4.E-20 during both the midday and evening periods, the proposed vehicle parking supply would not accommodate the estimated demand. The parking demand that would not be accommodated onsite (about 1,580 spaces during the midday period and about 390 spaces during the evening period) would result in drivers seeking parking outside of the project site. As described above in “Environmental Setting,” specifically under “Parking Conditions,” p. 4.E-19 the SFMTA has recently implemented the Dogpatch Parking Management Plan to encourage turnover to accommodate short-term parking, thus reducing the time drivers spend looking for a parking space, and to discourage long-term parking. As shown above on Figure 4.E-4, On-street Parking Regulations, on-street parking regulations along Illinois and Third streets, where currently permitted, have recently been revised to time-limited spaces. Farther to the west of the project site, paid parking with no time limit (i.e., commuter focused) was implemented. In addition, a new Residential Permit Parking area replaces the existing Residential Permit Parking Area "X", which limits parking for vehicles without a permit to a one or two-hour period. Thus, while the Dogpatch Parking Management Plan's changes may increase the availability of short-term parking spaces, it would generally discourage project-generated drivers requiring long-term parking to seek parking outside of the project site. Similar to existing conditions, any drivers seeking parking would not be expected to create hazardous conditions for people walking such as impairing visibility on narrow streets or blocking sidewalks or crosswalks.

Furthermore, the proposed project's TDM Plan aims to reduce vehicle trips generated by the proposed project, and therefore reduce parking demand, by encouraging use of car share and non-auto modes.

In summary, while the proposed project parking supply would not accommodate the estimated demand, due to difficulty in finding parking in the project vicinity, some drivers may park farther from the site and some may switch to transit, carpool, bicycle, or other forms of travel. While the proposed parking supply would not accommodate the estimated demand, because the site is a mixed-use residential project on an infill site located within a transit priority area, the project would not result in a substantial parking deficit and parking impacts are considered ***less than significant***.

Although the project would not result in a substantial parking deficit, secondary impacts of not meeting parking demand were assessed for informational purposes only and are presented in the traffic hazards, pedestrian, and bicycle impact sections.

Mitigation: None required.

Emergency Access Impacts

Impact TR-11: The proposed project would not result in inadequate emergency vehicle access. (*Less than Significant*)

With implementation of the proposed project, emergency access to the project site would remain essentially unchanged from existing conditions, as emergency vehicles would continue to access the project site from Third Street and Illinois Street via 23rd and Humboldt streets. While the project would signalize the two intersections of Illinois Street/23rd Street and Illinois Street/Humboldt Street, emergency vehicles with lights and sirens have right of way and their travel would not be affected as a result of signalization.

Humboldt Street, Georgia Lane, Georgia Street, 23rd Street, and Maryland Street and Delaware Street between Humboldt and 23rd streets would provide primary access for emergency and fire vehicles to the proposed buildings. Streets have been designed to accommodate smaller emergency vehicle (e.g., ambulances) as well as the fire department's 57-foot articulated fire truck fire engine.

The fire truck would utilize the entire travel way for turning movements within intersections. At intersection approaches and within intersections, the fire truck may also encroach into the opposing travel lane to complete the turning movements, but a minimum of 7 feet of refuge area would be provided for vehicles in these lanes. Emergency vehicle curb access to Unit 3 would be provided at the curb adjacent to the site on the east side of Delaware Street directly north of 23rd Street.

As part of project development by the project sponsor, the fire department reviewed the preliminary design plans for the proposed street network within the site as well as the fire access plan. Prior to construction of any roadways, the fire department would be required to review and approve detail design of the street network for the site.

Although the project would result in additional vehicles on adjacent streets, the increases would not impede or hinder emergency vehicles. Due to wider and multiple travel lanes on streets in the vicinity as well as the presence of bicycle lanes on some streets, vehicles would be able to pull over to the side of the street and provide a clear travel path when an emergency vehicle with lights and sirens approaches. Emergency vehicles are also permitted to use transit-only lanes (i.e., the center median right-of-way of the T Third light rail line), if needed. Therefore, for the reasons described above, the proposed project's impact on emergency access would be ***less than significant***.

Mitigation: None required.

Cumulative Impacts

Cumulative Construction Impacts

Impact C-TR-1: The proposed project, in combination with past, present, and reasonably foreseeable future projects, would not result in cumulative construction-related transportation impacts. (*Less than Significant*)

The construction of the proposed project over its 15-year construction period between 2020 and 2034 may overlap with the construction of other projects in the vicinity. Table 4.A-1, Cumulative Projects in the Project Vicinity, in Section 4.A presents the cumulative projects considered in the analysis. Localized construction-related transportation impacts could occur as a result of cumulative projects that generate increased traffic at the same time and on the same streets as the proposed project. While construction activities for the proposed project and other cumulative projects would occur primarily within their respective sites, construction vehicles would use many of the same roadways to access the sites (e.g., Third Street, Illinois Street).

Construction activities associated with the proposed project would primarily overlap with the construction activities of the Pier 70 Mixed-Use District project directly north of the project site. Buildout of the Pier 70 development is planned to occur in up to five phases over an approximately 11-year period, from about 2018 through 2029. Since proposed project construction is projected to occur over the course of 15 years from about 2020 to 2034, there would be an overlap in construction for a minimum of nine years (i.e., between 2020 and 2029). During project construction, the Pier 70 Mixed-Use District project will implement a Construction Management Plan that, similar to the proposed project, includes provisions for conditions when construction overlaps with other development or infrastructure projects. Other substantially smaller projects that are currently under review and that are located on Third or Illinois streets (e.g., 2230 Third Street, 1499 Illinois Street) may be under construction for a portion of the proposed project's construction period (e.g., an overlap of two to three years for typical single building projects). These projects would use Third and Illinois streets to access their respective project sites. The primary access for construction vehicles for the Pier 70 Mixed-Use District project will be 20th Street, while the primary access to the proposed project site for construction vehicles would be 23rd Street. The impact of construction truck traffic would be a temporary lessening of the capacities of local streets due to the slower movement and larger turning radii of trucks. However, construction truck trips are typically distributed throughout the day and therefore would not substantially coincide with the peak commute periods. The bicycle lane on Illinois Street 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 pedestrian access for all users. Where complete sidewalk closures are required, alternative pedestrian 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 pedestrians.

Construction of other cumulative development and infrastructure projects would not overlap with proposed project construction. A number of projects are currently underway (e.g., the 20th Street Historic Core at Pier 70, Crane Cove Park, 815-825 Tennessee, 2051 Third Street, Chase Center, Bayfront Park, 650 Indiana Street, 800 Indiana Street, 645 Texas Street, 1200-1225 Tennessee Street), and would be completed prior to construction of the proposed project. Projects currently with building permit approvals or smaller buildings that have already been entitled (e.g., 2420 Third Street, 901 Tennessee Street, 950 Tennessee Street, 888 Tennessee Street, 2290 Third Street, 777 Tennessee Street, 2146 Third Street, 2177 Third Street, 2092 Third Street, 595 Mariposa Street, 790 Pennsylvania Avenue, 1000 Mississippi Street) are also anticipated to be completed prior to the initiation of proposed project construction.

Construction truck traffic associated with the Potrero Hope SF project (construction initiated in 2017) would access the site and regional freeways to the west and would not travel on Third or Illinois streets in the proposed project vicinity. The SFPUC's Central Bayside System Improvement Project tunnel (under review) would have shafts north and south of the project site, and access routes between the shafts and the regional facilities would likely not include Third Street and Illinois Street in the project vicinity. Similarly, to the north of the project site, construction trucks associated with the Mariposa Street pump station (entitled), and Mission Bay Ferry Landing and Water Taxi Landing project (under review), and the Seawall Lot 337 Mission Rock project (entitled) would access regional freeways via ramps at Mariposa/Owens for I-280, and ramps on Harrison and Bryant streets for I-80, and therefore, construction truck trip routes would not substantially overlap with routes for the proposed project (although some San Francisco-based construction truck traffic may travel on Third Street). Therefore, given the limited number and effect of projects that may overlap with proposed project construction, construction activities would not result in significant cumulative construction-related transportation impacts.

Similar to the proposed project, sponsors and construction managers of development projects considered in the cumulative analysis would be required to coordinate with various City departments, such as SFMTA and Public Works, and coordinate any temporary sidewalk and travel lane closures to develop coordinated plans that would address construction-related vehicle routing, traffic control, and pedestrian movements adjacent to the construction area for the duration of construction overlap. **Improvement Measure I-TR-A, Construction Management Plan and Public Updates** presented in Impact TR-1 above for the proposed project also addresses the potential for project overlap with other development or infrastructure projects and would reduce the project's contribution to any cumulative transportation-related effects.

Therefore, for the above reasons, the proposed project, in combination with past, present and reasonably foreseeable development in San Francisco, would result in ***less-than-significant*** cumulative construction-related transportation impacts**.**

Mitigation: None required.

Improvement Measure I-TR-A: Construction Management Plan and Public Updates (see Impact TR-1, above)

Cumulative VMT Impacts

Impact C-TR-2: The proposed project, in combination with past, present, and reasonably foreseeable future projects, would not contribute considerably to significant cumulative impacts related to VMT. (*Less than Significant*)

VMT by its very nature is largely a cumulative impact. The amount and distance of past, present, and future projects might cause people to drive, and contribute to the physical secondary environmental impacts associated with VMT; and therefore, cumulative impacts related to VMT would be considered significant. It is likely that no single project by itself would be sufficient in size to prevent the region or state in meeting its VMT reduction goals. Instead, a project's individual VMT contributes to the cumulative VMT impacts. The VMT and induced automobile travel project-level thresholds are based on levels at which new projects are not anticipated to conflict with state and regional long-term greenhouse gas emission reduction targets and statewide VMT per capita reduction targets set in 2020.

San Francisco 2040 cumulative conditions were projected using a SF-CHAMP model run, using the same methodology as outlined for existing conditions, but includes residential and job growth estimates and reasonably foreseeable transportation investments through 2040. The projected VMT for 2040 cumulative conditions for the traffic analysis zone in which the project site is located (i.e., TAZ 559) is as follows:

- Projected 2040 average daily VMT per capita for residential land uses is 6.4. This is 60 percent below the 2040 projected regional average daily VMT per capita of 16.1.
- Projected 2040 average daily VMT per capita for office uses is 10.1. This is 41 percent below the 2040 projected regional average daily work-related VMT per employee of 17.0.
- Projected 2040 average daily VMT per capita for retail uses is 11.9. This is 18 percent below the 2040 projected regional average daily retail VMT per employee of 14.6.

Because the project site is located in an area where VMT is estimated to be more than 15 percent below the projected 2040 regional average, the proposed project's land uses would not result in substantial additional VMT. In addition, as discussed in Impact TR-2 for existing plus project conditions, the transportation features of the project are consistent with the general types of projects that would not substantially induce automobile travel. Because the proposed project would not exceed the project-level thresholds for VMT and induced automobile travel, the proposed project's contribution would be less than cumulatively considerable. Therefore, the proposed project's contribution to cumulative VMT impacts would be ***less than significant.***

Mitigation: None required.

Cumulative Traffic Hazards Impacts

Impact C-TR-3: The proposed project, in combination with past, present, and reasonably foreseeable future projects, would not result in significant cumulative impacts related to traffic hazards. (*Less than Significant*)

As described above, a number of cumulative transportation network projects are currently underway, planned, or proposed that would enhance the transportation network in the project vicinity. These include the extension of Owens Street, the realignment of Terry A. Francois Boulevard and installation of protected bicycle lanes, the I-280 Mariposa Street off-ramp improvements, Indiana Street Bikeway, new signals at Illinois Street/19th Street and Illinois Street/18th Street as part of the Mission Bay Loop project, as well as projects within the proposed Central Waterfront-Dogpatch Public Realm Plan, among others that are targeted at accommodating all users of the transportation network and reducing existing hazards.

In addition, the planned Pier 70 Mixed-Use District project includes a street network that would connect with the proposed project. Roadway connections would be completed in phases, as both projects build out, and at completion of both projects, the internal roadway networks of both sites would be connected. Vehicle, pedestrian, and bicycle facilities would be provided on primary streets that would connect the two sites, including Delaware, Maryland and Georgia streets. Offsite, the Pier 70 Mixed-Use District project will be responsible for installing new traffic signals at Illinois Street/20th Street, and Illinois Street/22nd Street. Cumulative transportation projects, including the proposed project's onsite transportation network and proposed offsite intersection and sidewalk improvements, would not introduce unusual design features, and these projects would be designed to meet City standards. Other development projects proposing street changes in the area would be subject to these requirements as well. Increases in vehicles, including the proposed project, could result in the potential for increased vehicle-vehicle conflicts, but the increased potential for conflicts would not be considered new or substantial worsening of a traffic hazard, and would not result in significant cumulative traffic hazard impacts. Therefore, the proposed project, in combination with past, present, and reasonably foreseeable development projects, would result in ***less-than-significant*** cumulative traffic hazard impacts.

Mitigation: None required.

Improvement Measure I-TR-B: Monitoring and Abatement of Queues (see Impact TR-3, above)

Cumulative Transit Impacts

Impact C-TR-4: The proposed project, in combination with past, present, and reasonably foreseeable future projects, would contribute considerably to significant cumulative transit impacts related to transit capacity utilization on Muni routes. (*Significant and Unavoidable with Mitigation*)

Proposed project transit impacts for 2040 cumulative conditions were assessed by calculating the project contribution to 2040 cumulative ridership and capacity utilization for the T Third light rail line and the 22 Fillmore and 48 Quintara/24th Street bus routes. In addition, where project-specific significant impacts were identified for the existing plus project transit analysis, then, if significant cumulative impacts are identified, the proposed project would be considered to contribute substantially to significant cumulative conditions. A number of Muni transit service improvements would be implemented that would increase frequencies and increase capacity of Muni routes serving the project area. As described above in “Cumulative Transportation Network Changes,” p. 4.E-53, under “Approach to Analysis,” when the 22 Fillmore is extended to Mission Bay along 16th Street in 2020 or 2021, the SFMTA will provide replacement service south of 16th Street in the Dogpatch, identified as "Route XX" in this EIR (specific route name to be determined). Because details for the replacement Route XX have not been finalized and/or adopted by the SFMTA Board, the 2040 cumulative analysis of transit ridership and capacity utilization assumed the same service currently provided by the existing 22 Fillmore route.

As described above in “Cumulative Transportation Network Changes,” p. 4.E-53, under “Approach to Analysis,” with buildout of the proposed project and the Pier 70 Mixed-Use District project, the Route XX may be extended into both project sites. The proposed project’s street network was designed to accommodate buses, and a bus layover facility would be provided to accommodate potential Muni service within the project site under cumulative conditions.

Table 4.E-21, **Muni Transit Analysis – 2040 Cumulative Conditions**, presents the ridership and capacity utilization for the T Third, 22 Fillmore/Route XX and 48 Quintara/24th Street routes for the weekday a.m. and p.m. peak hours for 2040 cumulative conditions. Under 2040 cumulative conditions, capacity on the T Third would increase over existing conditions due to planned

implementation of two-car trains, and the capacity utilization at the maximum load point with the addition of cumulative ridership due to background growth would be less than the 85 percent capacity utilization standard.

TABLE 4.E-21
MUNI TRANSIT ANALYSIS – 2040 CUMULATIVE CONDITIONS – WEEKDAY AM AND PM PEAK HOURS

Peak Hour/Route	Inbound To Site				Outbound From Site			
	Project Trips	Total Ridership	Capacity	Capacity Utilization[a]	Project Trips	Total Ridership	Capacity	Capacity Utilization
a.m. Peak Hour								
T Third[b]	264	2,167	5,712	39.9%	353	4,100	5,712	71.8%
22 Fillmore/Route XX[c]	**112**	**829**	**441**	**188.0%**	**82**	**731**	**504**	**145.0%**
48 Quintara/24th Street[d]	**52**	**408**	**315**	**129.5%**	**52**	**543**	**378**	**144.8%**
Proposed Project Shuttle[e]	306	306	450	68.0%	314	314	450	69.8%
Total	734	3,710	7,268	53.6%	801	5,957	7,391	80.7%
p.m. Peak Hour								
T Third[b]	447	4,660	5,712	81.6%	359	2,898	5,712	50.7%
22 Fillmore/Route XX[c]	**133**	**810**	**567**	**142.9%**	**156**	**899**	**567**	**158.6%**
48 Quintara/24th Street[d]	**75**	**424**	**315**	**134.6%**	**76**	**651**	**378**	**172. 2%**
Proposed Project Shuttle[e]	435	435	450	96.7%	404	404	450	89.8%
Total	1,090	6,329	7,044	89.8%	995	4,852	7,107	68.3%

NOTES:

[a] Muni capacity utilization exceeding 85 percent highlighted in **bold.** Significant project contributions to cumulative impacts shaded.

[b] Ridership and capacity for the T Third reflect planned increased frequencies and two-car trains by 2040.

[c] When the 22 Fillmore is extended to Mission Bay along 16th Street in 2020 or 2021, the SFMTA will provide replacement service south of 16th Street in the Dogpatch. SFMTA is developing a new route, identified as Route XX in this EIR, however, because all details related to operation of this replacement route have not been finalized or adopted by the SFMTA board, the same service currently provided by the existing 22 Fillmore was assumed for the 2040 cumulative analysis.

[d] For the 48 Quintara/24th Street route, Muni Forward service improvements on this route are on hold. Therefore, existing service on this route was assumed for 2040 cumulative conditions

[e] The proposed project shuttle was assumed to continue to provide service until replaced with a Muni route providing similar service to the shuttles is extended into the site.

SOURCE: Adavant Consulting/Fehr & Peers/LCW Consulting, 2018

However, on the 22 Fillmore/Route XX and the 48 Quintara/24th Street routes, cumulative ridership would increase substantially, and would result in capacity utilization at the maximum load point exceeding Muni's capacity utilization standard of 85 percent. This would be considered a *significant cumulative* impact. The project contribution to cumulative ridership on the bus routes would be more than 5 percent, and this would be considered a *significant* contribution to cumulative ridership on these routes. In addition, as noted in Impact TR-4 for existing plus project conditions, the proposed project would result in significant impacts on the 22 Fillmore/Route XX and the 48 Quintara/24th Street bus routes. Implementation of **Mitigation Measure M-TR-4, Increase Capacity on Muni 22 Fillmore and 48 Quintara/24th Street Routes**, identified for existing plus project conditions, would reduce the impact of the project's contribution to cumulative Muni capacity utilization impacts to less-than-significant levels. However, because it is not known whether SFMTA would be able to provide additional service on the impacted routes to fully mitigate project impacts, the proposed project's transit capacity impact on the 22 Fillmore/Route

XX and the 48 Quintara/24th Street routes, in combination with past, present, and reasonably foreseeable development projects, would be considered significant and unavoidable with mitigation. Therefore, for the above reasons, the proposed project's contribution to cumulative transit impacts would be ***significant and unavoidable with mitigation.***

> **Mitigation M-TR-4: Increase Capacity on Muni 22 Fillmore and 48 Quintara/Street Routes** (see Impact TR-4, above).
>
> **Significance after Mitigation:** Significant and Unavoidable

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Impact C-TR-5: The proposed project, in combination with past, present, and reasonably foreseeable future projects, would contribute considerably to significant cumulative transit impacts related to travel delay or operating costs on Muni. (*Significant and Unavoidable with Mitigation*)

Under 2040 cumulative conditions, vehicle delay at intersections near the project site are projected to increase from existing conditions mostly due to growth in vehicular trips from other development projects, such as the Pier 70 Mixed-Use District project adjacent and to the north of the project site, as well as development associated with the proposed project. Given this increase in vehicle delay and the sharing of travel lanes between vehicle trips and transit, it is anticipated that the Muni 22 Fillmore/Route XX (see "Cumulative Transportation Network Changes," p. 4.E-53, under "Approach to Analysis," above) and the 48 Quintara/24th Street bus routes would be delayed significantly in the study area (e.g., along 18th Street, 22nd Street, and north/south streets). Therefore, under 2040 cumulative conditions, there would be *significant cumulative* impacts related to transit operations on the Muni 22 Fillmore/Route XX and the 48 Quintara/24th Street bus routes.

However, similar to existing plus project conditions described in Impact TR-5, the T Third light rail line, which runs in a dedicated median right-of-way near the project site, would not be subject to additional congestion at intersections. This would be the case even if additional green time currently allocated to the light rail movements at the intersections of Third Street/20th Street and Third Street/23rd Street were instead allocated to the southbound left turn phase. Therefore, under 2040 cumulative conditions, there would not be a significant cumulative impact on the T Third light rail line.

For informational purposes, in addition to the cumulative-specific delays to the individual Muni routes providing revenue service in the study area, it is anticipated that other Muni non-revenue service vehicles and the proposed project's own shuttle service may also experience greater delays than described under existing plus project conditions. These delays would increase as a result of substantial increases in traffic volumes and associated vehicular delays on streets in the study area primarily from the Pier 70 project and the proposed project, but also from other general growth in the area.

Mitigation Measure M-TR-5, Implement Measures to Reduce Transit Delay, described in Impact TR-5 above, would also be applicable to Impact C-TR-5, and would serve to minimize the project's contribution to cumulative impacts under 2040 conditions on transit operations on the 22 Fillmore/Route XX and 48 Quintara/24th Street routes by reducing project vehicle trips. However, as described above, it is uncertain that a decrease in project-generated vehicles would be attained by these measures to reduce intersection delays during the peak periods as to eliminate the significant impacts on bus operations. Therefore, the project's contribution to significant cumulative transit operations impacts would remain considerable. Thus, the proposed project's transit operations impact on the Muni 22 Fillmore/Route XX and the 48 Quintara/24th Street bus routes, in combination with past, present, and reasonably foreseeable development projects, would be considered significant and unavoidable with mitigation. Therefore, for the above reasons, the proposed project's contribution to significant cumulative transit operations impacts would be ***significant and unavoidable with mitigation.***

Mitigation: Mitigation Measure M-TR-5: Implement Measures to Reduce Transit Delay (see Impact TR-5, above)

Significance after Mitigation: Significant and Unavoidable

Impact C-TR-6: The proposed project, in combination with past, present, and reasonably foreseeable future projects, would not contribute considerably to significant cumulative transit impacts on regional transit providers. (*Less than Significant*)

Capacity Utilization

The 2040 cumulative regional transit analysis accounts for ridership and/or capacity changes associated with the new Transbay Transit Center, the electrification of Caltrain, expanded WETA ferry service, and expanded service planned by BART, AC Transit, SamTrans, and Golden Gate Transit. The regional transit screenlines are presented in **Table 4.E-22**, **Regional Transit Analysis**, **2040 Cumulative Conditions**, for weekday a.m. and p.m. peak hour conditions. Under 2040 cumulative conditions, the BART line in the East Bay screenline would have a capacity utilization of 120 percent during the a.m. peak hour, and 113 percent during the p.m. peak hour, and would thus operate above the regional capacity utilization standard of 100 percent. This is considered to be a significant cumulative transit impact. Under 2040 cumulative conditions, the proposed project would add 133 trips to BART from the East Bay during the a.m. peak hour, and 173 to the East Bay during the p.m. peak hour, and the contribution to 2040 cumulative ridership would be less than 5 percent (i.e., contributions of 0.4 and 0.5 percent during the a.m. and p.m. peak hours, respectively). This would not be considered a considerable contribution to BART capacity utilization exceeding the 100 percent standard. Therefore, project impacts on cumulative regional transit capacity utilization would be less than significant.

While significant cumulative impacts on regional transit have been identified, the Bay Area's transportation agencies have been working to identify and pursue local and regional transit expansion projects. The Bay Area Core Capacity Transit Study, is a collaborative multiagency effort led by the Metropolitan Transportation Commission (MTC) and includes SFMTA as a partner, to examine the transit system's capacity limitations and identify and prioritize the major investments needed to address these limitations today and in the future.[50] The study developed, analyzed, and accessed short- and medium-term investment projects, including high-level engineering and cost estimates. The study also developed options to address capacity shortfalls in the long-term, including providing additional transbay service, which would address the capacity utilization issues identified above for BART to and from the East Bay. These options for the long-term, such as a new transbay tube which would increase capacity for BART to and from the East Bay, require additional planning, feasibility, and design studies. The recently adopted Bay Area Regional Measure 3 identifies $140 million for Core Capacity transit improvements.

Transit Operations

While vehicular traffic is anticipated to increase in the study area as a result of development growth, no regional bus routes operate on study area streets. Therefore, it is not anticipated that significant cumulative regional transit operation impacts would occur in the study area.

TABLE 4.E-22
REGIONAL TRANSIT ANALYSIS – 2040 CUMULATIVE CONDITIONS – WEEKDAY A.M. AND P.M. PEAK HOURS

Regional Screenline/Provider	a.m. Peak Hour Inbound Screenline				p.m. Peak Hour Outbound Screenline			
	Project Trips	Ridership	Capacity	Capacity Utilization[a]	Project Trips	Ridership	Capacity	Capacity Utilization
East Bay								
BART	**133**	**38,345**	**32,100**	**119.5%**	**173**	**36,375**	**32,100**	**113.3%**
AC Transit	11	7,036	12,000	58.6%	13	7,037	12,000	58.6%
Ferries	5	4,699	5,940	79.1%	6	5,337	5,940	89.8%
East Bay Subtotal	**148**	**50,080**	**50,040**	**100.1%**	192	48,749	50,040	97.4%
North Bay								
Buses	15	2,055	2,543	80.8%	22	2,149	2,817	76.3%
Ferries	12	1,631	1,959	83.3%	18	1,637	1,959	83.6%
North Bay Subtotal	27	3,686	4,502	81.9%	40	3,786	4,776	79.3%
South Bay								
BART	100	21,145	28,808	73.4%	133	20,181	28,808	70.1%
Caltrain	18	2,453	3,600	68.1%	23	2,686	3,600	74.6%
SamTrans	0	280	520	53.8%	0	160	320	50.0%
Ferries	0	59	200	29.5%	0	59	200	29.5%
South Bay Subtotal	118	23,937	33,128	72.7%	156	23,086	32,928	70.1%
Regional Total	293	77,703	87,670	88.6%	388	75,621	87,744	86.2%

NOTES:

[a] Capacity utilization exceeding 100 percent highlighted in **bold.** Significant project contributions to cumulative impacts shaded.

SOURCE: SF Planning Department Memoranda, Transit Data for Transportation Impact Studies, May 2015 and Updated BART Regional Screenlines, October 2016, Adavant Consulting/Fehr & Peers/LCW Consulting, 2018

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[50] Metropolitan Transportation Commission, *Bay Area Core Capacity Transit Study, Final Report*, September 2017, *https://mtc.ca.gov/our-work/plans-projects/other-plans/core-capacity-transit-study*, accessed April 5, 2018.

In summary, because the proposed project would not contribute considerably to cumulative impacts on the regional screenlines, the proposed project's contribution to cumulative regional transit impacts would be ***less than significant***.

Mitigation: None required.

Cumulative Walking/Accessibility Impacts

Impact C-TR-7: The proposed project, in combination with past, present, and reasonably foreseeable future projects, would not result in significant cumulative pedestrian impacts. (*Less than Significant*)

A number of cumulative projects are currently being implemented, planned or proposed to enhance walking conditions in the Central Waterfront-Dogpatch area. These include the improvements contained within the Central Waterfront-Dogpatch Public Realm Plan, the 22nd Street Green Connection project, and the Pier 70 Mixed-Use District project's onsite circulation network, among others. As shown on Figure 2-12, p. 2-30 in Chapter 2, the proposed project's pedestrian network would connect with the Pier 70 Mixed-Use District project to the north via on 22nd Street via Georgia and Maryland streets. The Pier 70 Mixed-Use District project will include sidewalks consistent with the Better Street Plan requirements (i.e., width, curb ramps, crosswalks, etc.) throughout the site, with sidewalk widths ranging between 9 and 18 feet, including on new internal streets and on the existing streets on the perimeter of the site (such as on 20th Street, and on 22nd Street, which would also serve people walking to and from the proposed project site. In addition, within the Pier 70 Mixed-Use District project site, the Bay Trail/Blue Greenway multi-use path will continue along the waterfront and connect with paths that will be provided within Crane Cove Park. The integrated street network on both sites, and improved connections to the west at intersections along Illinois Streets would substantially improve conditions for people walking. The integrated pedestrian networks would be consistent with Better Street Plan standards and would not create hazardous conditions for people walking within the sites. Both projects would also increase the number of people walking on adjacent streets, particularly on Illinois, Third, 20th, 22nd, and 23rd streets, however, the additional people walking would be accommodated within the existing and new pedestrian facilities provided by the projects.

With implementation of the Pier 70 Mixed-Use District project, the sidewalks on the east side of Illinois Street between 20th and 22nd Streets would be reconstructed to a minimum of 10 feet, and obstructions such as fire hydrants and sign poles would be relocated, if possible, to ensure an accessible path of travel adjacent to the Pier 70 site. In addition, at the intersection of Illinois Street/22nd Street ADA compliant curb ramps would be installed at the four corners and the existing all-way stop-controlled intersection would be signalized. In addition, the intersections of Illinois Street/20th Street and Illinois Street/21st Street would be signalized, and ADA compliant curb ramps, pedestrian countdown signals, and continental crosswalks would be installed. These improvements, required to be implemented as part of the Pier 70 Mixed-Use District project, would ensure an accessible path of travel to and from the Pier 70 site and would enhance accessibility for people walking to the two sites and to adjoining areas.

The proposed project would contribute to cumulative projects' efforts to complete and enhance the pedestrian network in the Central Waterfront, and facilitate pedestrian travel. The project would expand the pedestrian network east of Illinois Street to the waterfront, and would connect to the Pier 70 site through internal streets and the Bay Trail/Blue Greenway path along the waterfront. The proposed project also includes reconstruction of the east sidewalk on Illinois Street between Humboldt and 23rd streets, and signalization of two intersections along Illinois Street. Intersections that would be signalized would include pedestrian countdown signals, leading pedestrian intervals, marked crosswalks with continental design, and sidewalk extensions which would enhance pedestrian safety at these intersections. Other cumulative development projects would be required to address sidewalk deficiencies adjacent to their project site, and comply with the Better Streets Plan.

Walk trips would increase between the completion of the proposed project and the 2040 cumulative conditions due to growth in the area of the proposed project. At intersections in the vicinity of the project site, there is a projected increase in background vehicle traffic between existing plus project and 2040 cumulative conditions. The overall increase in traffic volumes under 2040 cumulative conditions would result in an increase in the potential for vehicle-pedestrian conflicts at intersections in the study area. While this general increase in vehicle traffic that is expected through the future 2040 cumulative conditions, the increase is not anticipated to create potentially hazardous conditions for pedestrians, or otherwise interfere with accessibility to the site and adjoining areas. The cumulative projects currently being implemented, planned, or proposed in the transportation study area that would address existing sidewalk deficiencies and enhance pedestrian safety and circulation in the area, including those that would be provided as part of the proposed project, would accommodate future growth in pedestrians, and would not result in significant cumulative walking/accessibility impacts. For the above reasons, the proposed project, in combination with past, present, and reasonably foreseeable development in San Francisco, would result in ***less-than-significant*** cumulative walking/accessibility impacts.

Mitigation: None required.

Cumulative Bicycle Impacts

Impact C-TR-8: The proposed project, in combination with past, present, and reasonably foreseeable future projects, would not result in significant cumulative bicycle impacts. (*Less than Significant*)

A number of bicycle facilities projects are currently being implemented, planned, or proposed. To the north of the project site two-way protected bicycle lanes (class IV) will replace the existing one way striped bicycle lanes (class II) on Terry A. Francois Boulevard, and will connect with the north-south bicycle lanes on Illinois Street and on 16th Street (the extension of 16th Street between Illinois Street and Terry A. Francois Boulevard will include bicycle lanes in both directions). To the west of the project site, improvements are planned for Indiana Street that will provide protected bicycle lanes. The Central Waterfront-Dogpatch Public Realm Plan proposes bicycle network improvements, including a class III route with sharrows on 19th Street between Indiana and Minnesota streets (connecting with the existing class III facility on Indiana Street between Mariposa and Cesar Chavez streets), and a class II bike lane with sharrows on Minnesota between 19th and Mariposa streets. In addition, a class III route with sharrows would be implemented on 24th Street between Minnesota Street (which has a class III facility between Cesar Chavez Street and 23rd Street) and Warm Water Cove Park. The Central Waterfront-Dogpatch Public Realm Plan also proposes a pedestrian/bicycle bridge between Warm Water Cove Park and the proposed Waterfront Park within the Potrero Power Station site that would connect with the proposed Bay Trail/Blue Greenway improvements within the project site.

Under 2040 cumulative conditions, the Pier 70 Mixed-Use District project and the proposed project would have an integrated roadway network that accommodates cyclists. North-south connections between the two sites would be provided at Georgia Street and at Maryland Street, and both projects would include a Bay Trail/Blue Greenway multi-use path along the waterfront. The proposed project would not conflict with these projects, and instead would complement existing facilities and expand bicycle circulation along the waterfront. There are no San Francisco Bicycle Plan projects planned on streets in the vicinity of the project site.

Bicycling trips in the area may increase between the completion of the project and the cumulative scenario due to general growth in the area. Under 2040 cumulative conditions, there is a projected increase in vehicles at many of the study intersections in the vicinity of the proposed project, which may result in an increase in vehicle-bicycle conflicts at intersections in the study area. While there would be a general increase in vehicle traffic that is expected through the future 2040 cumulative conditions, this increase, in combination with planned and proposed improvements to the bicycle network and increased bicycle use, is not anticipated to create potentially hazardous conditions for bicycles, or otherwise interfere with bicycle accessibility to the site and adjoining areas. The bicycle facility projects currently being implemented, planned, or proposed in the transportation study area, including those that would be provided as part of the proposed project, would accommodate future growth in bicycle trips, and would not result in significant cumulative bicycle impacts. Therefore, for the above reasons, the proposed project, in combination with past, present, and reasonably foreseeable development in San Francisco, would result in ***less-than-significant*** cumulative impacts on bicyclists.

Mitigation: None required.

Cumulative Loading Impacts

Impact C-TR-9: The proposed project, in combination with past, present, and reasonably foreseeable future projects, would not result in significant cumulative loading impacts. (*Less than Significant*)

Commercial vehicle and passenger loading/unloading impacts are by their nature localized and site-specific, and generally would not contribute to impacts from other development projects outside of the project site. As described in Impact TR-9 above for existing plus project conditions, the proposed project's estimated loading demand would be met within the proposed onsite and on-street commercial and passenger loading spaces that would be provided within the project site. The Pier 70 Mixed-Use District project may not provide sufficient onsite and on-street loading spaces to accommodate the projected demand, and the unmet loading demand could result in service and delivery vehicles parking in general parking spaces and double-parking and partially blocking local streets while loading and unloading goods. However, the loading activities would not affect the proposed project site or streets outside of the Pier 70 site, as those activities are specific to the land uses on the Pier 70 site and therefore would not reasonably be expected to take place elsewhere. No other cumulative development or transportation projects have been identified that would contribute to either commercial vehicle or passenger loading demand or affect supply on the project site. Under 2040 cumulative conditions, loading demand generated by development projects would not result in significant cumulative loading impacts. Therefore, for the above reasons, the proposed project, in combination with past, present, and reasonably foreseeable development in San Francisco, would result in ***less-than-significant*** cumulative loading impacts.

Mitigation: None required.

Cumulative Parking Impacts

Impact C-TR-10: The proposed project, in combination with past, present, and reasonably foreseeable future projects, would not result in significant cumulative parking impacts. (*Less than Significant*)

Over time, due to land use development and increased density anticipated within the city, vehicle parking demand and competition for on-street and off-street parking may increase. As described in Impact TR-10, the new parking supply that would be provided as part of the proposed project would not be expected to accommodate the projected parking demand. This may result in a shortfall in parking spaces that would need to be accommodated elsewhere or may result in a greater use of other modes, including transit, taxis, bicycling and walking. Other development projects, in particular the Pier 70 Mixed-Use District project located adjacent to the project site, may also contribute to area wide parking demand. New time-limited on-street parking regulations within the Dogpatch neighborhood would limit the number of drivers seeking long-term parking within the Dogpatch and encourage use of other modes. Additionally, through the implementation of the City’s Transit First Policy, the Better Streets Plan, Vision Zero projects, and related projects, on-street parking spaces may be further removed to promote sustainable travel modes and sustainable street designs including protected or striped bicycle lanes, transit bulbs, and corner bulb-outs. These projects would encourage transit use by reducing transit travel times and increasing transit reliability, would encourage bicycle use through provision of separate bicycle facilities that would offer a higher level of security than bicycle lanes and would be attractive to a wider spectrum of the public, and would encourage walking by improving the sidewalk network in the transportation study area.

Under 2040 cumulative conditions, within the transportation study area, the absence of a ready supply of parking spaces, combined with available alternatives to auto travel (e.g., transit service, taxis, walking, or bicycling) and a relatively dense pattern of urban development, may induce drivers to shift to other modes of travel or change their overall travel habits. Development projects would be required to comply with the City's TDM Ordinance, which would further lead to a mode shift from private passenger vehicles to other modes of travel.

Considering the mixed-use residential nature of this and other cumulative projects on an infill site located within a transit priority area, planned improvements to the transit, pedestrian, and bicycle network in the area, the cumulative increase in parking demand as part of new developments would not be considered substantial, nor would the potential shortfall in parking supply be expected to result in hazardous conditions (e.g., impairing visibility, blocking sidewalks or crosswalks, or blocking access to fire hydrants). Thus, under 2040 cumulative conditions, changes in parking demand and supply in the transportation study area would not result in significant cumulative parking impacts. Therefore, for the above reasons, the proposed project, in combination with past, present and reasonably foreseeable development in San Francisco, would result in ***less-than-significant*** cumulative secondary parking impacts.

Mitigation: None required.

Cumulative Emergency Access Impacts

Impact C-TR-11: The proposed project, in combination with past, present, and reasonably foreseeable future projects, would not result in significant cumulative emergency access impacts. (*Less than Significant*)

As discussed in Impact TR-11 above for existing plus project conditions, with implementation of the proposed project, emergency access to the project site would remain similar to existing conditions. The planned Pier 70 Mixed-Use District project will create a new mixed-use neighborhood directly north of the project site, but will not change circulation patterns in the project vicinity. Upon buildout of the Pier 70 Mixed-Use District project's street network, the proposed project site would also be accessed through the Pier 70 site from 22nd Street via Maryland Street. None of the other known cumulative development projects would substantially affect circulation in the project vicinity. In addition, all cumulative development project plans, including those for the proposed project and the Pier 70 development, would be reviewed by the fire department to ensure adequate access to each site. Emergency vehicles would continue to use Third Street and Illinois Street to access the project site, and would also be permitted full use of the light-rail median for travel along Third Street. Under cumulative conditions, there would be a projected increase in vehicles on study area streets, however, the increase would not impede or hinder emergency vehicle travel, and would not result in significant cumulative emergency vehicle access impacts.

Because multiple travel lanes would remain on adjacent streets, vehicles would be able to pull over to the side of the street and provide a clear travel path when an emergency vehicle with sirens is approaching, and emergency vehicles would not be substantially delayed. Therefore, for the above reasons, the proposed project, in combination with past, present and reasonably foreseeable development in San Francisco, would result in ***less-than-significant*** cumulative emergency access impacts.

Mitigation: None required.

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4.F Noise and Vibration

4.F.1 Introduction

Section 4.F, Noise and Vibration, describes the existing noise environment in the project area, evaluates the potential construction-related and operational noise and vibration impacts associated with implementation of the proposed project, and identifies mitigation measures to avoid or reduce potential adverse impacts. Project-related noise and vibration effects on biological resources are discussed in Section 4.I, Biological Resources.

4.F.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 that 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 be perceived. Outside of the laboratory, a 3-dBA change is considered a perceptible difference. A 10-dBA increase in the level of a continuous noise represents a perceived doubling of loudness.[1]

Noise Descriptors

Noise is generally defined as sound that is loud, disagreeable, unexpected or unwanted. Variations in noise exposure over time are typically expressed in terms of a steady-state energy level (called *Leq*) 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., L_{10}, L_{50}, L_{90}). L_{eq} (24) is the steady-state acoustical energy level measured over a 24-hour period. *Lmax* 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 p.m. to 10 p.m.) and 10-dBA increment is added 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,

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[1] California Department of Transportation (Caltrans), *Technical Noise Supplement (TeNS) to the Traffic Noise Analysis Protocol* pp. 2-44 to 2-45, September 2013, *http://www.dot.ca.gov/env/noise/docs/tens-sep2013.pdf,* accessed August 15, 2018.

Ldn and CNEL usually differ by less than 1 dBA at any given location from transportation noise sources.[2] **Table 4.F-1**, **Representative Environmental Noise Levels**, presents representative noise sources and their corresponding noise levels in dBA at varying distances from the noise sources.

**TABLE 4.F-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*, p. 2-20, September 2013.

Sensitive Receptors

Some land uses (and associated users) are considered more sensitive to ambient noise levels than others due to the types of activities typically involved with the land use and the amount of noise exposure (in terms of both exposure duration and insulation from noise). In general, occupants of residences, schools, daycare centers, hotels, hospitals, places of worship, and nursing homes are considered to be sensitive receptors (i.e., persons who are sensitive to noise based on their specific activities, age, health, etc.).

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[2] California Department of Transportation (Caltrans), Technical Noise Supplement (TeNS) to the Traffic Noise Analysis Protocol p. 2-48, September 2013, *http://www.dot.ca.gov/env/noise/docs/tens-sep2013.pdf,* accessed August 15, 2018.

Health Effects of Environmental Noise

The World Health Organization is a recognized source of current knowledge regarding health impacts, including those generated by noise. According to the World Health Organization, one health effect is sleep disturbance, which 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.[3]

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. Vibration is typically measured by *peak particle velocity* (PPV) in inches per second (in/sec). With the exception of long-term occupational exposure, vibration levels rarely affect human health. Instead, most people consider vibration to be an annoyance that can affect

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[3] World Health Organization, *Guidelines for Community Noise,* Chapter 3, p. 46, April 1999.

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. Depending on the age of the structure and type of vibration (transient, continuous, or frequent intermittent sources), fairly low vibration levels as low as 0.5 to 2.0 in/sec PPV can damage a structure.[4]

Typical sources of groundborne vibration in San Francisco are large-scale construction projects that involve pile driving or underground tunneling. Vibration is also caused by transit vehicles in the subway system under Market Street, including Muni Metro 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. Since rubber tires and suspension systems mitigate vibrations, rubber tire vehicles such as Muni buses, trucks, and automobiles rarely create substantial vibration absent a bump in the road.[5]

Existing Conditions

Existing Noise Sources

At present, the primary sources of noise on the project site are on-going remediation activities. The primary sources of noise adjacent to or near the project site are traffic on local streets, various industrial activities, and the distant I-280 freeway. The project site is bounded by Illinois Street on the west, 22nd Street on the north, the San Francisco Bay on the east, and 23rd Street on the south. The project site is located in an urban area where noise from nearby industrial uses (including the American Industrial Center and PG&E Potrero Substation to the west and PG&E Hoe Down Yard to the north) and vehicular traffic (automobiles, trucks, and buses on the Illinois Street, Third Street and other streets in the vicinity) dominate the noise environment. Intermittent sources of noise that contribute to ambient noise levels include Caltrain commuter train traffic (approximately 325 feet to the west) and nearby Muni light rail trains on Third Street (approximately 365 feet to the west). More distant intermittent noise sources include activities such as vehicle loading/unloading at Pier 80 (located as close as 1,000 feet south of the site), concerts and sporting events at AT&T Ballpark (located 7,200 feet north of the site), and the vehicular traffic on Illinois Street which is generated by these events. Principal noise sources in the immediate project vicinity are described as follows:

- **PG&E Remediation Activities.** PG&E is currently remediating soil, soil vapor, and groundwater on and adjacent to the project site, improving it to a commercial/industrial standard (independent of the project). These remediation activities are expected to fully cease by 2022-2024. In general, PG&E's remediation activities involve removal of affected soils in some areas, in-place stabilization with cement mix of other areas where affected soils are

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[4] California Department of Transportation (Caltrans), *Transportation and Construction Vibration Guidance Manual,* September 2013, Table 9, p. 23, *http://www.dot.ca.gov/env/noise/docs/tens-sep2013.pdf,* accessed on August 15, 2018.

[5] Federal Transit Administration (FTA), Transit Noise and Vibration Impact Assessment, DTA-VA-90-1003-06, p. 10-6, May 2006, U.S. Department of Transportation, *https://www.transit.dot.gov/regulations-and-guidance/environmental-programs/fta-noise-and-vibration-impact-assessment*, accessed August 15, 2018.

deeper, and installation of a durable cover across the site. Offshore remediation activities (at and to the north of the project site) include dredging to remove impacted sediment and treating some sediments in place using activated carbon.

- **American Industrial Center.** The American Industrial Center is quite large and is located on Third Street between 20th and 23rd streets and extends to Illinois Street. The facility comprises about 900,000 square feet of commercial, industrial, and related supporting uses. Currently, approximately 300 tenants engaged in various commercial and industrial activities lease space in the building. The facility houses breweries, commercial kitchens and bakeries, garment manufacturing businesses, warehouses, and distribution centers. On average, there are typically 2,500 to 3,000 people on the site at a given time.[6] The building's loading docks are located on Illinois Street across from the project site.

- **PG&E Potrero Substation.** There is a PG&E substation adjoining the western project site boundary (west of Block 5 and south of Block 13), and it contains large transformers and related electrical equipment that are not enclosed. Transformer noise can be disturbing because they generate tonal noise (i.e., noise with simple or pure tones or "hum" components). Field observations indicate that transformer noise is audible in the immediate vicinity of the substation, but heavy equipment and traffic noise on local streets dominate the ambient noise environment in nearby areas. This type of noise source could be audible during daytime and nighttime hours, at adjacent residential units of the proposed project.

- **PG&E Hoe Down Yard.** PG&E operates a corporation yard on the north side of 22nd Street just east of Illinois Street. Heavy equipment operates in this yard, but such operations would cease when this parcel is redeveloped as part of implementation of the Pier 70 project.

- **Nearby Sporting or Special Events.** Residents living along Illinois Street are subject to short-term, intermittent increases in traffic noise before and after events held at the existing AT&T Park and the Chase Center that is currently under construction. Since these increases only occur for a short time before and after a game, they do not substantially increase ambient noise levels. Even so, these short-term, intermittent increases are likely noticeable to residents living on or adjacent to Illinois Street.

Existing Groundborne Noise and Vibration Sources

There are no known sources of existing groundborne noise or vibration near the project site. Distant Caltrain traffic (approximately 1,500 feet to the west of the project site) and nearby light rail train operations (Third Street line, approximately 325 feet west of the western project site boundary) both operate at the surface and generate airborne noise and surface vibration. Given their distance and surface location, these two sources are not considered substantial sources of groundborne noise or vibration at the project site.[7] There is no machinery or activity at the nearby American Industrial Center that generate vibration on the project site.

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[6] Charles J. Higley, Farella Braun + Martel, LLP, *Pier 70 Mixed-Use District – EIR Scoping Comments,* June 5, 2015.

[7] U.S. Department of Transportation, Federal Transit Administration (FTA), *Transit Noise and Vibration Impact Assessment,* Section 4.1 Screening Distances, May 2006, pp. 4-1 to 4-5, *https://www.transit.dot.gov/regulations-and-guidance/environmental-programs/fta-noise-and-vibration-impact-assessment,* accessed on August 15, 2018.

Ambient Noise Measurements

To characterize the background noise environment in the project vicinity, a total of 11 noise measurements were collected. Six long-term (24 to 72 hours) and five short-term (15 minutes) measurements were collected in the project area over a five-day period in January 2018.[8] While onsite remediation activities by PG&E are currently a source of noise in the project vicinity, these activities are expected to fully cease by 2022-2024. Therefore, measurements were collected during a period when no or only minor remediation activities occurred in order to more accurately characterize the future noise environment at the project site after remediation activities are completed. Measurement locations are indicated on **Figure 4.F-1, Noise Measurement Locations**. Noise measurement data are included in **Appendix D**. A summary of noise measurement results is presented in **Table 4.F-2, Summary of Long-Term (LT) and Short-Term (ST) Noise Monitoring on the Project Site and Vicinity (dBA)**. As indicated in Table 4.F-2, noise measurements indicate that noise levels at the project site range from 56 to 60 dBA [Ldn]) over most of the site, with higher noise levels (71 dBA [Ldn]) immediately adjacent to Illinois Street and the PG&E Potrero Substation.

Existing and Future/Planned Sensitive Receptors

There are industrial, commercial, and residential uses within 900 feet of the project site.[9] Existing noise-sensitive receptors in the project vicinity within 900 feet of the project site include residences, one nursery school, and one church, as listed below in **Table 4.F-3**, **Sensitive Receptors within 900 feet of Project Site**, and their locations are shown in **Figure 4.F-2, Existing Noise-Sensitive Receptors within 900 feet of Project Site**. The UCSF Mission Bay Hospital (1975 Fourth Street) is located approximately 2,500 feet to the north. Also, there are additional residential and childcare uses planned for the Pier 70 property, which adjoins the northern project site boundary, which are also listed in Table 4.F-3; their locations and planned construction dates are indicated in **Figure 4.F-3**, **Future Planned Noise-Sensitive Receptors at the Pier 70 Site and Planned Construction Dates**. There are no existing or planned skilled nursing facilities, or public libraries within 900 feet of the project site.

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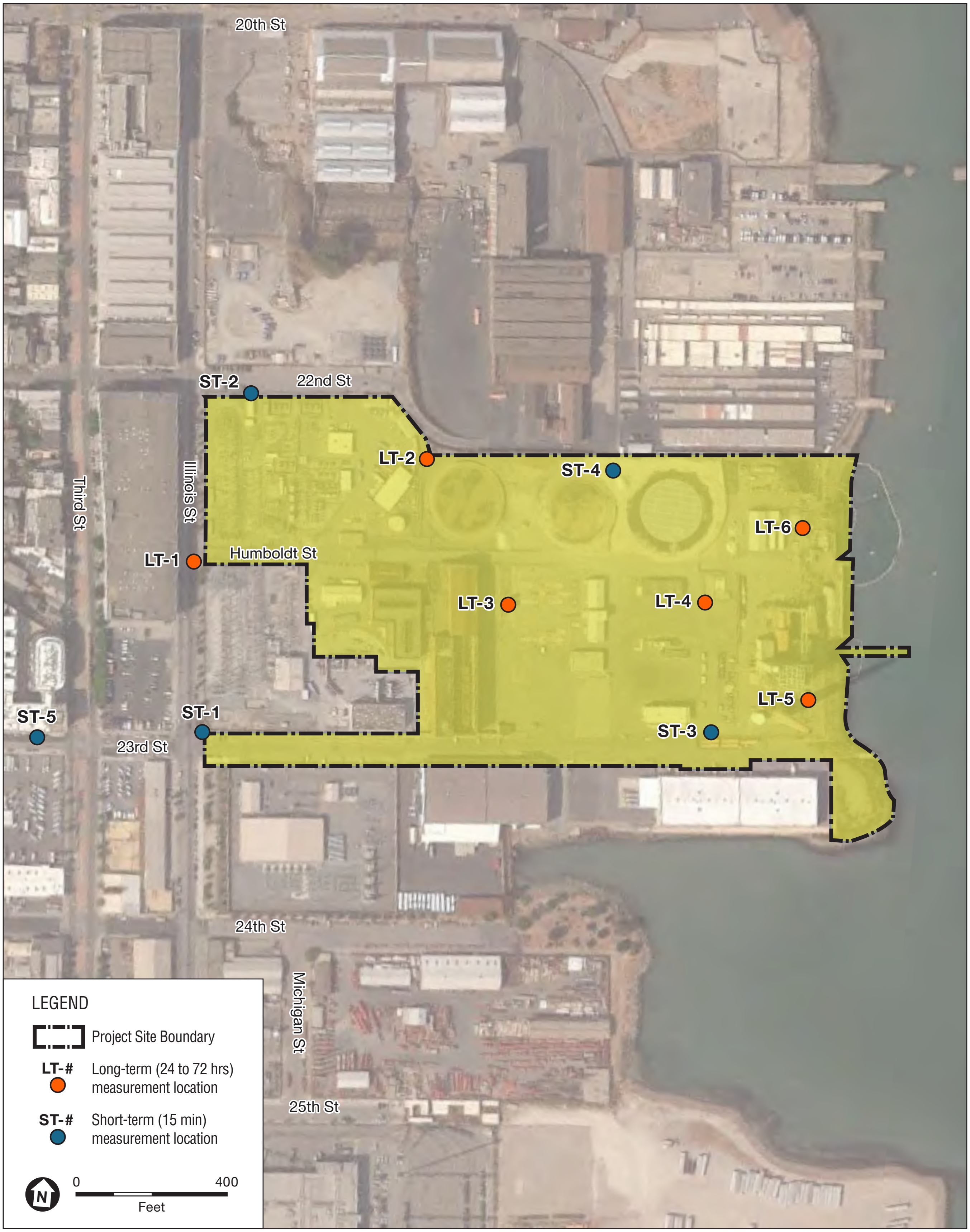
[8] Short-term measurements were taken with a Larson Davis LxT sound level meter on Tuesday, 1/16/18, while the long-term measurements were taken from Tuesday, 1/9/18 to Friday, 1/12/18 with Metrosonics Model db 308 sound meters. Measurement locations were selected based on the locations of major noise sources and proposed development locations as well as to characterize noise attenuation effects over the project site.

[9] 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.



SOURCE: Perkins+Will 2017; Google Earth, 2017; ESA, 2018

Potrero Power Station Mixed-Use Development Project

Figure 4.F-1
Noise Measurement Locations

TABLE 4.F-2
SUMMARY OF LONG-TERM (LT) AND SHORT-TERM (ST) NOISE MONITORING ON THE PROJECT SITE AND VICINITY (dBA)

Measurement Location		Time Period	Average L_{dn} or L_{eq}	Audible Noise Sources
Long-term Measurements (24 hours or more)				
LT-1:	Western project site boundary (southwest side of proposed Block 13) between Humboldt and 23rd streets, about 27 feet east of Illinois Street centerline.	1/9/18 to 1/10/18 Daytime: Evening: Nighttime: 24-hour:	 67 dBA (L_{eq}) 64 dBA (L_{eq}) 64 dBA (L_{eq}) 71 dBA (L_{dn})	Traffic on Illinois and Third streets and PG&E Potrero Substation.
LT-2:	Northern project site boundary (between proposed Blocks 1 and 14), approximately 55 feet south of 22nd Street centerline.	1/9/18 to 1/10/18 Daytime: Evening: Nighttime: 24-hour:	 56 dBA (L_{eq}) 53 dBA (L_{eq}) 51 dBA (L_{eq}) 58 dBA (L_{dn})	Distant diesel engine with occasional back-up alarm.
LT-3:	West central project site (west side of proposed Block 7), approximately 360 feet north of 23rd Street centerline and 120 feet south of Humboldt Street centerline.	1/9/18 to 1/10/18 Daytime: Evening: Nighttime: 24-hour:	 56 dBA (L_{eq}) 50 dBA (L_{eq}) 48 dBA (L_{eq}) 57 dBA (L_{dn})	Distant diesel engine with occasional back-up alarm, and aircraft.
LT-4:	East central project site (east side of proposed Block 8), approximately 400 feet north of 23rd Street and 100 feet south of Humboldt Street.	1/11/18 Daytime: Evening: Nighttime: 24-hour:	 62 dBA (L_{eq}) 52 dBA (L_{eq}) 47 dBA (L_{eq}) 60 dBA (L_{dn})	Distant diesel engine with occasional back-up alarm.
LT-5:	Southeast corner of project site at east side of Unit 3/proposed Block 9), approximately 150 feet north of 23rd Street centerline and 95 feet west of bay.	1/11/18 Daytime: Evening: Nighttime: 24-hour:	 54 dBA (L_{eq}) 50 dBA (L_{eq}) 49 dBA (L_{eq}) 56 dBA (L_{dn})	Wind-blown waves and tidal activity of Bay.
LT-6:	Northeast corner of project site (east of proposed Block 4), approximately 575 feet north of 23rd Street centerline and 110 feet west of bay).	1/11 to 1/12/18 Daytime: Evening: Nighttime: 24-hour:	 54 dBA (L_{eq}) 51 dBA (L_{eq}) 48 dBA (L_{eq}) 56 dBA (L_{dn})	Distant diesel engine with occasional back-up alarm.
Short-term Measurements (15 minutes)				
ST-1:	Southwest corner of project site at northeast corner of Illinois Street/23rd Street intersection, approximately 50 feet from the Illinois Street centerline and 50 feet from the 23rd Street centerline.	1/16/18; 2:33 p.m. to 2:49 p.m.	68 dBA (L_{eq})	Truck traffic on Illinois Street and 23rd Street; Muni light rail and vehicle traffic on Third Street.
ST-2:	Northwest corner of project site (north side of proposed Block 13), approximately 38 feet south of 22nd Street centerline.	1/16/18; 2:54 p.m. to 3:09 p.m.	60 dBA (L_{eq})	Vehicle traffic on Illinois Street and 22nd Street; HVAC unit on portable building; PG&E Potrero Substation.
ST-3:	Southeast corner of project site and proposed Block 12, about 65 feet north of 23rd Street centerline.	1/16/18; 1:48 p.m. to 2:03 p.m.	55 dBA (L_{eq})	Distant back-up alarm, distant HVAC, and fog horn.
ST-4:	Northern project site boundary (north side of proposed Block 3), adjacent to Pier 70 site.	1/16/18; 2:08 to 2:23 p.m.	50 dBA (L_{eq})	Distant diesel engine with occasional back-up alarm.
ST-5:	Northwest corner of Third Street/23rd Street intersection (west of project site), about 30 feet north of the 23rd Street centerline and 100 feet west of the Third Street centerline.	1/16/18; 2:16 p.m. to 2:31 p.m.	68 dBA (L_{eq})	Vehicle traffic on Third Street and 23rd Street and Muni light rail traffic on Third Street.

SOURCE: ESA, 2018.

TABLE 4.F-3
SENSITIVE RECEPTORS WITHIN 900 FEET OF THE PROJECT SITE

Type of Sensitive Receptor	Location	Minimum Distance from Project Site Boundaries
Existing Sensitive Receptors within 900 Feet of Project Site (numbers correspond to locations shown on Figure 4.F-2)		
Between 20th and 22nd Streets (Northwest of Project Site)		
Residential	West side of Third Street	400 feet
Residential	East side of Tennessee Street	650 feet
E-1: Friends of Potrero Hill Nursery School	1060A Tennessee Street	700 feet
E-2: St. Stephen Baptist Church	800 22nd Street	650 feet
Between 22nd and 23rd Streets (West of Project Site)		
Residential	West side of Third Street	380 feet
Residential	North and south sides of 22nd Street	380 feet
Residential	East and west sides of Tennessee Street	500 feet
Residential	East side of Minnesota Street	750 feet
Future/Planned Sensitive Receptors within 900 Feet of Project Site (parcel locations shown on Figure 4.F-3)		
North of 22nd Street (North of Project Site)		
Parcels F/G, H1, H2, HDY1/2 : Residential[a]	Pier 70 Mixed-Use District project site (adjacent to northern project boundary or north side of 22nd Street)	15 feet[b]
Parcels PKN, PKS, C2, D, E1, E2, E3, 2: Residential and/or Childcare[c]	Pier 70 Mixed-Use District project site	225 feet

NOTES:

[a] Under the Pier 70 Maximum Residential Scenario, all of these parcels would be developed with residential uses. Under the Pier 70 Maximum Commercial Scenario, all of these parcels would be developed with commercial uses and there would be no noise-sensitive receptors on these parcels.

[b] Minimum distance is estimated at 30 feet because building locations on Pier 70 parcels and project parcels have not yet been determined, but the minimum setback from either side of the project boundary is required to be 15 feet.

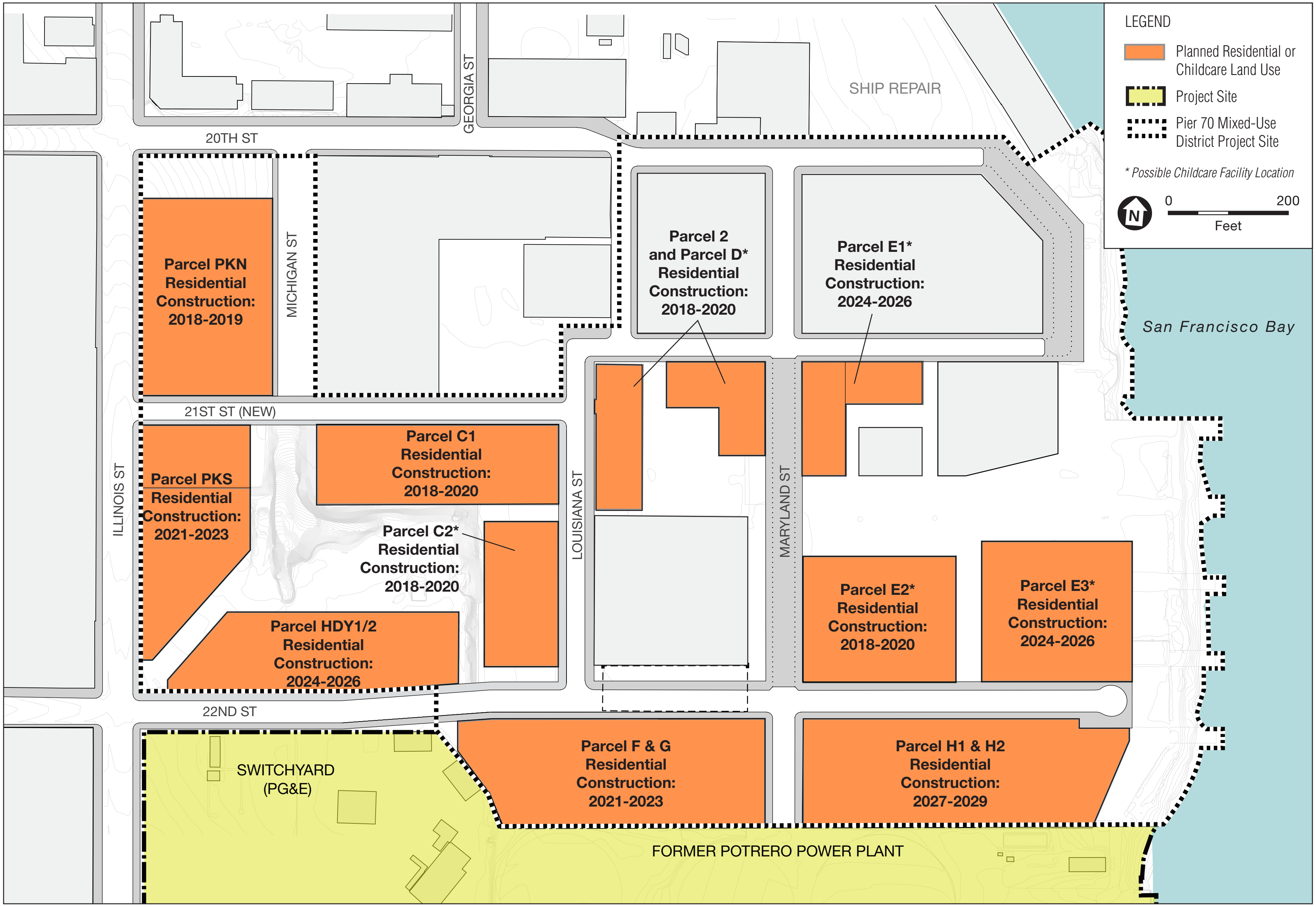
[c] Under the Pier 70 Maximum Residential Scenario, these parcels would be developed with residential uses. Under the Pier 70 Maximum Commercial Scenario, these parcels would still be developed with residential uses except for Parcel 2, which would be developed with commercial uses. Also, note that Parcels C2, D, E1 and E2 are potential locations for a childcare facility.

SOURCE: Orion Environmental Associates, 2018; Google Earth (Imagery Date 9/11/2017) for parcel data (address and distance to the site)

SOURCE: Perkins+Will 2017; Google Earth, 2017; ESA, 2018

Potrero Power Station Mixed-Use Development Project

Figure 4.F-2
Existing Noise-Sensitive Receptors within 900 Feet of Project Site



SOURCE: Perkins+Will, 2018; ESA, 2018

Potrero Power Station Mixed-Use Development Project

Figure 4.F-3
Future Planned Noise-Sensitive Receptors on the Pier 70 Site and Planned Construction Dates

4.F.3 Regulatory Framework

Federal Regulations

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 U.S. Environmental Protection Agency (U.S. EPA) Office of Noise Abatement and Control to coordinate federal noise control activities. 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. **Table 4.F-4, Summary of Noise Levels Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety**.

TABLE 4.F-4
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] (Leq, 24 hour)	All areas.
Outdoor activity interference and annoyance	< 55 dBA (Ldn)	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 (Leq, 24 hour)	Outdoor areas where people spend limited amounts of time, such as school yards, playgrounds, etc.
Indoor activity interference and annoyance	< 45 dBA (Ldn)	Indoor residential areas.
Indoor activity interference and annoyance	< 45 dBA (Leq, 24 hour)	Other indoor areas with human activities, such as schools, etc.

NOTE:
[a] Yearly average equivalent sound levels in decibels; the exposure period that results in hearing loss at the identified level is 40 years.

SOURCE: U.S. EPA, Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety, 1974, *http://nepis.epa.gov/Exe/ZyPDF.cgi/2000L3LN.PDF?Dockey=2000L3LN.PDF*, accessed June 12, 2018.

U.S. EPA found that to prevent hearing loss over the lifetime of a receptor, the yearly average Leq should not exceed 70 dBA, and the Ldn should not exceed 55 dBA in outdoor activity areas or 45 dBA indoors to prevent interference and annoyance.[10] In 1982, noise control was largely passed to state and local governments.

Federal regulations establish noise limits for medium and heavy trucks (more than 4.5 tons, gross vehicle weight rating) under Title 40 of the Code of Federal Regulations, Part 205, Subpart B. The federal truck passby 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.

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[10] 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.

State Regulations

Noise

The 2016 California Building Code (Title 24, Part 2 of the California Code of Regulations) requires that walls and floor/ceiling assemblies separating dwelling units from each other, or from public or service areas, have a *Sound Transmission Class* (STC) of at least 50, meaning they can reduce noise by a minimum of 50 dB.[11] The 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 STC rating of 50 for airborne noise.

San Francisco has adopted the 2016 Green Building Standards Code (also part of the State Building Code; California Code of Regulations Title 24, Part 11, and referenced below as the more commonly known "Title 24"), which specifies the following insulation standards for Environmental Comfort (section 5.507) to minimize exterior noise transmission into interior spaces for non-residential buildings:

- Section 5.507.4.1, Exterior Noise Transmission, requires wall and roof-ceiling assemblies to have an STC of at least 50 and exterior windows to have a minimum STC of 30 for any of the following building locations: (1) within the 65-dBA, L_{dn}, noise contour of a freeway, expressway, railroad, or industrial source; and (2) within the 65-dBA noise contour of an airport. Exceptions include buildings with few or no occupants and where occupants are not likely to be affected by exterior noise, such as factories, stadiums, parking structures, and storage or utility buildings.
- Sections 5.507.4.1.1 and 5.507.4.3 require non-residential buildings to be designed with exterior walls and roof-ceiling assemblies that have an STC rating of at least 45 to provide an acceptable interior noise level of 50 dBA, L_{eq}, in occupied areas during any hour of operation.
- 5.507.4.2, Interior Sound, requires wall and floor-ceiling assemblies separating tenant spaces and separating tenant spaces and public places to have an STC of at least 40.

These requirements are enforced by the San Francisco Department of Building Inspection.

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 their *Transportation and Construction Vibration Guidance Manual*[12] and summarized in **Table 4.F-5, Vibration Guidelines for Potential Damage to Structures**. As indicated in this table, the building damage criteria for continuous vibration sources is about half of the criteria for transient sources.

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[11] State Building Code section 1207.2.

[12] Caltrans, *Transportation and Construction Vibration Guidance Manual*, September 2013, Table 19, p. 27, *http://www.dot.ca.gov/env/noise/docs/tcvgm-sep2013.pdf*, accessed on August 15, 2018.

TABLE 4.F-5
VIBRATION GUIDELINES FOR POTENTIAL DAMAGE TO STRUCTURES

Structure Type and Condition	Maximum Peak Particle Velocity (in/sec, PPV)	
	Transient Sources[a]	Continuous/Frequent Intermittent Sources[b]
Extremely fragile historic buildings, ruins, ancient monuments	0.12	0.08
Fragile buildings	0.2	0.1
Historic and some old buildings	0.5	0.25
Older residential structures	0.5	0.3
New residential structures	1.0	0.5
Modern industrial/commercial buildings	2.0	0.5

NOTES: in/sec = inches per second; PPV = peak particle velocity

[a] Transient sources create a single, isolated vibration event, such as blasting or drop balls.

[b] Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.

SOURCE: Caltrans, *Transportation and Construction Vibration Guidance Manual*, September 2013.

Persistent vibration can cause human annoyance. People are more sensitive to vibration during the nighttime hours when sleeping than during daytime waking hours. Numerous studies have been conducted to characterize the human response to vibration. As shown in **Table 4.F-6**, **Vibration Guidelines for Annoyance**, for steady-state (continuous) vibration, human response is typically "strongly perceptible" at 0.1 in/sec PPV, "distinctly perceptible" at 0.035 in/sec PPV, and "barely perceptible" at 0.012 in/sec PPV.

TABLE 4.F-6
VIBRATION GUIDELINES FOR ANNOYANCE

Human Response	Maximum Peak Particle Velocity (in/sec, PPV)	
	Transient Sources[a]	Continuous/Frequent Intermittent Sources[b]
Barely perceptible	0.035	0.012
Distinctly perceptible	0.24	0.035
Strongly perceptible	0.9	0.10
Severe	2.0	0.10

NOTES: in/sec = inches per second; PPV = peak particle velocity

[a] Transient sources create a single, isolated vibration event, such as blasting or drop balls.

[b] Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.

SOURCE: Caltrans, *Transportation and Construction Vibration Guidance Manual*, September 2013.

Local Regulations and Guidelines

San Francisco General Plan

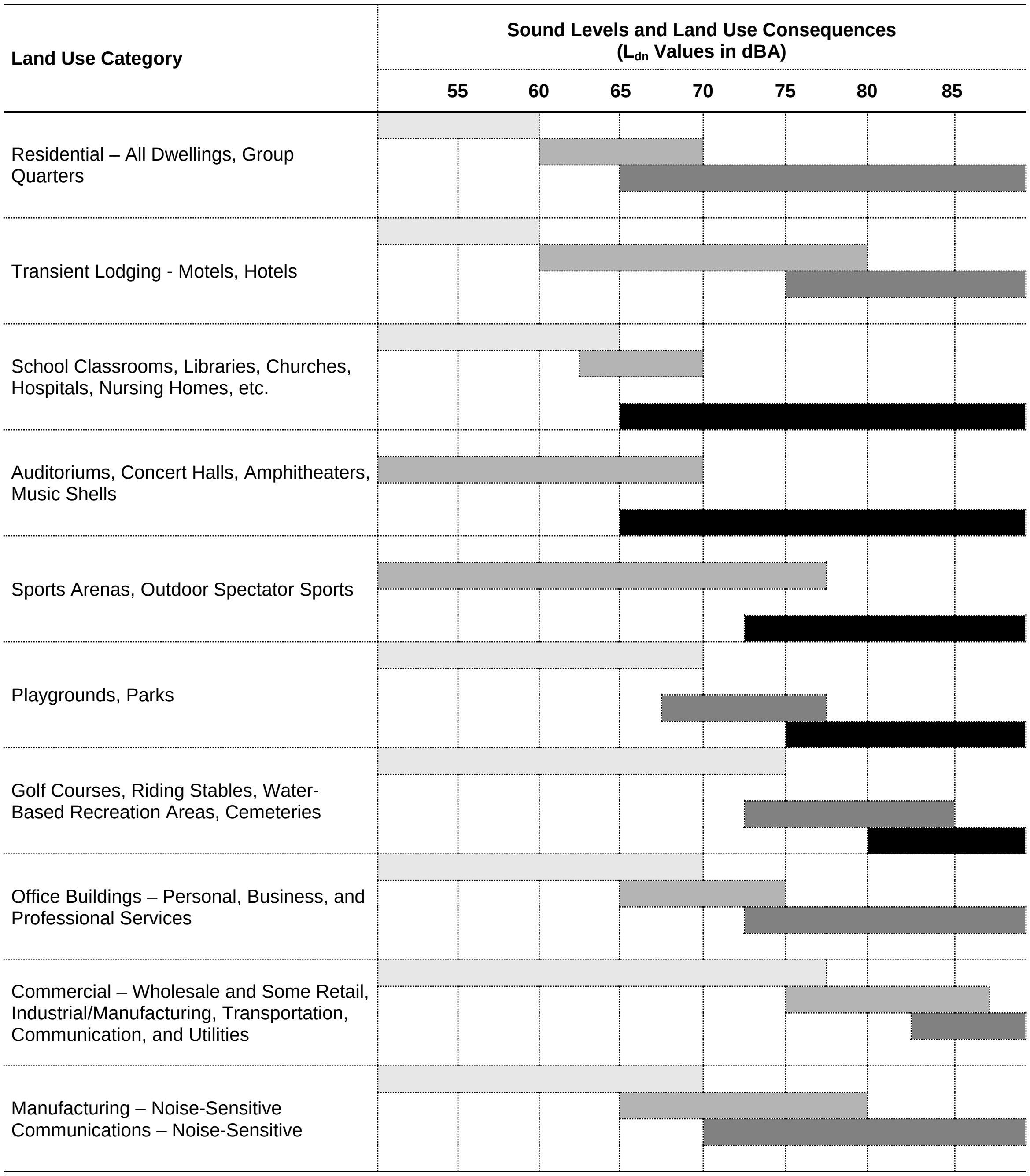
The Environmental Protection Element of the San Francisco General Plan contains Land Use Compatibility Guidelines for Community Noise for determining the compatibility of various land uses with different noise levels (see **Figure 4.F-4, San Francisco Land Use Compatibility Chart for Community Noise**). 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 figure 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. If these uses are proposed to be located in areas with noise levels that exceed these guidelines, a detailed analysis of noise reduction requirements is normally necessary for each building or group of buildings prior to final review and approval.

Objectives and policies in the Environmental Protection Element that pertain to the proposed project include the following:

> ***Policy 9.2*****:** Impose traffic restrictions to reduce transportation noise. Transportation noise levels vary according to the predominance of vehicle type, traffic volume, and traffic speed. Curtailing any of these variables ordinarily produces a drop-in noise level. In addition to setting the speed limit, the City has the authority to restrict traffic on city streets, and it has done so on a number of streets. In addition, certain movement restraints can be applied to slow down traffic or divert it to other streets. These measures should be employed where appropriate to reduce noise.
>
> ***Policy 9.6*****:** Discourage changes in streets which will result in greater traffic noise in noise-sensitive areas. Widening streets for additional traffic lanes or converting streets to one-way direction can induce higher traffic volume and faster speeds. Other techniques such as tow-away lanes and traffic light synchronization also facilitate heavier traffic flows. Such changes should not be undertaken on residential streets if they will produce an excessive rise in the noise level of those streets.

- **Objective 10**: Minimize the impact of noise on affected areas. The process of blocking excessive noise from our ears could involve extensive capital investment if undertaken on a systematic, citywide scale. Selective efforts, however, especially for new construction, are both desirable and justified.

> ***Policy 10.1*****:** Promote site planning, building orientation and design, and interior layout that will lessen noise intrusion. Because sound levels drop as distance from the source increases, building setbacks can play an important role in reducing noise for the building occupants. (Of course, if provision of the setback eliminates livable rear yard space, the value of the setback must be weighed against the loss of the rear yard.) Buildings sited with their narrower dimensions facing the noise source and sited to shield or be shielded by other buildings also help reduce noise intrusion.



░ 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.”

SOURCE: San Francisco Planning Department, *San Francisco General Plan,* adopted on June 27, 1996, *http://www.sf-planning.org/ftp/General_Plan/I6_Environmental_Protection.htm#ENV_TRA_11*, accessed August 15, 2018.

Figure 4.F-4
San Francisco Land Use Compatibility Chart for Community Noise

Although walls with no windows or small windows cut down on noise from exterior sources, in most cases it would not be feasible or desirable to eliminate wall openings. However, interior layouts can achieve similar results by locating rooms whose use require more quiet, such as bedrooms, away from the street noise. In its role of reviewing project plans and informally offering professional advice on site development, the Department of City Planning can suggest ways to help protect the occupants from outside noise, consistent with the nature of the project and size and shape of the building site.

Policy 10.2**:** Promote the incorporation of noise insulation materials in new construction. State-imposed noise insulation standards apply to all new residential structures except detached single-family dwellings. Protection against exterior noise and noise within a building is also important in many nonresidential structures. Builders should be encouraged to take into account prevailing noise levels and to include noise insulation materials as needed to provide adequate insulation.

Policy 10.3**:** Construct physical barriers to reduce noise transmission from heavy traffic carriers. If designed properly, physical barriers such as walls and berms along transportation routes can in some instances effectively cut down on the noise that reaches the areas beyond. There are opportunities for a certain amount of barrier construction, especially along limited access thoroughfares and transit rights-of-way (such as BART), but it is unlikely that such barriers can be erected along existing arterial streets in the city. Barriers are least effective for those hillside areas above the noise source. Where feasible, appropriate noise barriers should be constructed.

- **Objective 11:** Promote land uses that are compatible with various transportation noise levels. Because transportation noise is going to remain a problem for many years to come, attention must be given to the activities close to the noise. In general, the most noise-sensitive activities or land uses should ideally be the farthest removed from the noisy transportation facilities. Conversely, those activities that are not seriously affected by high outside noise levels can be located near these facilities.

Central Waterfront Area Plan

- **Objective 1.5:** Minimize the impact of noise on affected areas and ensure general plan noise requirements are met.

  Noise, or unwanted sound, is an inherent component of urban living. While environmental noise can pose a threat to mental and physical health, potential health impacts can be avoided or reduced through sound land use planning. The careful analysis and siting of new land uses can help to ensure land use compatibility, particularly in zones which allow a diverse range of land uses. Traffic is the most important source of environmental noise in San Francisco. Commercial land uses also generate noise from mechanical ventilation and cooling systems, and through freight movement. Sound control technologies are available to both insulate sensitive uses and contain unwanted sound. The use of good urban design can help to ensure that noise does not impede access and enjoyment of public spaces.

Policy 1.5.1**:** Reduce potential land use conflicts by providing accurate background noise-level data for planning.

Policy 1.5.2**:** Reduce potential land use conflicts by carefully considering the location and design of both noise generating uses and sensitive uses in the Central Waterfront.

Other Local Regulations

San Francisco Police Code

In San Francisco, regulation of noise is addressed in Article 29 of the Police Code (the Noise Ordinance or Police Code), which states the City's policy is to prohibit unnecessary, excessive, and offensive noises from all sources subject to police power. 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."

Sections 2907 and 2908 of article 29 regulate construction equipment and construction work at night, while section 2909 provides for limits on stationary-source noise from machinery and equipment. Sections 2907 and 2908 are enforced by the San Francisco Department of Building Inspection, and section 2909 is enforced by the San Francisco Department of Public Health. Summaries of these and other relevant sections are presented below.

Section 2907(a) of the San Francisco Police Code 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. 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.

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. Section 2909(d) establishes maximum noise levels for fixed noise sources (e.g., mechanical equipment) of 55 dBA (7 a.m. to 10 p.m.) and 45 dBA (10 p.m. to 7 a.m.) inside any sleeping or living room in any dwelling unit located on residential property to prevent sleep disturbance, with windows open, except where building ventilation is achieved through mechanical systems that allow windows to remain closed.

The City's Guidelines for Noise Control Ordinance Monitoring and Enforcement, revised in December 2014, clarifies the definition of *ambient* as the L_{90} (the level of noise exceeded 90 percent of the time), and this noise descriptor is considered to be a conservative representation of the ambient noise level under most conditions.[13] Ordinance compliance is determined by measuring

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[13] City and County of San Francisco, San Francisco Police Code, Article 29: Regulation of Noise Guidelines for Noise Control Ordinance Monitoring and Enforcement, December 2014. Guidance (Supersedes All Previous Guidance), December 2014, *https://www.sfdph.org/dph/files/EHSdocs/ehsNoise/GuidelinesNoiseEnforcement.pdf*, accessed August 15, 2018.

the L_{90} for 10 minutes, with and without the noise source at issue. Use of the L_{90} descriptor is appropriate when determining code compliance of a fixed noise source (such as mechanical equipment), but is not appropriate for other aspects of a CEQA noise impact analysis such as noise created by automobile traffic, which determines noise compatibility based on L_{dn} or CNEL, a different noise descriptor (as described above under subsection Sound Fundamentals, p. 4.F.1).

Amplified Sound

Section 49 of the San Francisco Police Code regulates the use of specified amplified sound equipment and prohibits the operation of such equipment between the hours of 10 p.m. and 7 a.m. if the amplified sound would be plainly audible at a distance of 50 feet from the property line of the property where the sound is generated. Sound amplifying equipment is prohibited from causing noise levels to exceed standards set forth in Article 29 of the Police Code (described above) at any time.

Section 1060.1 requires a permit for operation of amplified sound equipment at any place of entertainment, limited live performance locales, one-time events, fixed place outdoor amplified sound locales, one-time outdoor amplified sound, or sound truck. The permit requires businesses to comply with the maximum noise levels established under the Police and Health codes.

San Francisco Entertainment Commission

Section 90.1 of the San Francisco Administrative Code 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 commission plans and coordinates the provision of City services for major events for which there is no recognized organizer, promoter, or sponsor.

Pursuant to section 1060.1 of the San Francisco Police Code, 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. Permit hearings require the sponsor to provide proof of neighborhood outreach to the commission. Such outreach must consist of at least two of four types of outreach: (1) presentation to a neighborhood, community or residential group; (2) presentation to the leadership of a local not-for-profit that deals with community support such as housing, at risk youth, health, or mental services; (3) a petition including an appropriate number of neighbor signatures according to the sponsor's business address; and/or (4) presentation to a business association if no community organization or not-for-profit exists near the venue.

4.F.4 Impacts and Mitigation Measures

Significance Criteria

The criteria for determining the significance of impacts in this analysis are consistent with the environmental checklist in Appendix G of the CEQA Guidelines, as modified by the San Francisco Planning Department. For the purpose of this analysis, the following criteria were used to determine whether implementing the proposed project would result in a significant noise or vibration impact. Implementation of the proposed project would have a significant noise or vibration effect if the project would:

- Expose persons to or generate noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
- Expose persons to or generate excessive groundborne vibration or groundborne noise levels;
- Permanently increase by a substantial degree ambient noise levels in the project vicinity above levels existing without the project;
- Substantially increase, temporarily or on a periodic basis, ambient noise levels in the project vicinity above levels existing without the project;
- For a project located within an airport land use plan area, or, where such a plan has not been adopted, in an area within two miles of a public airport or public use airport, would the project expose people residing or working in the area to excessive noise levels; or
- For a project located in the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels.

The project site is not within an airport land use plan area,[14] nor is it near a private airstrip. Therefore, the proposed project would not result in the long-term exposure of workers to excessive airport-related noise levels, and these criteria are not discussed further in this environmental impact report (EIR).

Approach to Analysis

This analysis evaluates the potential noise impacts associated with construction and operation of proposed residential, hotel, childcare, retail commercial, office, R&D/life sciences, recreational, entertainment, and PDR uses on the project site. Project construction would be phased over 15 years, and phased construction would result in future onsite residents of early phases being exposed to noise associated with construction of later phases. Once Phase 1 has been completed and occupied in 2025, future residents at Block 8 and potentially also at Blocks 9 and 12 would be subject to construction noise on the project site for up to 10 years through 2034 (Phases 2 through 6). Under the proposed flexible land-use program, certain blocks on the project site are designated as flex blocks where either of two specified uses could be developed depending on market conditions. The analysis evaluates the most noise-sensitive of the proposed land uses that

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[14] San Francisco International Airport, *2019 Noise Exposure Map*, August 13, 2015, *https://media.flysfo.com/media/sfo/noise-abatement/sfo_p150_2019-nem-36x24-plot-signed_ada.pdf*, accessed August 15, 2018.

could be developed on these flex blocks. For example, where flex blocks designate residential use as one of the possible uses, this analysis assumes development of residential use on that block. In addition, childcare use could occur on any block, and noise compatibility of this use on all blocks is considered. In this way, the analysis captures the worst-case or maximum impact because if a less noise-sensitive land use were ultimately developed, then the noise impacts would be less.

Project Features

Key construction elements of the proposed project that could directly, or indirectly, result in noise or vibration impacts include the following:

- Demolition of existing structures on the site and relocation of utilities;
- Supplemental remediation activities to allow residential use, if required by the Regional Water Quality Control Board;
- Surface and sub-surface preparation and grading for proposed buildings, roadways, and other infrastructure;
- Construction of foundations and buildings, roadways, and other infrastructure;
- Shoreline improvements including construction and operation of a fixed, overwater wharf structure, gangway, and floating dock;
- Construction activities would occur up to seven days per week, generally between the hours of 7 a.m. to 8 p.m. However, during Phase 1 (approximately 2022 to 2025), construction activities in the vicinity of 23rd Avenue could extend overnight. Nighttime activities would cease once Phase 1 residential units are occupied.

Mobile equipment such as excavators, graders, backhoes, loaders, dump trucks, compactors, pavers, man lifts, and forklifts would be used for demolition, excavation, remediation, site clearing and grading, but also for building construction, and/or hardscape and landscape materials installation. Track/tire-mounted cranes and/or tower cranes would be used for building construction, including but not limited to, steel and precast erection, and building façades. Miscellaneous stationary equipment would include generators, air compressors, and cement/mortar mixers, and possibly crushing and processing equipment. A variety of other smaller mechanical equipment would also be used at the project site during the construction period, such as jackhammers/pavement breakers, saw cutters, chopping saws, tile saws, stud impact guns, impact drills, torque wrenches, welding machines, and concrete boom pumps.

In addition to this equipment, construction techniques that would also be employed during project construction include pile driving, deep soil mixing, surcharge and wicking, and/or controlled rock fragmentation (potentially inclusive of blasting). Some intermediate and all deep foundations would require steel pipe-piles driven to bedrock beneath seven blocks (Blocks 3, 4, 5, 8, 9, 10, and 12). It is expected that impact pile drivers would be used at these locations. For deep foundations on Blocks 4, 8, and 9, an average of two piles would be installed per hour with a range of 400 to 500 piles per block over a maximum duration of six weeks per block. Intermediate foundations requiring piles on Block 3, 5, 10 and 12 would require about 650 additional piles, with the duration of pile driving activities ranging between one and four weeks per block. A total of 1,850 to 2,150 piles would be installed at the project site. The maximum pile length for the project is anticipated to be 70 feet, and pile diameters are anticipated to range from 14 to 16 inches. Installation of the recreational dock would also require a small number of driven piles using either a vibratory or an impact pile driver that would access the area on a barge moved into place with a tugboat. A track/tire-mounted crane would also be needed to place structural components of the recreational dock. Geotechnical improvements would require drill rigs to perform deep soil mixing along the shoreline and install soil wicks for use during surcharging activities.

Excavation for construction of underground parking garages and below grade building spaces could require use of blasting or controlled rock fragmentation by either injecting expansive materials or using pulse plasma injection. Construction would include in-water and shoreline work, with a small amount of in-water vibratory hammer or impact hammer pile driving.

Project construction would also generate offsite truck trips for deliveries of concrete and other building materials, transportation of construction equipment to and from the site, hauling soils and debris from the site, and street sweepers.

Key operational elements of the proposed project that could directly or indirectly result in noise impacts include the following:

- Traffic increases associated with long-term development of over 5 million gross square feet of residential, commercial, and other land uses (introducing over 6,000 new residents and over 5,000 new employees to the project site) would generate on- and offsite vehicular trips, and these traffic increases could result in traffic noise increases along offsite and onsite streets in the project vicinity.
- Operation of mechanical equipment (including heating/ventilation/air conditioning (HVAC) and emergency standby diesel generators) would introduce new stationary noise sources.[15]
- Development of public open spaces in the center of the site and along the shoreline would introduce new uses such as: assembly and entertainment spaces for temporary events, spill-out spaces for retail or outdoor dining, quiet spaces, waterfront viewing terraces, playgrounds, and soccer fields. Proposed temporary events could include playing of amplified music. Events such as movie nights in the park, farmers markets, fairs, performances, food trucks, block parties, and weddings would be allowed in all open space areas.
- Recreational spaces could be developed on the roofs of residential and non-residential buildings (including a rooftop soccer field) and commercial uses (e.g., bars/restaurants) could also be developed on the roofs of non-residential buildings.[16] There would be the potential for outdoor amplified noise sources at rooftop commercial uses.

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[15] Conceptual generator information provided by the sponsor indicates that 15 emergency standby diesel generators would be provided (14 for buildings and one for the pump station). They would be tested for 50 hours per year (consistent with BAAQMD permitting limits), which is roughly equivalent to 4 hours per month. They would be located at grade with exhaust stacks located 15 feet above grade and a minimum of 30 feet from the property line.

[16] Proposed rooftop recreational uses could be developed with enclosed and/or unenclosed (i.e., indoor and outdoor) spaces, while commercial uses (e.g., bars/restaurants) may be “enclosed” with spill-out space on fully outdoor rooftop patios. “Enclosed” rooftop spaces would be protected from wind and other elements by framing and/or walls on as many as all sides and an overhead roof.

Methodology for Analysis of Construction Impacts

Sensitive Receptors and Construction Phasing

Project construction would require the operation of heavy equipment on the project site as discussed above, which could potentially affect three distinct groups of noise-sensitive receptors: (1) existing, offsite noise-sensitive receptors within 900 feet of the project site, as described in Table 4.F-3 and shown in Figure 4.F-2, pp. 4.F-9 and 4.F-10, respectively, above; (2) future proposed onsite sensitive receptors, including residential, hotel and childcare uses, as shown in Chapter 2, Figure 2-5, p. 2-16; and (3) future, planned sensitive receptors on the Pier 70 site, as described in Table 4.F-3 and shown in Figure 4.F-3, pp. 4.F-9 and 4.F-11, respectively, above. This analysis considers the potential noise effects on each of these sensitive receptors separately, as described below, with respect to construction phasing, including the overlapping phasing.

Construction of the proposed project is expected to occur in seven phases over the course of 15 years, from 2020 through 2034 (see Table 2-2 of Chapter 2, Project Description, p. 2-52). Construction duration in each phase would range from three to five years. All construction phases could affect the existing, offsite sensitive receptors, the first group of sensitive receptors discussed above. Potential impacts to the second group of sensitive receptors would occur following completion of Phase 1 of construction and occupation of the residential uses constructed therein. The proposed phasing schedule would expose future onsite users/occupants of earlier, completed phases to noise and/or vibration from the construction of later phases. The third group of sensitive receptors is planned, future offsite receptors: residential and childcare uses directly north of the project site that have been approved for construction as part of the Pier 70 Mixed Use District project. These receptors could be affected by project construction phases near the northern boundary of the project site. While market conditions could alter the phasing of both projects, this analysis is based on the proposed project phasing along the northern project boundary together with the planned Pier 70 construction phasing,[17] as shown in **Figure 4.F-5, Proposed Construction Phasing and Sensitive Receptors on Project Site and Pier 70 Site**. This analysis accounts for Pier 70 sensitive receptors occupying buildings during construction of the proposed project and being exposed to the project's construction noise.

Construction Noise

This impact analysis evaluates the potential for construction equipment to generate noise levels in excess of standards established in the noise ordinance using default reference noise levels compiled by the Federal Highway Administration[18] for the types of equipment proposed to be used onsite (see Impact NO-1). This analysis also assesses the potential for construction-related noise to cause a substantial temporary or periodic increase in ambient noise levels at the closest

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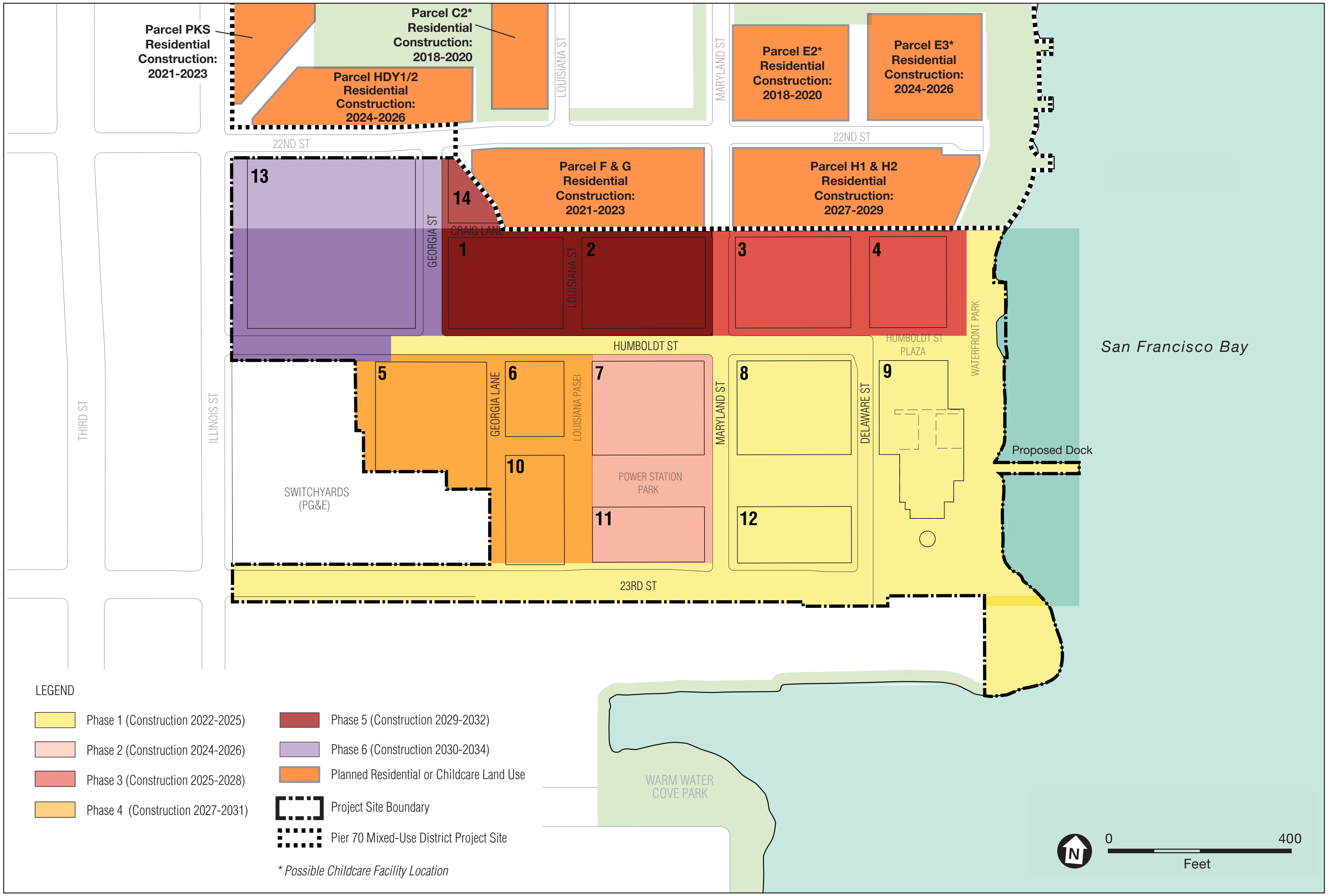
[17] Construction phasing on the Pier 70 site is based on construction phasing outlined in the EIR and EIR Addendum for Pier 70 Mixed-Use District project (Case #2014-001272 ENV). Available online at *http://sf-planning.org/environmental-impact-reports-negative-declarations*, accessed on August 15, 2018.

[18] Federal Highway Administration (FHWA), *Construction Noise Handbook*, Chapter 9.0 Construction Equipment Noise Levels and Ranges, Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors, Updated August 24, 2017, *https://www.fhwa.dot.gov/environment/noise/construction_noise/handbook/handbook09.cfm*, accessed on August 15, 2018.



SOURCE: CBG, Perkins+Will 2018

Potrero Power Station Mixed-Use Development Project

Figure 4.F-5
Proposed Construction Phasing on the Project Site and Planned Future Sensitive Receptors on Pier 70 Site

existing offsite noise-sensitive receptors, future onsite sensitive receptors, and planned offsite sensitive receptors using Federal Transit Administration methodology for general quantitative noise assessment (see Impact NO-2).[19] The Federal Transit Administration methodology calls for estimating a combined noise level from the simultaneous operation of the two noisiest pieces of equipment expected to be used in each construction phase. This method applies usage factors to each piece of equipment analyzed to account for the time that the equipment is in use over the specified time period. Given the size of the project site, the minimum distance between source and receptor was based on the distance between the closest block boundary and the specified noise-sensitive receptor's property boundary. Project construction noise impacts are evaluated at sensitive receptor locations to determine whether the proposed project would result in: (1) an increase in noise levels that are 10 dBA above the ambient noise levels, or (2) noise levels of 90 dBA. These standards are based on the Federal Transit Administration criteria discussed above. If these quantitative standards are exceeded, the evaluation then considers the duration and severity of the exceedance to determine whether the project would result in a substantial temporary increase in noise levels.

This analysis also considers the potential for nighttime construction activities during Phase 1 to result in sleep disturbance at nearby sensitive receptor locations. The potential for sleep disturbance is evaluated based on whether nighttime construction activities would result in indoor noise levels of 45 dBA or more (assuming windows closed) at sensitive receptor locations. If this quantitative standard is exceeded, the evaluation then considers the duration and severity of the exceedance to determine whether the project would result in a substantial temporary increase in noise levels.

This analysis also evaluates the potential for construction-related traffic noise impacts along local access roads by determining whether noise-sensitive receptors would be located along proposed/likely construction haul routes and the degree of noise increase on these routes from project-related average daily increases in construction truck traffic (see Impact NO-3).

Vibration and Groundborne Noise

This analysis focuses on groundborne vibration generated by construction-related activities, particularly certain types of pile-driving and heavy equipment (see Impact NO-4 for list of construction equipment considered), and evaluates potential vibration impacts on existing offsite sensitive receptors/structures, future onsite receptors/structures, and planned offsite receptors/ structures on the Pier 70 Mixed-Use District project site.

This evaluation assesses vibration significance based on the Caltrans 2013 vibration guidance manual for building damage and sleep disturbance, which can result in adverse health effects. The potential for sleep disturbance effects are evaluated only when construction activities are proposed during the nighttime hours.

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[19] U.S. Department of Transportation, Federal Transit Administration (FTA), Transit Noise and Vibration Impact Assessment, Section 12.1.1 Quantitative Noise Assessment Methods, May 2006, pp. 12-4 to 12-8, *https://www.transit.dot.gov/regulations-and-guidance/environmental-programs/fta-noise-and-vibration-impact-assessment*, accessed on August 15, 2018.

Methodology for Analysis of Operational Impacts

Sensitive Receptors

As described in the previous section (Methodology for Analysis of Construction Impacts), project operation could potentially affect three distinct groups of noise-sensitive receptors: (1) existing, offsite noise-sensitive receptors within 900 feet of the project site, as described in Table 4.F-3 and shown in Figure 4.F-2, pp. 4.F-9 and 4.F-10, respectively, above; (2) future proposed onsite sensitive receptors, which consists of proposed residential and daycare uses that would occur on the project site, as described in Chapter 2, Project Description and shown in Figure 2-5, Proposed Land Use Plan, p. 2-16; and (3) future, planned sensitive receptors on the Pier 70 site, as described in Table 4.F-3 and shown in Figure 4.F-3, pp. 4.F-9 and 4.F-11, respectively, above.[20] This impact evaluation considers each of these groups of receptors separately as described below.

Noise

Impact NO-5 evaluates the potential for operation of the proposed project to result in permanent increases in ambient noise levels primarily as a result of the addition of new stationary equipment. The analysis in Impact NO-5 is based on compliance with the Noise Ordinance requirements for fixed noise sources. Impacts NO-6 and NO-7 evaluate the impacts of operational noise increases from events that could occur in proposed open space areas and operation of bars/restaurants on building rooftops.

Noise modeling was completed to estimate existing (baseline) and future traffic noise levels along 75 street segments in the project area based on traffic volumes presented in Section 4.E, Transportation and Circulation. Traffic noise modeling was performed using the Federal Highway Administration Traffic Noise (RD-77-108) Model. The model results (included in Appendix D) are used to identify the future incremental noise level increases attributable to vehicle trips generated by project development. Impact NO-8 focuses on operational noise impacts resulting from project-related traffic increases on local roadways both onsite and offsite.

In general, traffic noise increases of less than 3 dBA are barely perceptible to people, while a 5-dBA increase is readily noticeable.[21] Therefore, permanent increases in ambient noise levels of more than 5 dBA are considered to be unacceptable and a significant noise impact in any existing or resulting noise environment. However, in places where the existing or resulting noise environment is "Conditionally Acceptable," "Conditionally Unacceptable," or "Unacceptable" (based on the San Francisco Land Use Compatibility Chart for Community Noise [Figure 4.F-4, above]) for sensitive noise receptors, any noise increase greater than 3 dBA is considered a significant noise impact. These standards were applied to determine whether the project's incremental traffic-related noise increases would be significant.

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[20] Receptor locations on the Pier 70 site are based on construction phasing outlined in the EIR for Pier 70 Mixed-Use District project (Case #2014-001272 ENV).

[21] California Department of Transportation (Caltrans), *Technical Noise Supplement (TeNS) to the Traffic Noise Analysis Protocol*, pp. 2-44, September 2013, *http://www.dot.ca.gov/env/noise/docs/tens-sep2013.pdf*, accessed August 15, 2018.

Vibration and Groundborne Noise

Operational groundborne noise and vibration are not common environmental problems, and even large vehicles (e.g., trucks and buses) do not generally result in perceptible vibration. Therefore, no significant long-term vibration effects are expected to be associated with proposed residential, hotel, retail commercial, office, R&D/life sciences, and PDR uses, and no vibration analysis is required for operation of these proposed uses.

Methodology for Analysis of Cumulative Impacts

The geographic scope of potential cumulative construction noise impacts encompasses a 900-foot radius from the boundaries of the project site. The geographic scope for cumulative traffic noise increases is consistent with the transportation analysis and includes the street segments adjacent to intersections analyzed in Section 4.E, Transportation and Circulation (see Figure 4.E-1, p. 4.E-2 for study intersection and street segment locations). Thus the geographic scope for the analysis of cumulative traffic noise increases is larger.

Cumulative construction noise and vibration impacts are assessed based on a review of the foreseeable future projects (a list-based approach) that are located within the project's 900-foot area of noise influence and are expected to be under construction at the same time as the proposed project (see Section 4.A, Impact Overview, for a more detailed description of these projects). Foreseeable future projects that meet these criteria and could affect the same noise-sensitive receptors (those located adjacent to or near the project site or along shared construction haul routes) are identified below in Impact C-NO-1.

As noted in Section 4.E, Transportation and Circulation, the cumulative traffic analysis utilizes a projections-based approach, and the cumulative traffic noise analysis likewise uses a projections-based approach because it uses these traffic volumes to estimate operational traffic noise increases. Cumulative operational traffic noise impacts are assessed by modeling 2040 cumulative traffic noise levels (including the proposed project) and comparing the results with existing modeled traffic noise levels to the criteria discussed above.

If the analysis above determines that there is the potential for cumulative impacts, then the analysis determines if the project's contribution to the cumulative impact would be cumulatively considerable (i.e., significant), in which case, the analysis then identifies mitigation measures that would reduce the severity of the project's contribution to the cumulative impact.

The proposed project would not include sources of operational vibration and therefore would not have the potential to combine with operational vibration from any adjacent or nearby cumulative projects. Therefore, no cumulative vibration analysis is required, and no cumulative vibration impact would occur.

Impact Evaluation

Construction Impacts

Impact NO-1: Project construction could expose people to or generate noise levels in excess of standards in the Noise Ordinance (Article 29 of the San Francisco Police Code) or applicable standards of other agencies. ***(Less than Significant with Mitigation)***

Construction activity noise levels on and near the construction site would fluctuate depending on the particular type, number, and duration of use of various pieces of construction equipment. In addition, certain types of construction equipment generate impulsive noise (such as pile driving), which can be annoying to most people. Pile-driving activities would be required for construction of some intermediate and deep foundations on seven of the 14 blocks in the proposed development as well as for the proposed dock.

Table 4.F-7, **Typical Construction Noise Levels**, shows typical noise levels associated with a range of construction equipment that could be required for the project. As indicated in this table, operation of jackhammers, controlled rock fragmentation equipment, rock drills, pile drivers, rock/concrete crusher, and concrete saws would have the potential to exceed the 86 dBA at 50 feet (or equivalent 80 dBA at 100 feet) noise limit for construction equipment (as specified in section 2907 of the police code) by 2 to 15 dBA. Jackhammers with approved acoustic shields as well as rock drills and pile drivers with approved intake and exhaust mufflers are exempt from this ordinance limit.[22] Therefore, exceedance of the noise ordinance limit resulting from use of jackhammers, rock drills, and pile drivers would not constitute noise ordinance violations. However, rock/concrete crushers and concrete saws are not exempt from compliance with the noise ordinance. As shown in Table 4.F-7, both rock/concrete crushers and concrete saws would generate noise levels of up to 90 dBA at 50 feet. Operation of concrete saws, rock/concrete crusher, or any other equipment not exempt from the noise ordinance that exceeds 86 dBA (L_{eq}) at 50 feet would be a significant noise impact. Implementation of feasible noise control measures as specified in **Mitigation Measure M-NO-1, Construction Noise Control Measures,** that reduce noise levels by as much as 10 dBA[23] would ensure that all construction equipment noise subject to the noise ordinance be maintained at or below the 86-dBA limit, reducing potential construction-related noise impacts on offsite residents and future onsite residents affected by later construction phases to a less-than-significant level. Therefore, this impact would be ***less than significant with mitigation***.

Nighttime Activities

Nighttime construction is proposed to occur during Phase 1 (approximately 2022 to 2025), prior to occupancy of the residential units to be built during this phase and, consequently, could only affect offsite receptors. Nighttime construction activities would occur throughout the nighttime hours (8 p.m. to 3 a.m.) and could include operation of the types of equipment associated with surface preparation, foundation construction, and building construction; nighttime construction activities

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[22] See section 2907(b) of the police code.

[23] U.S. Environmental Protection Agency (U.S. EPA), *Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances*, pp. 14 and 26, December 1971, *https://nepis.epa.gov/*, (search for NTID3001), accessed on August 15, 2018.

TABLE 4.F-7
TYPICAL CONSTRUCTION NOISE LEVELS

Construction Equipment	**Noise Level (dBA, Lmax at 50 feet)**	**Noise Level (dBA, Lmax at 100 feet)**
Jackhammer/Mounted Impact Hammer (Demolition Hammer)[a]	**89-90**	**83-84**
Concrete Saw	**90**	**84**
Rock/Concrete Crusher[b]	**90**	**84**
Pile Driver[a]	**101**	**95**
Controlled Rock Fragmentation[c]	80-**90**	74-**84**
Rock Drill[a]	85	79
Crane	81	75
Drill Rig	84	78
Excavator	81	75
Grader	85	79
Backhoe	78	72
Loader	79	73
Dump Truck	76	70
Compactor	83	77
Tug Boat[d]	78	72
Paver	77	71
Concrete Truck	81	75
Flatbed Truck	74	68
Street Sweeper (vacuum)	82	76
Forklift (gas-powered)	83	77
Generator	81	75
Various Saws	78	72
Pneumatic Tools (stud impact guns, impact drills, etc.)	85	79
Welder	74	68
Pump	81	75
San Francisco Noise Ordinance Limit	**86**	**80**

NOTES: The above noise levels are calculated assuming a 100 percent usage factor at full load (i.e., Lmax noise level). Noise levels in **bold** exceed the above ordinance limit, but as indicated, two of the four exceedances are exempt from this limit.

[a] Exempt from the ordinance noise limit of 86 dBA at 50 feet or 80 dBA at 100 feet.

[b] Noise measurements from various rock and concrete recycling crusher plants indicate that a crusher and conveyor plant can generate noise levels ranging between 81 and 90 dBA (Leq) at 50 feet. This evaluation conservatively applies the higher reference noise level. It is not certain that a rock or concrete crusher would be required onsite, but it is included in this analysis in the event it is required.

[c] Controlled rock fragmentation techniques that could be employed include one or a combination of the following: pulse plasma rock fragmentation, controlled foam or hydraulic injection, and/or controlled blasting. Noise levels listed above for CRF would apply to all three of these methods and would vary within this range depending on the method used. Controlled blasting could generate noise levels of up to 100 dBA (Lmax) for up to 30 seconds. Blasting events could occur up to a maximum of five times per day and each blast would be preceded by drilling noise for up to one hour. Prior to each CRF event, there would be one drilling event. Federal Transit Administration (2006) noise data indicate that rock drills can generate up to 98 dBA at 50 feet when they are operated aboveground on slope faces. However, since rock drilling would be underground (holes would be three to five feet deep), it is possible that noise levels would be in the range of 80 to 90 dBA (Leq) at 50 feet.

[d] A tug boat will be needed to move barges as part of shoreline work. This noise level is Leq, not Lmax.

SOURCES: U.S. Department of Transportation, Federal Highway Administration, 9.0 Construction Equipment Noise Levels and Ranges, Table 9.1, RCNM Default Noise Emission Reference Levels and Usage Factors, *Construction Noise Handbook,* Updated August 24, 2017, *http://www.fhwa.dot.gov/environment/noise/construction_noise/handbook/handbook09.cfm,* accessed August 15, 2018; U.S. Department of Transportation, Federal Transit Administration, *Transit Noise and Vibration Impact Assessment,* May 2006, *https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/FTA_Noise_and_Vibration_Manual.pdf*, accessed on August 15, 2018; Kapra and Associates, Pulse Plasma Technology, *http://kapra.org/catalog.pdf*, accessed on August 15, 2018.

would not include operation of drill rigs, pile drivers, or any equipment associated with dock construction. As indicated in Table 4.F-7, the noisiest types of equipment that could be operated during the nighttime hours for these construction activities (e.g., excavator, grader, backhoe, etc.) could generate noise levels of up to 85 dBA (L_{max}) at 50 feet. Such noise levels would likely exceed the City's "Ambient + 5 dBA" nighttime ordinance limit at project boundaries (as specified in section 2908 of the Police Code) when equipment is operated near the boundaries. When nighttime noise levels exceed this nighttime noise limit, section 2908 requires that a special permit be obtained, which is subject to the approval of the director of public works or director of building inspection, who must weigh factors such as traffic versus noise effects on neighboring uses, sleep disturbance effects, economic hardship, and general public interest. The permit would prescribe working times, types of construction equipment to be used, and permissible noise emissions, as required in the public interest. Permit approval by the City would ensure that the project would meet section 2908 ordinance requirements. Impact NO-2, below, addresses the potential for nighttime construction activities, allowed pursuant to the Noise Ordinance, to affect nearby sensitive receptors.

Mitigation Measure M-NO-1, **Construction Noise Control Measures**, below includes mitigation measures to ensure compliance with the Noise Ordinance limits and to reduce noise impacts identified in Impact NO-2.

Mitigation Measure M-NO-1: Construction Noise Control Measures

The project sponsor shall implement construction noise controls as necessary to ensure compliance with the Noise Ordinance limits and to reduce construction noise levels at sensitive receptor locations to the degree feasible. Noise reduction strategies that could be implemented include, but are not limited to, the following:

- Require the general contractor to ensure that equipment and trucks used for project construction utilize the best available noise control techniques (e.g., improved mufflers, equipment redesign, use of intake silencers, ducts, engine enclosures, and acoustically-attenuating shields or shrouds).
- Require the general contractor to locate stationary noise sources (such as the rock/concrete crusher, or compressors) as far from adjacent or nearby sensitive receptors as possible, to muffle such noise sources, and/or to construct barriers around such sources and/or the construction site, which could reduce construction noise by as much as 5 dBA. To further reduce noise, the contractor shall locate stationary equipment in pit areas or excavated areas, to the maximum extent practicable.
- Require the general contractor to use impact tools (e.g., jack hammers, pavement breakers, and rock drills) that are hydraulically or electrically powered wherever possible to avoid noise associated with compressed air exhaust from pneumatically powered tools. Where use of pneumatic tools is unavoidable, an exhaust muffler on the compressed air exhaust shall be used, along with external noise jackets on the tools, which would reduce noise levels by as much as 10 dBA.
- Include noise control requirements for construction equipment and tools, including specifically concrete saws, in specifications provided to construction contractors. Such requirements could include, but are not limited to, erecting temporary plywood noise

barriers around a construction site, particularly where a site adjoins noise-sensitive uses[24]; utilizing noise control blankets on a building structure as the building is erected to reduce noise levels emanating from the construction site; performing all work in a manner that minimizes noise; using equipment with effective mufflers; undertaking the most noisy activities during times of least disturbance to surrounding residents and occupants; and selecting haul routes that avoid residential uses.

- Prior to the issuance of each building permit, along with the submission of construction documents, submit to the Planning Department and Department of Building Inspection or the Port, as appropriate, a plan to track and respond to complaints pertaining to construction noise. The plan shall include the following measures: (1) a procedure and phone numbers for notifying the San Francisco Department of Building Inspection or the Port, the Department of Public Health, and the Police Department (during regular construction hours and off-hours); (2) a sign posted onsite describing permitted construction days and hours, noise complaint procedures, and a complaint hotline number that shall be answered at all times during construction; (3) designation of an onsite construction compliance and enforcement manager for the project; and (4) notification of neighboring residents and non-residential building managers within 300 feet of the project construction area at least 30 days in advance of extreme noise-generating activities (such as pile driving and blasting) about the estimated duration of the activity.

- Wherever pile driving or controlled rock fragmentation/rock drilling is proposed to occur, the construction noise controls shall include as many of the following control strategies as feasible:

  - Implement "quiet" pile-driving technology such as pre-drilling piles where feasible to reduce construction-related noise and vibration.

  - Use pile-driving equipment with state-of-the-art noise shielding and muffling devices.

  - Use pre-drilled or sonic or vibratory drivers, rather than impact drivers, wherever feasible (including slipways) and where vibration-induced liquefaction would not occur.

  - Schedule pile-driving activity for times of the day that minimize disturbance to residents as well as commercial uses located onsite and nearby.

  - Erect temporary plywood or similar solid noise barriers along the boundaries of each project block as necessary to shield affected sensitive receptors.

  - Implement other equivalent technologies that emerge over time.

  - If controlled rock fragmentation (including rock drills) were to occur at the same time as pile driving activities in the same area and in proximity to noise-sensitive receptors, pile drivers should be set back at least 100 feet while rock drills should be set back at least 50 feet (or vice-versa) from any given sensitive receptor.

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[24] Effective noise barriers typically reduce noise levels by 5 to 10 dBA (FHWA, Keeping the Noise Down, Highway Traffic Noise Barriers, February 2001, *https://www.fhwa.dot.gov/environment/noise/noise_barriers/design_/.pdf*, accessed on August 15, 2018.

  - If blasting is done as part of controlled rock fragmentation, use of blasting mats and reducing blast size shall be implemented to the extent feasible in order to minimize noise impacts on nearby sensitive receptors.

Significance after Mitigation: Less than Significant

Impact NO-2: Project construction would cause a substantial temporary or periodic increase in ambient noise levels at noise-sensitive receptors, above levels existing without the project. ***(Significant and Unavoidable with Mitigation)***

Construction-related Noise Sources

Project implementation would result in operation of heavy equipment on the project site for the demolition of about 20 existing structures, construction of new structures and associated infrastructure, open space improvements, and/or rehabilitation of existing structures for new uses. Construction activities would occur intermittently on the project site over the 15-year construction duration and could expose nearby existing and future sensitive receptors to temporary increases in noise levels substantially in excess of ambient levels.

Phase 0 (approximately 2020-2022) would include demolition activities and require the use of heavy trucks, material loaders, cranes, drill rigs, jackhammers/pavement breakers, concrete saws, rock/concrete crusher, and other mobile and stationary construction equipment listed in Table 4.F-7 on p. 4.F-29 above. Phase 0 would also include site stabilization and preparation (including *deep soil mixing*/surcharge[25]) as well as rough grading for the entire project site. Construction activities during this phase would also include trenching and grading for placement of infrastructure, excavation and concrete work for placement of foundations for structures, erection of structures, and open space improvements inclusive of shore improvements. Site preparation activities and foundation construction would require the use of excavators, graders, loaders, pile drivers, drill rigs, controlled rock fragmentation equipment, rock drills, and concrete/heavy trucks. Site preparation and rough grading activities for all development phases would occur during Phase 0 (approximately 2020 to 2022). Activities during this phase could also include controlled rock fragmentation in the western and central portions of the site (west of the historic shoreline) if Greywacke bedrock is encountered. Controlled rock fragmentation technologies that could be employed include pulse plasma rock fragmentation, controlled foam or hydraulic injection, and controlled blasting. Depending on subsurface conditions, any one of these techniques or some combination of all these techniques could be employed.

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[25] Deep soil mixing is a method by mixing soil, cement and water to create individual or overlapping columns of cement-treated soil with specified strengths and stiffness. A mixing rig with either single or multiple mixing augers is advanced to specified depths, and the cement and water are added during initial auger advancement, and also during auger withdrawal. Wick drains are installed in soft/compressible soil to accelerate drainage during surcharge programs. The prefabricated drains create pathways for water to be pushed out of soft/compressible soils, and are installed by attaching the drains to an anchor plate and pushing the anchor plate to specified depths. A surcharge of soils is then applied over the area of installed drains, and surface settlements and pore pressures within the soft/compressible material are monitored before additional soil surcharge is placed.

Phases 1 through 6 would involve land development (excavation, site preparation, relocation/ installation of utilities, and street construction), vertical construction (finish grading, excavation for subgrade parking, construction of foundations/ footings/pile supports, building construction, and architectural coatings), and open space improvements (including hardscaping and landscaping improvements) within a two- to three-block area during each phase. Project-related site remediation to allow residential use, if required by the Regional Water Quality Control Board, would also occur during these phases. In general, infrastructure construction and any required project remediation would use similar construction equipment as would be used for the land development activities.

Foundation construction would include use of pile drivers in certain areas on the site during the land and open space development stages of Phase 1 (approximately 2022-2025), Phase 3 (approximately 2025-2026), and Phase 4 (approximately 2027-2032). Pile driving would not be required for foundations in other construction phases (i.e., Phases 2, 5, and 6). Pile driving associated with deep or intermediate foundations would occur on Blocks 3, 4, 5, 8, 9, 10, and 12 as well as at the proposed dock. Pile driving along the shoreline and in the bay for the recreational dock would generate underwater noise which could adversely affect marine life; these impacts are discussed in Impact BI-4, Section 4.I, Biological Resources, p. 4I-43.

Blasting or controlled rock fragmentation could also be required during Phases 1 through 6 if Greywacke bedrock is encountered during excavation of sub-grade parking levels (generally west of the historic shoreline).

General building construction would be less noise intrusive, involving cranes, generators, forklifts, and smaller equipment such as saws, pneumatic tools, welders, and pumps.

Construction-related Noise Levels

Because the project would be constructed in seven overlapping phases over a 15-year period, multiple construction activities could occur on different blocks simultaneously within the project site so that a noisy construction activity on one block could overlap with another nearby noisy construction activity. Maximum combined noise levels from operation of the noisiest pieces of equipment associated with overlapping construction phases throughout the 15-year construction period are presented in **Table 4.F-8**, **Maximum Combined Noise Levels from Project-related Construction Activities**.

The highest combined noise levels from overlapping activities presented in this table would range between 79 dBA and 94 dBA (L_{eq}) at 50 feet, with the noisiest phases being Phase 0 (approximately 2020-2022) and the land and open space development stages of Phase 1 (approximately 2023-2025), Phase 3 (approximately 2025-2028), and Phase 4 (approximately 2027-2031). The highest combined noise level of 94 dBA (L_{eq}) at 50 feet could occur during Phases 1, 3, and 4 if impact pile driving and rock drilling were to occur concurrently within 50 feet of the same noise-sensitive receptor. A slightly lower combined noise level of 90 dBA (L_{eq}) at 50 feet could result if demolition activities (i.e., operation of a concrete crusher) were to occur at the same time as surface preparation activities (i.e., operation of a rock drill), and both demolition and surface preparation activities occurred within 50 feet of the same sensitive receptor. Nighttime construction activities during Phase 1 could generate combined noise levels of up to 84 dBA (L_{eq}) at 50 feet.

TABLE 4.F-8
MAXIMUM COMBINED NOISE LEVELS FROM PROJECT-RELATED CONSTRUCTION ACTIVITIES

Construction Phase, Equipment Used in Estimate	Noise Level (L_{eq}) at 50 Feet
Phase 0 – Surface Preparation and Demolition	
Concrete Crusher	90
Rock Drill	78
Combined L_{eq}:	**90**[a]
Phases 1, 3, and 4 – Impact Pile Driving and Controlled Rock Fragmentation for Land and Open Space Development	
Impact Pile Driver	94
Rock Drill (for CRF)	78
Combined L_{eq}:	**94**[b]
Phases 0 to 6 – Controlled Rock Fragmentation for Ground Excavation	
CRF Equipment	70
Rock Drill (for CRF)	78
Combined L_{eq}:	**79**
Phase 1 – Night Work	
Concrete Mixer Truck	81
Dozer, Grader Excavator, Scraper	81
Combined L_{eq}:	**84**[c]
Phases 1 to 6 – Surface Preparation and Foundation Work	
Dozer, Grader Excavator, Scraper	81
Concrete Mixer Truck	81
Combined L_{eq}:	**83**
Phases 1 to 6 – Building Construction	
Tower Crane	77
Pneumatic Tools	82
Combined L_{eq}:	**83**
Phases 1 to 6 – Utilities/Infrastructure Development	
Backhoe	81
Concrete Mixer Truck	81
Combined L_{eq}:	**84**

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 would generate 85 dBA (Lmax) or 78 dBA (Leq) 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 (Leq) 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 (Leq) at 50 feet.

[b] Impact pile drivers would generate 101 dBA (Lmax) or 94 dBA (Leq) with a 20 percent usage factor at 50 feet. Controlled rock fragmentation-related equipment (including rock drills) generate noise levels of 85 to 90 dBA (Lmax) at 50 feet or 70 to 78 dBA (Leq) with a 20 percent usage factor. The combined noise level from simultaneous operation of an impact pile driver and a rock drill would be 94 dBA (Leq) at 50 feet.

[c] This noise level assumes simultaneous operation of a concrete mixing truck and grader, which both generate 85 dBA (Lmax) at 50 feet or 81 dBA (Leq) at 50 feet with a 40 percent usage factor. The combined noise level from their simultaneous operation would be 84 dBA (Leq) at 50 feet. Simultaneous operation of other earthmoving equipment such as a dozer, excavator, dump truck, and scraper would generate a similar combined noise level.

SOURCE: Orion Environmental Associates, 2018.

Construction-related Noise Impacts on Existing Offsite Receptors

The existing offsite sensitive receptors closest to the project site are located on Third Street (between 22nd and 23rd streets), at least 380 feet from the west side of Block 13, as indicated in Table 4.F-3, p. 4.F-9 above. **Table 4.F-9, Estimated Combined Daytime Construction-Related Noise Levels at Closest Offsite Residential Receptors,** summarizes the project's daytime construction-related noise impacts on these receptors. In this table, the maximum combined construction-related noise levels presented in Table 4.F-9 were adjusted for distance to these receptors and then compared to both the Federal Transit Administration's limit of 90 dBA at sensitive receptor locations and the applicable "Ambient + 10 dBA" standard at each offsite receptor location to determine the significance of the project's daytime construction noise impact at the closest offsite receptors.

As indicated in Table 4.F-9, the combined noise level would not exceed the Federal Transit Administration's standard of 90 dBA at sensitive receptor locations nor would it exceed the 78-dBA "Ambient + 10 dBA" standard. Therefore, project-related construction noise impacts at the closest existing offsite receptors would be *less than significant*, and no mitigation would be required. Additionally, the American Industrial Center buildings to the west of the site (spanning both north and south of 22nd Street) would interrupt the *line-of-sight*[26] (at ground level and lower floors) between project construction activities (particularly ground level activities such as pile driving and controlled rock fragmentation) and existing residential receptors located west of the American Industrial Center building. Therefore, noise levels at these receptor locations would be lower than what is shown in Table 4.F-9.

Nighttime Activities

Table 4.F-8 shows the maximum estimated noise level expected to be generated during nighttime construction activities. This noise level was attenuated to nearby receptor locations based on distance from the noise source to the receptor and assuming a 25-dBA reduction in exterior noise transmission to the interior environment, consistent with the noise reduction expected from closed windows. **Table 4.F-10**, **Estimated Combined Nighttime Construction-Related Noise Levels at Closest Offsite Sensitive Receptors**, presents the project's nighttime noise levels at the closest offsite receptors. Nighttime noise levels at the closest receptor were compared to an interior 45-dBA sleep disturbance standard, which is equivalent to a 70-dBA exterior noise level with windows closed. Nighttime construction activities could generate combined noise levels of up to 84 dBA (L_{eq}) at 50 feet along 23rd Street (east of Illinois Street). As indicated in Table 4.F-10, such levels would not exceed the 45-dBA interior / 70-dBA exterior sleep disturbance standard. Therefore, this impact would be *less than significant* and no mitigation would be required. As noted above, for some existing Third Street receptors located west of the American Industrial Center building (near 22nd Street), construction noise levels would be lower than what is shown in Table 4.F-10 because the intervening American Industrial Center building interrupts the line-of-sight and would block construction noise from Phase 1 nighttime construction activities at these receptors.

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[26] Line-of-sight means a straight line along which an observer has unobstructed vision.

TABLE 4.F-9
ESTIMATED DAYTIME CONSTRUCTION-RELATED NOISE LEVELS AT CLOSEST OFFSITE RESIDENTIAL RECEPTORS

Construction Phase and Noisiest Combined Construction Activities		**Hourly L_{eq} in dBA at 50 Feet**[a]	**Minimum Distance between Receptor and Closest Equipment (feet)**	**Noise Level (L_{eq}) Adjusted for Distance**[b]	**Daytime FTA Standard at Residential Uses**	**Does Noise Level Exceed FTA Standard?**	**Ambient + 10 dBA Standard**[c] **at Closest Receptor**	**Does Noise Level Exceed Ambient + 10 dBA Standard?**
Noise Receptors: Existing Residential Receptors located at 2502-2660 Third Street ***Noise Sources with Greatest Noise Impact on these Receptors: Construction in Phases 0 & 4 on Block 5 & Phase 6 on Block 13***[d]								
Project Site	Phase 0 – Surface Preparation and Demolition (Concrete Crusher & Rock Drill for CRF)	90	630	68	90	No	78[e]	No
	Phases 1, 3, 4 – Pile Driving & CRF on Block 5 (Impact Pile Driver and Rock Drill for CRF)	94	630	72	90	No	78	No
	Phases 0 to 6 – Controlled Rock Fragmentation/CRF (CRF Equipment & Rock Drill)	79	380	61	90	No	78	No
	Phases 1 to 6 – Surface Preparation and Foundation Work (Earthmoving Equipment & Concrete Mixer Truck)	83	380	65	90	No	78	No
	Phases 1 to 6 – Building Construction (Tower Crane & Pneumatic Tools)	83	380	66	90	No	78	No
	Phases 1 to 6 – Utilities (Backhoe & Concrete Mixer Truck)	84	380	66	90	No	78	No
Noise Receptors: Planned Pier 70 Residential Receptors on Pier 70 Parcels F/G and H1/H2 ***Noise Sources with Greatest Noise Impact on these Receptors: Construction in Phase 0 on Blocks 1-4 & 14, Phase 3 on Blocks 3 & 4, Phase 4 on Block 5, & Phase 5 on Blocks 1 & 2***[d]								
Project Site	Phase 0 – Surface Preparation and Demolition (Concrete Crusher & Rock Drill for CRF)	90	30[f]	**95**	90	Yes	60-66[g]	Yes
	Phases 1 & 3 – Pile Driving & CRF on Blocks 3 & 4 (Impact Pile Driver and Rock Drill for CRF)	94	30[f]	**99**	90	Yes	60-66	Yes
	Phase 4 - Pile Driving & Rock Drill for CRF on Block 5	94	320	**78**	90	No	60-66	Yes
	Phases 0 to 6 – Controlled Rock Fragmentation/CRF (CRF Equipment & Rock Drill)	79	30[f]	**83**	90	No	60-66	Yes

TABLE 4.F-9 (CONTINUED)
ESTIMATED DAYTIME CONSTRUCTION-RELATED NOISE LEVELS AT CLOSEST OFFSITE RESIDENTIAL RECEPTORS

	Construction Phase and Noisiest Combined Construction Activities	Hourly Leq in dBA at 50 Feet[a]	Minimum Distance between Receptor and Closest Equipment (feet)	Noise Level (Leq) Adjusted for Distance[b]	Daytime FTA Standard at Residential Uses	Does Noise Level Exceed FTA Standard?	Ambient + 10 dBA Standard[c] at Closest Receptor	Does Noise Level Exceed Ambient + 10 dBA Standard?
Noise Receptors: Planned Pier 70 Residential Receptors on Pier 70 Parcels F/G & H1/H2 (cont.) ***Noise Sources with Greatest Noise Impact on these Receptors: Construction in Phase 3 on Blocks 3 & 4, Phase 4 on Block 5, & Phase 5 on Blocks 1 & 2[d]***								
Project Site	Phases 1 to 6 – Surface Preparation and Foundation Work (Earthmoving Equipment & Concrete Mixer Truck)	83	30[f]	**87**	90	No	60-66[g]	Yes
	Phases 1 to 6 – Building Construction (Tower Crane & Pneumatic Tools)	83	30[f]	**88**	90	No	60-66	Yes
	Phases 1 to 6 – Utilities (Backhoe & Concrete Mixer Truck)	84	30[f]	**88**	90	No	60-66	Yes

NOTES: dBA = A-weighted decibel; FTA = Federal Transit Administration. Noise levels in bold exceed the indicated standard.

[a] See Table 4.F-8 for derivation of combined noise levels by construction activity, which are applied in this table to the closest offsite residential receptor locations.

[b] Combined hourly noise levels were attenuated for distance (6-dB reduction per doubling of distance) based on the minimum distances listed in the preceding column (to the left).

[c] The San Francisco Planning Department generally considers an increase of 10 dBA over existing noise levels from persistent construction to be a substantial temporary increase in noise levels. As indicated in Table 4.F-2, the daytime ambient noise levels were measured as follows: 68 dBA (Leq) at Measurement Location ST-5 near existing Third Street receptors and 50 and 56 dBA (Leq) at Measurement Locations ST-4 and LT-2, respectively, near planned Pier 70 Parcels F/G and H1/H2 receptors.

[d] This is the closest construction-related noise source to the identified sensitive receptors during specified phases.

[e] Measurement Location ST-5 (Abaca Apartments at 2660 Third Street) is the closest noise measurement location to these receptors. Ambient noise levels were measured at 68 dBA (daytime Leq, rounded to the nearest whole decibel) at this location. When this ambient noise level is applied to the “Ambient + 10 dBA” standard, the standard applied at these receptors is 78 dBA (daytime Leq).

[f] The Pier 70 Design for Development and the proposed project specify that each project set back buildings a minimum of 15 feet from the joint property line, which would create a 30-foot setback between the two projects.

[g] Ambient noise levels were measured at 50-56 dBA (daytime Leq) at the northern project boundary (ST-4 and LT-2; see Table 4.F-2) and when this ambient noise level is applied to the “Ambient + 10 dBA” standard, the standard is 60 to 66 dBA (daytime Leq) at the closest offsite planned receptors.

SOURCE: Orion Environmental Associates, 2018.

TABLE 4.F-10
ESTIMATED NIGHTTIME CONSTRUCTION-RELATED NOISE LEVELS AT CLOSEST OFFSITE SENSITIVE RECEPTORS

Construction Phase and Noisiest Combined Construction Activities	Combined Hourly Leq in dBA at 50 Feet[a]	Minimum Distance between Receptor and Closest Equipment (feet)	Exterior Noise Level (Leq) Adjusted for Distance[b]	45-dBA Interior / 70-dBA Exterior Sleep Disturbance Standard Exceeded?[c]
Noise Receptors: Existing Residential Receptors located at 2660 Third Street ***Noise Sources with Greatest Noise Impact on these Receptors: Construction in Phase 1 on 23rd Street[d]***				
Night Work	84[e]	350	67	No
Noise Receptors: Planned Pier 70 Receptors on Parcels F/G ***Noise Sources with Greatest Noise Impact on these Receptors: Construction in Phase 1 along 23rd Street Right-of-Way***				
Night Work	84[e]	700	61	No
Noise Receptors: Planned Pier 70 Receptors on Parcel PKN ***Noise Sources with Greatest Noise Impact on these Receptors: Construction in Phase 1 on Blocks 8 & 9***				
Night Work	84[e]	1,400	55	No

NOTES: dBA = A-weighted decibel; FTA = Federal Transit Administration. Noise levels in **bold** exceed the indicated standard.

[a] See Table 4.F-8 for derivation of combined noise levels by construction activity, which are applied in this table to the closest offsite residential receptor locations.

[b] Combined hourly noise levels were attenuated for distance (6-dB reduction per doubling of distance) based on the minimum distances listed in the preceding column (to the left).

[c] The nighttime interior noise limit of 45 dBA between 10 p.m. and 7 a.m. is based on the noise level that is adequate to prevent sleep disturbance. This interior limit is equivalent to a nighttime exterior limit of 70 dBA with the windows closed because it assumes a 25-dBA reduction is achieved with the windows closed. Therefore, a 70-dBA exterior noise level attenuates to a 45-dBA interior noise level when closed windows provide a 25-dBA noise reduction.

[d] This is the closest construction-related noise source to the identified sensitive receptors during Phase 1, which is the only phase when construction activities could extend into nighttime hours.

[e] This noise level assumes simultaneous operation of a concrete mixing truck and grader; both generate 85 dBA (Lmax) at 50 feet or 81 dBA (Leq) at 50 feet with a 40 percent usage factor. The combined noise level from their simultaneous operation would be 84 dBA (Leq) at 50 feet. Simultaneous operation of other earthmoving equipment such as a dozer, excavator, dump truck, and scraper would generate a similar combined noise level.

SOURCE: Orion Environmental Associates, 2018.

Construction Noise Impacts on Future Onsite Receptors

Future project residents, hotel occupants (if a hotel is constructed), and/or childcare users living in or otherwise using new buildings built on the project site during earlier phases of construction would be exposed to construction noise generated during subsequent phases of project construction. **Table 4.F-11**, **Estimated Daytime Construction-Related Noise Levels at Closest Onsite Future Sensitive Receptors**, presents estimated construction noise levels at the closest onsite future receptors during all but the last phase of project construction (explained below) and compares these noise levels to the Federal Transit Administration's limit of 90 dBA at sensitive receptor locations and the "Ambient + 10 dBA" standard (see Figure 4.F-5, above, for location of phases and sensitive receptors).

- **Phase 1 Onsite Receptors:** Once Phase 1 has been completed and occupied in 2025, future noise-sensitive receptors (i.e., residents, hotel occupants, childcare users) at Block 8 and potentially also at Blocks 9 and 12 would be subject to construction noise on the project site for up to 10 years through 2034 (Phases 2 through 6).[27]

  Construction activities during Phases 2 and 3 could be as close as 80 feet away (across the street) from Phase 1 sensitive receptors. At this distance, Phase 1 receptors could be subject to construction noise levels of up to 90 dBA (L_{eq}). Such noise levels would meet but not exceed the Federal Transit Administration's standard of 90 dBA, and would exceed the "Ambient + 10 dBA" standard at Blocks 8 and 9. Phase 1 receptors would be exposed to these maximum construction noise levels for the duration of Phases 2 and 3 (approximately three years) then relatively lower construction noise levels for the remaining six years of project construction (Phases 4, 5, and 6). Therefore, construction noise levels on future Phase 1 onsite residential receptors (and possible childcare users) would be a *significant* impact.

- **Phase 2 Onsite Receptors:** At the completion of Phase 2 construction in 2026, residential receptors and possible childcare users located on Blocks 7 and 11 would be subject to construction noise levels of 79 to 90 dBA (L_{eq}) at 80 feet during Phase 4 construction activities and up to 90 dBA (L_{eq}) from possible concurrent pile driving and controlled rock fragmentation during Phase 3 construction. Such noise levels would not exceed the Federal Transit Administration's standard of 90 dBA, but would exceed the "Ambient + 10 dBA" standard. Phase 2 receptors would be exposed to these maximum construction noise levels for the duration of Phases 3 and 4 (approximately five years) then relatively lower construction noise levels for the remaining three years of project construction (Phases 5 and 6). Therefore, construction noise levels on future Phase 2 onsite residential receptors (and possible childcare users) would be a *significant* impact.

- **Phase 3 Onsite Receptors:** If residences are occupied or childcare facilities are operating on Block 4 at the completion of Phase 3 construction in approximately 2028, these noise-sensitive receptors would be subject to construction noise levels of 65 to 67 dBA (L_{eq}) at 370 feet from construction on nearby Block 2 for up to three years during Phase 5 (approximately 2030-2032). Such noise levels would not exceed the Federal Transit Administration's standard of 90 dBA, but would slightly exceed the "Ambient + 10 dBA" standard at this location. Because Phase 3 receptors could be exposed to construction noise exceeding this standard for up to three years, construction noise levels on future Phase 3 onsite residential receptors (and possible childcare users) would be a *significant* impact.

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[27] It is possible that a childcare facility would be developed in any commercial block and this use is considered to be a noise-sensitive receptor similar to residential receptors.

TABLE 4.F-11
ESTIMATED DAYTIME CONSTRUCTION-RELATED NOISE LEVELS AT CLOSEST ONSITE FUTURE SENSITIVE RECEPTORS

Construction Phase and Noisiest Combined Construction Activities		**Hourly Leq in dBA at 50 Feet[a]**	**Minimum Distance between Receptor and Closest Equipment (feet)**	**Noise Level (Leq) Adjusted for Distance[b]**	**Does Noise Level Exceed 90-dBA daytime FTA Standard?**	**Daytime Ambient + 10 dBA Standard[c] at Closest Receptor**	**Does Noise Level Exceed Ambient + 10 dBA Standard?**
Project Receptor: Phase 1 Residents & Possible Childcare Users on Block 8 (Noise Source: Phase 2 Construction on Block 7) ***Project Receptor: Phase 2 Residents & Possible Childcare Users on Blocks 7 & 11 (Noise Sources: Phase 3 Construction on Block 3 and Phase 4 Construction on Blocks 6 & 10)***							
Project Site	Phase 3 – Pile Driving & CRF (Impact Pile Driver and Rock Drill for CRF)	94	80	**90**	No	66/72[d]	Yes
	Phases 1 to 6 – Surface Preparation and Foundation Work (Earthmoving Equipment & Concrete Mixer Truck)	83	80	**79**	No	66/72	Yes
	Phases 1 to 6 – Building Construction (Tower Crane & Pneumatic Tools)	83	80	**79**	No	66/72	Yes
	Phases 1 to 6 – Utilities (Backhoe & Concrete Mixer Truck)	84	80	**80**	No	66/72	Yes
Project Receptor: Phase 1 Residents/Hotel Occupants & Possible Childcare Users on Block 9 (Noise Source: Phase 3 Construction on Block 4)							
Project Site	Phase 3 – Pile Driving & CRF (Impact Pile Driver and Rock Drill for CRF)	94	80	**90**	No	64[e]	Yes
	Phases 1 & 3 – Pile Driving & CRF (Impact Pile Driver and Rock Drill for CRF)	83	80	**79**	No	64	Yes
	Phases 0 to 6 – Controlled Rock Fragmentation/CRF (CRF Equipment & Rock Drill)	83	80	**79**	No	64	Yes
	Phases 1 to 6 – Surface Preparation and Foundation Work (Earthmoving Equipment & Concrete Mixer Truck)	84	80	**80**	No	64	Yes
Project Receptor: Phase 3 Residents & Possible Childcare Users on Block 4 (Noise Source: Phase 5 Construction on Block 2)							
Project Site	Phases 1 to 6 – Surface Preparation and Foundation Work (Earthmoving Equipment & Concrete Mixer Truck)	83	370	**65**	No	64[f]	Yes
	Phases 1 to 6 – Building Construction (Tower Crane & Pneumatic Tools)	83	370	**66**	No	64	Yes
	Phases 1 to 6 – Utilities (Backhoe & Concrete Mixer Truck)	84	370	**67**	No	64	Yes

TABLE 4.F-11 (CONTINUED)
ESTIMATED COMBINED DAYTIME CONSTRUCTION-RELATED NOISE LEVELS AT CLOSEST ONSITE FUTURE RESIDENTIAL RECEPTORS

Closest Offsite Residential Receptor Locations (Noise Source Location) and Noisiest Combined Construction Activities		Hourly L_{eq} in dBA at 50 Feet[a]	Minimum Distance between Receptor and Closest Equipment (feet)	Noise Level (L_{eq}) Adjusted for Distance[b]	Does Noise Level Exceed 90-dBA Daytime FTA Standard?	Daytime Ambient + 10 dBA Standard[c] at Closest Receptor	Does Noise Level Exceed Ambient + 10 dBA Standard?
Project Receptor: Phase 4 Residents & Possible Childcare Users on Block 5/6 (Noise Sources: Phase 5 Construction on Blocks 1/2 & Phase 6 Construction on Block 13)							
Project Receptor: Phase 5 Residents & Possible Childcare Users on Block 1 (Noise Source: Phase 6 Construction on Block 13)							
Project Site	Phases 1 to 6 – Surface Preparation and Foundation Work (Earthmoving Equipment & Concrete Mixer Truck)	83	80	**79**	No	66[g]	Yes
	Phases 1 to 6 – Building Construction (Tower Crane & Pneumatic Tools)	83	80	**79**	No	66	Yes
	Phases 1 to 6 – Utilities (Backhoe & Concrete Mixer Truck)	84	80	**80**	No	66	Yes

NOTES: dBA = A-weighted decibel; FTA = Federal Transit Administration. Noise levels in **bold** exceed the indicated standard.

[a] See Table 4.F-8 for derivation of combined noise levels by construction activity, which are applied in this table to the closest offsite residential receptor locations.

[b] Combined hourly noise levels were attenuated for distance (6-dB reduction per doubling of distance) based on the minimum distances listed in the preceding column (to the left).

[c] The San Francisco Planning Department generally considers an increase of 10 dBA over existing noise levels from persistent construction to be a substantial temporary increase in noise levels. As indicated in Table 4.F-2, the daytime ambient noise levels were measured as follows in the vicinities of these blocks: Block 1: 56 dBA (daytime Leq) at Measurement Location LT-2; Block 4: 54 dBA (daytime Leq) at Measurement Location LT-6; Blocks 5, 6, and 7: 56 dBA (daytime Leq) at Measurement Location LT-3; Block 8: 62 dBA (daytime Leq) at Measurement Location LT-4; and Block 9: 54 dBA (daytime Leq) at Measurement Location LT-5.

[d] Noise measurements indicate that the daytime ambient noise level in the Block 1 vicinity (LT-4) is 62 dBA (Leq) so that the “Ambient + 10 dBA” standard at this location is 72 dBA (Leq). Noise measurements indicate that the daytime ambient noise level in the Block 7 vicinity (LT-3) is 56 dBA (Leq) so the “Ambient + 10 dBA” standard at this location is 66 dBA (Leq).

[e] Noise levels in the vicinity of Block 9 (Unit 3; LT-5) were measured to be 54 dBA (Leq) during the day and the “Ambient + 10 dBA” standard at Block 9 would be 64 dBA (Leq).

[f] Noise measurements indicate that the daytime ambient noise level in the Block 4 vicinity (LT-6) is 54 dBA (Leq) so the “Ambient + 10 dBA” standard at this location is 64 dBA (Leq).

[g] Noise measurements indicate that the daytime ambient noise levels in the Block 1 vicinity (LT-2) and Blocks 5 and 6 vicinity (LT-3) are both 56 dBA (Leq) so the “Ambient + 10 dBA” standard at these locations is 66 dBA (Leq).

SOURCE: Orion Environmental Associates, 2018.

- **Phase 4 Onsite Receptors:** After 2031, Phase 4 residential receptors and possible childcare users located on Blocks 5 and 6 would be subject to construction noise levels of 79 to 80 dBA (L_{eq}) at 80 feet from construction on adjacent Blocks 1 and 2 for up to one year during Phase 5 (through approximately 2032). Such noise levels would not exceed the Federal Transit Administration's standard of 90 dBA at sensitive receptor locations, but would exceed the "Ambient + 10 dBA" standard. Because Phase 4 receptors could be exposed to construction noise exceeding this standard for up to one year, construction noise levels on future Phase 4 onsite residential receptors (and possible childcare users) would be a *significant* impact.

- **Phase 5 Onsite Receptors:** After approximately 2032, Phase 5 residential receptors and possible childcare users would be subject to construction noise levels of 79 to 80 dBA (L_{eq}) at 80 feet from construction during Phase 6 (through approximately 2034). Such noise levels would not exceed the Federal Transit Administration's standard of 90 dBA, but would exceed the "Ambient + 10 dBA" standard at this location. Because Phase 5 receptors could be exposed to construction noise exceeding this standard for approximately two years, construction noise levels on future Phase 5 onsite residential receptors (and possible childcare users) would be a *significant* impact.

- **Phase 6 Onsite Receptors:** Phase 6 residential receptors and possible childcare users on Block 13 would not be subject to construction noise since this would be the last phase of construction (no impact).

With the exception of future residents on Block 13, future onsite residents, hotel occupants, and possible childcare users would be subject to *significant* construction-related noise levels for one to five years. Implementation of **Mitigation Measure M-NO-1, Construction Noise Control Measures,** would reduce the severity of noise impacts on future onsite sensitive receptors. However, even with implementation of this mitigation measure, the combined noise levels from simultaneous operation of the noisiest types of construction equipment could still exceed the "Ambient + 10 dBA" standard. Therefore, construction-related noise impacts on future onsite residential/hotel/childcare receptors would be ***significant and unavoidable with mitigation***.

> **Mitigation Measure M-NO-1: Construction Noise Control Measures** (see Impact NO-1, above)
>
> **Significance after Mitigation:** Significant and Unavoidable. Implementation of construction-related noise control measures in Mitigation Measure M-NO-1 would reduce the project's temporary or periodic increases in ambient noise levels. However, these measures would not necessarily reduce these noise increases to below the "Ambient + 10 dBA" standard because feasibility of the quieter, alternative pile driving methods in all areas cannot be determined at this time. Given this uncertainty and the 15-year construction duration, this impact is conservatively considered to remain significant and unavoidable, even with implementation of Mitigation Measure M-NO-1.

Nighttime Noise Impacts

Nighttime construction activities are proposed to cease once onsite residential units are occupied. Therefore, there would be no nighttime construction noise impacts on future onsite receptors.

Construction Noise Impacts on Future Planned Offsite Receptors

Table 4.F-9 summarizes the project's daytime construction-related noise impacts on the closest planned offsite noise-sensitive receptors, who would be located on the Pier 70 site. In this table, the maximum construction-related noise levels presented in Table 4.F-9 were adjusted for distance to the closest planned offsite noise-sensitive receptors and then compared to both the Federal Transit Administration's daytime standard of 90 dBA at sensitive receptor locations and the applicable "Ambient + 10 dBA" standard at each offsite receptor location to determine the significance of the project's daytime construction noise impact at the closest planned offsite receptors.

The closest planned offsite noise-sensitive receptors would be residential receptors on the Pier 70 site (see Table 4.F-3 and Figure 4.F-3, pp. 4.F-9 and 4.F-11, respectively, above). Based on the Pier 70 project's phased construction schedule, it is expected that the closest planned Pier 70 residential units would be located adjacent to the planned Craig Lane, which straddles the project site's northern boundary and the Pier 70 site's southern boundary. These residential units could be located as close as 30 feet from buildings constructed on Blocks 1, 2, 3, and 4 (some construction activities and staging may be closer than 30 feet) and as close as 0 feet on Block 14. In addition, planned Pier 70 residential units located adjacent to 22nd Street (between Illinois Street and Louisiana Street) could be located as close as 50 feet (estimated width of 22nd Street) from project-related construction activities on Block 13 (see Figure 4.F-5, above, p. 4.F-24).

As indicated in Table 4.F-9, during Phase 0 (approximately 2020-2022), simultaneous noisy activities may include demolition (i.e., operation of a concrete crusher) and surface preparation activities such as operation of a rock drill. Simultaneous operation of demolition equipment, such as a rock/concrete crusher and rock drill could generate noise levels of 90 dBA (L_{eq}) at 50 feet, which would be equivalent to 95 dBA (L_{eq}) at 30 feet. It is unlikely that planned offsite noise-sensitive receptors would be located within 30 feet of such equipment during this phase because this phase is expected to precede occupation of the closest planned Pier 70 residential buildings adjacent to the project site's northern boundary. However, if Phase 0 construction activities were delayed or extended and the Pier 70 buildings adjacent to the project site's northern boundary became occupied before Phase 0 was completed, the project's construction noise would exceed the Federal Transit Administration's standard of 90 dBA and would also exceed the "Ambient + 10 dBA" standard at the closest planned offsite sensitive receptor locations, and planned residential receptors on the Pier 70 site could be significantly affected by project-related construction activities during Phase 0, resulting in a *significant* noise impact.

During Phase 1 (approximately 2022-2025) and Phase 3 (approximately 2025-2028), simultaneous operation of an impact pile driver and a rock drill could generate noise levels of 94 dBA (L_{eq}) at 50 feet (see Table 4.F-8). As indicated in Table 4.F-9, the maximum combined L_{eq} noise level at planned residential units on Parcels F/G and possible residential units on Parcels H1/H2 could reach 99 dBA (L_{eq}) if rock drilling and pile driving occurred at the same time and at 30 feet from these units; noise levels could be slightly higher on Parcel F if this equipment were operated at the property line on Block 14. Such noise levels would exceed the Federal Transit Administration's standard of 90 dBA and would also exceed the "Ambient + 10 dBA" standard at the closest planned offsite receptors. Table 4.F-9 also shows that maximum combined noise levels of 79 to 94 dBA (L_{eq}) at 50 feet during other construction phases would not exceed the Federal Transit Administration's standard of 90 dBA, but would exceed the "Ambient + 10 dBA" standard at the closest planned offsite sensitive receptors. Therefore, the noise level increases at the closest planned offsite residential receptors during all phases of project construction would result in a *significant* noise impact.

Implementation of noise controls during all construction phases as specified in **Mitigation Measure M-NO-1, Construction Noise Control Measures**, would reduce construction noise levels at the closest planned offsite Pier 70 receptors to the north, assuming they are present when noisier construction activities (i.e., pile driving, and rock drilling, nighttime activities, etc.) occur. However, the feasibility of quieter, alternative pile driving methods in all areas cannot be determined at this time, and the potential would still exist that combined noise levels from simultaneous operation of the noisiest types of construction equipment could still exceed the Federal Transit Administration's standard of 90 dBA and the "Ambient + 10 dBA" standard for the duration of the project's construction activities. Given this uncertainty and the potential 12-year duration of this activity (from occupancy of Pier 70 Parcels F/G in 2024 through Phase 6 construction in 2034), this impact would remain ***significant and unavoidable with mitigation***.

> **Mitigation Measure M-NO-1: Construction Noise Control Measures** (see Impact NO-1, above)
>
> **Significance after Mitigation:** Significant and Unavoidable. While implementation of construction-related noise control measures in Mitigation Measure M-NO-1 would reduce the severity of the project's temporary or periodic increases in ambient noise levels, these measures would not necessarily reduce these noise increases to below the Federal Transit Administration's standard of 90 dBA or the "Ambient +10 dBA" standard because the feasibility of quieter, alternative pile driving methods in all areas cannot be determined at this time. Given this uncertainty and the extended construction duration, this impact is considered to remain significant and unavoidable, even with implementation of these measures.

Nighttime Noise Impacts

With respect to planned offsite receptors at the Pier 70 development site, nighttime activities during Phase 1 construction could generate noise levels of up to 61 dBA (L_{eq}) at the closest planned residential receptors located on Craig Lane west of Maryland Street (Pier 70 Parcels F/G), which would be located a minimum of approximately 700 feet away from these nighttime activities. As indicated in Table 4.F-10, the estimated 61 dBA (L_{eq}) would not exceed the 45-dBA interior / 70-dBA exterior sleep disturbance standard, resulting in a *less-than-significant* noise impact and no mitigation would be required.

Offsite Haul Truck Traffic

Impact NO-3: Construction truck traffic would not cause a substantial temporary or periodic increase in ambient noise levels along access streets in the project vicinity. *(Less than Significant)*

Project construction would generate a total of approximately 81,000 truck trips, which would be phased over the duration of the planned construction activities. During the 15-year period, the number of construction trucks traveling to and from the site would vary, depending on the phase and type of construction activity. The peak number of construction vehicle trips (equipment and materials deliveries, and haul trips) would occur in 2022 with between 100 and 150 trucks per day, and for four months in 2024 with about 200 trucks per day. For about 90 percent of the 15-year construction period, there would be fewer than 100 trucks per day, and for 60 percent of the construction period there would be fewer than 50 trucks per day. A peak volume of 200 daily truck trips over four months in 2024 and occurring over a nine-hour workday (7 a.m. to 4 p.m.) would average 22 truck trips per hour. Such a truck volume would generate a noise level of 63.5 dBA (L_{eq}) at 50 feet from the roadway centerline. When added to the existing daytime noise level of 64.6 dBA (L_{eq}) at 50 feet from the centerline of Illinois Street[28] or 70.6 dBA (L_{eq}) at 50 feet from the centerline of Third Street,[29] the maximum noise level contributions from construction truck trips would increase noise levels along either of these roadways by 2.4 or 0.8 dBA, respectively, if all trucks were to travel on the same route. Such noise increases would not be perceptible and would not exceed the 3-dBA or 5-dBA noise increase standards for traffic noise (see Approach to Analysis, Methodology for Analysis of Operational Impacts above for more discussion of these standards). Therefore, increases in traffic noise resulting from truck traffic related to project construction would be ***less than significant***.

Although construction-related traffic noise increases would be less than significant, it is recommended that project-related construction trucks be required to use truck routes and queuing and loading areas that avoid streets with adjacent residential uses to the extent feasible (or at least during phases with higher truck volumes) in order to minimize potential disturbances to residents in the Dogpatch neighborhood, as outlined in **Improvement Measure I-NO-A, Avoidance of Residential Streets**. This recommendation could be implemented as part of **Improvement Measure I-TR-A, Construction Management Plan and Public Updates**, described in Section 4.E, Transportation and Circulation.

Mitigation: None required.

Improvement Measure I-NO-A: Avoidance of Residential Streets

Trucks should use routes and queuing and loading areas that avoid existing and planned residential uses to the maximum extent feasible, including existing residential development

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[28] Based on daytime Leq of 67.3 dBA at 27 feet from the centerline of Illinois Street (Measurement LT-1 in Appendix D, Summary of Long-term Noise Measurements) and adjusted to 50 feet from the roadway centerline.

[29] Based on daytime Leq of 67.6 dBA at 100 feet from the centerline of Third Street (Measurement ST-5 in Appendix D, Summary of Long-term Noise Measurements) and adjusted to 50 feet from the roadway centerline.

on Third Street (north of 23rd Street), existing residential development on Illinois Street (north of 20th Street), and planned Pier 70 residential development (north of 22nd Street).

Improvement Measure I-TR-A: Construction Management Plan and Public Updates (see Section 4.E, Transportation and Circulation, Impact TR-1)

Vibration

Impact NO-4: Project construction would generate excessive groundborne vibration that could result in building damage. *(Less than Significant with Mitigation)*

The proposed project would include the types of construction activities that could produce substantial groundborne vibration: controlled rock fragmentation during excavation and pile driving for foundations, shoreline improvements, and the recreational dock. In addition, construction equipment used for demolition, site preparation, and shoring activities, such as jackhammers, impact hammers, impact or vibratory pile drivers, and rock drills, could generate varying degrees of temporary groundborne vibration, with the highest levels expected during demolition, excavation, shoreline improvements (including the recreational dock). Excavation for sub-grade parking would require excavation into bedrock and use of controlled rock fragmentation or impact hammers could be required. These types of vibration-generating activities would not be conducted during the night shift, which extends from 8 p.m. to 3 a.m. in order to avoid the more vibration-sensitive nighttime hours.

This analysis evaluates the significance of construction-related vibration on structures and people (receptors), specifically cosmetic damage effects on structures and sleep disturbance and associated health effects on people. For building damage, the threshold limit depends on the architectural characteristics of the potentially affected structure (see Table 4.F-5, above under "State Regulations" p. 4.F-13), but for modern industrial/commercial buildings (and older or historic buildings that have been restored to building code standards sufficient to withstand vibration from pile driving and controlled rock fragmentation activities), a standard of 0.5 in/sec peak particle velocity (PPV) is applied. The potential for sleep disturbance effects are evaluated only when construction activities are proposed during the nighttime hours. For sleep disturbance effects, this analysis applies Caltrans's "strongly perceptible" threshold limit of 0.1 in/sec PPV.[30] Vibration impacts are considered significant if they would result either in levels substantial enough to damage nearby structures or buildings, or in vibration levels generally accepted as "strongly perceptible" to sensitive receptors during the nighttime hours. The reader is referred to Section 4.I, Biological Resources, Impact BI-4 for evaluation of vibration impacts on aquatic species.

Construction-related Vibration Impacts on Existing Buildings and Offsite Receptors

Typical vibration levels associated with the operation of various types of construction equipment at distances of 30, 80, 230, and 340 feet away from the vibration source are listed in **Table 4.F-12**,

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[30] Caltrans, *Transportation and Construction Vibration Guidance Manual,* September 2013.

Vibration Levels for Construction Equipment. These distances generally correspond to the closest setback distances between construction activities and existing adjacent structures, as well as future onsite project structures and planned structures on the Pier 70 site. While vibration attenuation with distance can vary depending on subsoils, typical attenuation rates indicate that vibration generated by impact pile drivers or blasting associated with controlled rock fragmentation could result in cosmetic damage to adjacent structures if they occur within approximately 80 feet of a structure, assuming maximum reference vibration levels. Use of sonic or vibratory pile drivers, if feasible, or other controlled rock fragmentation techniques, as indicated in Table 4.F-12, would generate lower levels of vibration (below the 0.5 in/sec PPV standard) with commensurately smaller minimum setback distances of approximately 35 feet from project structures required for pile driving (for typical impact or vibratory pile drivers), 22 feet for controlled rock fragmentation hydraulic techniques, and 12 feet for controlled rock fragmentation pulse plasma rock fragmentation to avoid cosmetic damage.

TABLE 4.F-12
VIBRATION LEVELS FOR CONSTRUCTION EQUIPMENT

Equipment	Peak Particle Velocity (PPV) (in/sec)[a]			
	At 30 Feet	At 80 Feet	At 230 Feet	At 340 Feet
Impact or Vibratory Pile Driver				
Range	0.139 – **1.242**	0.047 – 0.422	0.015-0.132	0.010-0.086
Typical	**0.532**	0.181	0.057	0.037
Other Construction Equipment				
CRF using PPRP Technique[b]	0.176	0.060	0.019	0.012
CRF using Hydraulic Technique	0.350	0.119	0.037	0.024
CRF using Controlled Blasting	0.164 – **1.637**	0.056 - **0.556**	0.017 - 0.174	0.011-0.113
Vibratory Roller/Compactor	0.172	0.058	0.018	0.012
Large Bulldozer	0.073	0.058	0.008	0.005
Caisson Drilling	0.073	0.025	0.008	0.005
Loaded Trucks	0.062	0.021	0.007	0.004
Jackhammer	0.029	0.010	0.003	0.002
Small Bulldozer	0.002	0.001	0.000	0.000

NOTES: Vibration levels in **bold** exceed the 0.5 in/sec PPV standard for cosmetic damage.

[a] Vibration amplitudes for construction equipment assume normal propagation conditions and were calculated using the following formula: PPV equip = PPVref x $(25/D)^{1.1}$ where:

- PPV (equip) = the peak particle velocity in in/sec of the equipment adjusted for the distance
- PPV (ref) = the reference vibration level in in/sec from pages 31-33 and Table 18 of the Caltrans Vibration Guidance Manual as well as Table 12-2 of the Federal Transit Administration's Noise and Vibration Guidance Manual
- D = the distance from the equipment to the receiver

Distances represent the following: (1) 30 feet: minimum distance between closest Pier 70 structures that would be present (Phase 3 is scheduled for completion by 2023) during construction of Blocks 1-4 (Phases 3 and 5: 2025-2032); (2) 80 feet: minimum separation between closest construction activities to the existing adjacent building to the west (AIC Building) as well as minimum distance between future (project) structures in different phases; (3) 230 feet: minimum distance between closest Pier 70 structures (on the north side of the 22nd Street extension) that would be present (Phase 2 is scheduled for completion by 2020) during all PPS construction phases; and (4) 340 feet: minimum distance between proposed impact pile driving on Block 5 and closest existing structure to the west (AIC Building).

[b] Controlled rock fragmentation (CRF) using pulse plasma rock fragmentation (PPRF) technique.

SOURCES: Caltrans, *Transportation and Construction Vibration Guidance Manual*, September 2013, pp. 29-34, *http://www.dot.ca.gov/hq/env/noise/publications.htm*, accessed on August 15, 2018; Federal Transit Administration, *Transit Noise and Vibration Impact Assessment*, May 2006, *https://www.transit.dot.gov/regulations-and-guidance/environmental-programs/noise-and-vibration*, accessed on August 15, 2018.

As described in Table 4.F-5, p. 4.F-14 above, depending on the type of vibration (transient versus continuous), groundborne vibration generated by project-related demolition and construction activities above 0.5 in/sec PPV could cause cosmetic damage to new or older nearby structures, including some older and historic buildings. Historic resources located on or adjacent to the project site are identified on Section 4.D, Historic Architectural Resources, Figure 4.D-1, Historic Resources, p. 4.D-10. The existing Boiler Stack located on the eastern portion of the project site is proposed to be retained and could be adversely affected by construction-related vibration effects if vibration levels exceed 0.5 in/sec PPV, which would depend on how close pile driving and controlled rock fragmentation activities occur to the Boiler Stack. Since the proximity of such activities is currently unknown, potential vibration effects on this structure is conservatively considered to be significant. However, implementation of **Mitigation Measure M-NO-4a, Construction Vibration Monitoring**, together with **Mitigation Measure M-CR-5e, Historic Preservation Plan and Review Process for Alteration of the Boiler Stack** (see Section 4.D, Historic Architectural Resources, Impact CR-5) would establish measures to ensure that retained character-defining features of the Boiler Stack would be protected both during and after construction, and would include, if necessary, stabilization of historic resources prior to construction to prevent damage. Therefore, this impact would be ***less than significant with mitigation***.

Mitigation Measure M-NO-4a: Construction Vibration Monitoring

The project sponsor shall undertake a monitoring program to ensure that construction-related vibration does not exceed 0.5 in/sec PPV at the Boiler Stack, the American Industrial Center South building, and the Western Sugar Warehouses as required pursuant to Mitigation Measures M-NO-4b (Vibration Control Measures During Controlled Blasting and Pile Driving), M-NO-4c (Vibration Control Measures During Use of Vibratory Equipment), and M-CR-5e (Historic Preservation Plan and Review Process for Alteration of the Boiler Stack). The monitoring program shall include the following components:

- Prior to any controlled blasting, pile driving, or use of vibratory construction equipment (vibration-inducing construction), the project sponsor shall engage a historic architect or qualified historic preservation professional and a qualified acoustical/vibration consultant or structural engineer to undertake a pre-construction survey of the Boiler Stack, the American Industrial Center South building, and the Western Sugar Warehouses to document and photograph the buildings' existing conditions. Based on the construction and condition of the resource, a structural engineer or other qualified entity shall establish a maximum vibration level that shall not be exceeded based on existing conditions, character-defining features, soils conditions and anticipated construction practices in use at the time. The qualified consultant shall conduct regular periodic inspections of each historical resource within 80 feet of vibration-inducing construction throughout the duration of vibration-inducing construction. The pre-construction survey and inspections shall be conducted in concert with the Historic Preservation Plan required pursuant to Mitigation Measure M-CR-5e, Historic Preservation Plan and Review Process for Alteration of the Boiler Stack.

- Prior to the start of any vibration-inducing construction, the qualified acoustical/vibration consultant or structural engineer shall undertake a pre-construction survey of any offsite structures or onsite structures constructed by the project within 80 feet of such vibration inducing construction. The qualified acoustical/vibration consultant or structural engineer shall conduct periodic inspections of any such structures throughout the duration of vibration inducing construction.

- The qualified historic and acoustical/structural consultant shall submit monitoring reports to San Francisco Planning documenting vibration levels and findings from regular inspections.

- Based on planned construction activities for the project and condition of the adjacent structures, an acoustical consultant shall monitor vibration levels at each structure and shall prohibit vibration inducing construction activities that generate vibration levels in excess of 0.5 in/sec PPV. Should vibration levels be observed in excess of 0.5 in/sec PPV or should damage to any structure be observed, construction shall be halted and alternative construction techniques put in practice, to the extent feasible. For example, smaller, lighter equipment might be able to be used or pre-drilled piles could be substituted for driven piles, if soil conditions allow.

Mitigation Measure M-CR-5e: Historic Preservation Plan and Review Process for Alteration of the Boiler Stack (see Section 4.D, Historic Architectural Resources, Impact CR-5)

To the west of the project site, the closest existing structure is the American Industrial Center building, which is a contributor to the historic Third Street Industrial District and is located approximately 80 feet from Block 13 (where controlled rock fragmentation could be required) and 340 feet from Block 5 (where pile driving could occur; see footnote “a” in Table 4.F-12). To the south of the project site, the Western Sugar Warehouses are also contributors to the Third Street Industrial District, and they are located on the south side of 23rd Street, approximately 80 to 100 feet from Blocks 10, 11, and 12, where controlled rock fragmentation and/or pile driving could be required. At a distance of 80 feet, vibration levels generated from controlled rock fragmentation and pile driving would not exceed the 0.5 in/sec PPV standard for cosmetic damage with one exception: if controlled blasting (associated controlled rock fragmentation) occurs at distances of 80 feet or less from these two buildings, and maximum controlled blasting levels are generated. Table 4.F-12 lists a range of vibration levels associated with controlled blasting, which demonstrates that lower vibration levels (below 0.5 in/sec PPV) could be achieved at a distance of 80 feet by using other controlled blasting techniques. Therefore, maximum vibration levels generated by controlled blasting at the American Industrial Center building and Western Sugar Warehouses would have the potential to exceed the 0.5 in/sec PPV standard, a significant impact. However, implementation of **Mitigation Measure M-NO-4b, Vibration Control Measures During Controlled Blasting and Pile Driving**, would require that appropriate controlled blasting techniques (smaller charge sizes or using other controlled rock fragmentation techniques) be used so as to not exceed the 0.5 in/sec PPV standard. Additionally, **Mitigation Measure M-NO-4a, Construction Vibration Monitoring** would ensure that vibration levels set in Mitigation Measure M-NO-4b would not be exceeded. Therefore, this impact would be ***less than significant with mitigation***.

> **Mitigation Measure M-NO-4b: Vibration Control Measures During Controlled Blasting and Pile Driving**
>
> Vibration controls shall be specified to ensure that the vibration limit of 0.5 in/sec PPV can be met at all nearby structures when all potential construction-related vibration sources (onsite and offsite) are considered. These controls could include smaller charge sizes if controlled blasting is used, pre-drilling pile holes, using the pulse plasma fragmentation technique, or using smaller vibratory equipment. This vibration limit shall be coordinated with vibration limits required under Mitigation Measure M-BI-4, Fish and Marine Mammal Protection during Pile Driving, to ensure that the lowest of the specified vibration limits is ultimately implemented.

To the north of the project site, the Union Iron Works Historic District, includes contributors to the Third Street Industrial District. As part of the Pier 70 Mixed-Use District project, Buildings 2 and 12 of the Union Iron Works Historic District would be retained and renovated. Building 12, the closest of these two structures, would be located approximately 250 feet from Blocks 1, 2, and 14, where controlled frock fragmentation could occur and 300 feet from Blocks 3 and 4 where pile driving could be required. At these distances, vibration levels would not exceed the 0.5 in/sec standard. Therefore, the project's construction-related vibration impacts on this existing historical district from impact pile driving or controlled rock fragmentation would be *less than significant,* and no mitigation would be required.

Vibratory pile drivers are proposed to be used for construction of the recreational dock, which would be located approximately 230 feet from the closest existing structure to the south (401 23rd Street, which is also one of the Western Sugar Warehouses and is currently used by DHL Express). As indicated in Table 4.F-12, vibration levels at 230 feet would not exceed the 0.5 in/sec PPV standard at this existing structure. However, while vibratory pile driving (or similar continuous vibration sources) can reduce the potential impacts to structures and marine life that can result from impact pile driving, continuous vibration can also cause liquefaction (or differential settlement in sandy soils), due to the continuous nature of the vibration. A liquefaction analysis was completed as part of the preliminary geotechnical report prepared for the proposed project and the result of this analysis indicates that portions of the site east of the historic mapped shoreline are potentially liquefiable.[31]

The deep fill portions on the eastern half of the project site (east of the historic shoreline) are mapped as a potential liquefaction hazard zone identified by the California Geological Survey.[32] American Association of State Highway and Transportation Officials[33] states: "Saturated, loose,

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[31] ENGEO, *Potrero Power Plant, San Francisco, California, Preliminary Geotechnical Report*, Revised September 14, 2017.

[32] California Department of Conservation, Division of Mines and Geology, State of California Seismic Hazard Zones, City and County of San Francisco, Official Map, November 17, 2000, *http://gmw.conservation.ca.gov/SHP/EZRIM/Maps/SAN_FRANCISCO_NORTH_EZRIM.pdf*, accessed August 15, 2018.

[33] American Association of State Highway Transportation Officials (AASHTO), *Evaluation of Transportation-Related Earthborne Vibrations*, R 8-96, 2004.

uniformly or poorly graded sands and silts are sensitive to cyclic vibration such as might be produced by vibratory pile driving. These activities can produce noticeable settlement even at low vibration levels (0.1 to 0.7 in/sec), which are known to produce threshold cracking." As shown in Table 4.F-12, vibratory pile driving at 230 feet could result in vibration levels of up to 0.13 in/sec PPV at the existing DHL Express Service Point facility (401 23rd Street) and up to 0.21 in/sec PPV at the Boiler Stack, which is located at 150 feet from the proposed recreational dock. Thus, use of vibratory pile drivers for construction of the recreational dock could result in the potential for vibration-induced liquefaction and associated structural damage to the DHL building and Boiler Stack. This would be a significant impact. However, implementation of **Mitigation Measure M-NO-4c, Vibration Control Measures During Use of Vibratory Equipment**, would require establishment of a vibration limit for vibratory construction equipment as part of a subsequent site-specific geotechnical investigation, as required to provide information about geotechnical hazards under section 1803 of the building codes. Therefore, this impact would be ***less than significant with mitigation***.

Mitigation Measure M-NO-4c: Vibration Control Measures During Use of Vibratory Equipment

In areas with a "very high" or "high" susceptibility for vibration-induced liquefaction or differential settlement risks, as part of subsequent site-specific geotechnical investigations, the project's geotechnical engineer shall specify an appropriate vibration limit based on proposed construction activities and proximity to liquefaction susceptibility zones. At a minimum, the vibration limit shall not exceed 0.5 in/sec PPV, unless the geotechnical engineer demonstrates, to the satisfaction of the Environmental Review Officer (ERO), that a higher vibration limit would not result in building damage. The geotechnical engineer shall specify construction practices (such as using smaller equipment or pre-drilling pile holes) required to ensure that construction-related vibration does not cause liquefaction hazards at nearby structures. The project sponsor shall ensure that all construction contractors comply with these specified construction practices. This vibration limit shall be coordinated with vibration limits required under Mitigation Measure M-BI-4, Fish and Marine Mammal Protection during Pile Driving, to ensure that the lowest of the specified vibration limits is ultimately implemented.

Significance after Mitigation: Less than Significant

Nighttime Activities

During Phase 0, activities associated with the construction of 23rd Street (including utility installation and street improvements) would extend into the nighttime hours (until about 3 a.m.), which would have the potential to result in sleep disturbance from construction-related vibration from the use of heavy equipment. As discussed in the project description, nighttime construction activities would not involve construction activities or equipment that could produce substantial noise and vibration, such as controlled rock fragmentation, impact or vibratory pile drivers, jackhammers, impact hammers, or rock drills. The closest existing residential receptors are located at 2660 Third Street, approximately 360 feet from the proposed 23rd Street improvements. Street improvements would involve use of bulldozers, similar earthmoving equipment, and vibratory rollers/compactors, as listed in Table 4.F-12. At 360 feet, vibration levels generated by operation of such equipment would not exceed 0.1 in/sec PPV. As indicated in Table 4.F-6, Vibration Guidelines for Annoyance, continuous vibration levels of 0.1 in/sec PPV or higher are "strongly perceptible", and are considered to potentially have sleep disturbance effects. Estimated vibration levels from nighttime construction at the closest existing receptors would not exceed 0.1 in/sec PPV, and therefore, vibration from nighttime construction would be *less than significant* and no mitigation would be required.

Construction-related Vibration Impacts on Future Onsite Buildings and Receptors

Construction-related vibration sources that could affect future onsite buildings and noise-sensitive receptors on the project site would be the same as described above. Proposed onsite structures would be separated from each other by a minimum of 80 feet. As indicated in Table 4.F-12, construction-related vibration levels (including pile driving) at this distance would not exceed the 0.5 in/sec PPV level with one exception: the maximum vibration levels from controlled blasting associated with controlled rock fragmentation could exceed the 0.5 in/sec PPV standard, which would be a significant impact. However, vibration levels from controlled blasting can be highly variable depending on the size of the charge, and there are other controlled rock fragmentation techniques (e.g., pulse plasma rock fragmentation) that could be used, as necessary, to maintain vibration below levels that could result in damage to nearby structures. Therefore, conducting vibration monitoring and implementing alternative construction techniques as required in **Mitigation Measure M-NO-4a, Construction Vibration Monitoring**, together with using smaller charge sizes, other controlled rock fragmentation techniques, as required in **Mitigation Measure M-NO-4b, Vibration Control Measures During Controlled Blasting and Pile Driving,** would reduce this potential impact to a less-than-significant level, and this impact would be ***less than significant with mitigation***.

Vibratory pile drivers are proposed to be used for construction of the recreational dock during Phase 1, and operation of vibratory equipment could affect any future structures that are built prior to or during operation of vibratory equipment during this phase. However, implementation of **Mitigation Measure M-NO-4c, Vibration Control Measures During Use of Vibratory Equipment**, which would be required to protect existing onsite structures to be retained and offsite structures, would also protect any future onsite buildings completed during Phase 1. Therefore, this impact would be ***less than significant with mitigation***.

Mitigation Measure M-NO-4a: Construction Vibration Monitoring (see above)

Mitigation Measure M-NO-4b: Vibration Control Measures During Controlled Blasting and Pile Driving (see above)

Mitigation Measure M-NO-4c: Vibration Control Measures During Use of Vibratory Equipment (see above)

Significance after Mitigation: Less than Significant

Nighttime Activities

As explained above, nighttime construction along 23rd Street would have the potential to result in sleep disturbance from construction-related vibration. However, because nighttime construction activities are proposed to cease once onsite residential units are occupied, there would be no nighttime construction-related vibration impacts on future onsite receptors.

Construction-related Vibration Impacts on Planned Offsite Buildings and Receptors

Construction-related vibration sources that could affect planned noise-sensitive receptors on the Pier 70 Mixed-Use District project site would be the same as described above for other offsite buildings and receptors. Construction-related vibration levels from the various construction techniques that could be used on the site would be the same as listed in Table 4.F-12.

The closest planned offsite structures on the Pier 70 site would be the buildings on Parcels F/G and H1/H2. These future structures would be located across the proposed Craig Lane, which straddles the Pier 70/project boundary, and with proposed 15-foot building setbacks on both properties, Pier 70 structures could be located as close as 30 feet from future structures on Blocks 1 through 4. However, there may be no setback between the buildings on Parcel F (Pier 70 site) and Block 14 because these two parcels share a property line and there is no intervening street. Assuming minimum setbacks of zero to 30 feet, pile driving and controlled blasting could exceed the 0.5 in/sec PPV limit (see Table 4.F-12), resulting in a significant vibration impact. However, by conducting vibration monitoring and implementing alternative construction techniques as required in **Mitigation Measure M-NO-4a, Construction Vibration Monitoring**, together with limiting use of impact or vibratory pile drivers and controlled blasting charge sizes, as required in **Mitigation Measure M-NO-4b, Vibration Control Measures During Controlled Blasting and Pile Driving**, this potential impact would be reduced to a less-than-significant level, and this impact would be ***less than significant with mitigation***.

Proposed use of vibratory pile drivers for construction of the recreational dock during Phase 1 and potential effects from vibration-induced liquefaction effects would not adversely any planned structures on the Pier 70 site. The closest planned structure would be on Parcel H2, which is located 600 feet from the proposed dock. In addition, Figure 4.F-5, p. 4.F-24 above, indicates that construction of Parcel H2 would not occur until 2027, which would be after proposed dock construction in Phase 1 (2023-2025). Therefore, potential vibration-induced liquefaction effects at the closest planned offsite structures would be *less than significant* and no mitigation would be required.

> **Mitigation Measure M-NO-4a: Construction Vibration Monitoring** (see above)
>
> **Mitigation Measure M-NO-4b: Vibration Control Measures During Pile Driving and Controlled Blasting** (see above)
>
> **Significance after Mitigation:** Less than Significant. Table 4.F-12 indicates that other construction techniques and equipment are available that would reduce vibration levels to the lower ends of the ranges for pile driving and controlled blasting, and use of these techniques would ensure that the 0.5 in/sec PPV limit is not exceeded. Use of pulse plasma rock fragmentation and hydraulic controlled rock fragmentation techniques would generate lower vibration levels than pile driving and blasting such that they could be employed as close as 22 feet from adjacent structures and not result in cosmetic damage.

Nighttime Activities

During Phase 0, activities associated with the construction of 23rd Street (including utility installation and street improvements) would extend into the nighttime hours (until about 3 a.m.), which would have the potential to result in sleep disturbance from construction-related vibration. The closest planned residential receptors would be on Parcels F/G, which are located approximately 730 feet from the proposed 23rd Street improvements. Street improvements would involve use of bulldozers, similar earthmoving equipment, and vibratory rollers/ compactors, as listed in Table 4.F-12. At 730 feet, vibration levels generated by operation of such equipment would not exceed 0.1 in/sec PPV, a *less than significant* impact and no mitigation would be required.

Summary of Construction Vibration Impact

Vibration Impacts on Existing Buildings and Offsite Receptors

Groundborne vibration generated by project-related demolition and construction activities above 0.5 in/sec PPV could cause cosmetic damage to new or older nearby structures, including some older and historic buildings, such as the Boiler Stack, a significant impact. However, implementation of **Mitigation Measure M-NO-4a, Construction Vibration Monitoring,** and **Mitigation Measure M-CR-5e, Historic Preservation Plan and Review Process for Alteration of the Boiler Stack** (see Section 4.D, Impact CR-5) would establish measures to ensure that retained character-defining features of the Boiler Stack would be protected both during and after construction. Maximum vibration levels generated by controlled blasting at the American Industrial Center building and Western Sugar Warehouses would have the potential to exceed the 0.5 in/sec PPV standard, a significant impact. However, implementation of **Mitigation Measure M-NO-4b, Vibration Control Measures During Controlled Blasting and Pile Driving**, would require that appropriate controlled blasting techniques be used so as to not exceed the 0.5 in/sec PPV standard. The project's construction-related vibration impacts on the Union Iron Works Historic District to the north of the project site would not exceed the 0.5 in/sec standard, and would be less than significant. Use of vibratory pile drivers for construction of the recreational dock could result in the potential for vibration-induced liquefaction and associated structural damage to the DHL building and Boiler Stack, a significant impact. However, implementation of **Mitigation Measure M-NO-4c, Vibration Control Measures During Use of Vibratory Equipment**, would require establishment of a vibration limit for vibratory construction equipment as part of a subsequent site-specific geotechnical investigation. Estimated vibration levels from nighttime construction at the closest existing receptors would not exceed 0.1 in/sec PPV, and therefore, vibration from nighttime construction would be *less than significant* and no mitigation would be required.

Vibration Impacts on Future Onsite Buildings and Receptors

Construction-related vibration levels (including pile driving) on proposed onsite structures would not exceed the 0.5 in/sec PPV level with one exception: the maximum vibration levels from controlled blasting associated with controlled rock fragmentation could exceed the 0.5 in/sec PPV standard, which would be a significant impact. **Mitigation Measure M-NO-4a, Construction Vibration Monitoring** and **Mitigation Measure M-NO-4b, Vibration Control Measures During Controlled Blasting and Pile Driving,** would reduce this impact to a less-than-significant level. Vibratory pile drivers are proposed to be used for construction of the recreational dock during

Phase 1, and operation of vibratory equipment could affect any future structures that are built prior to or during operation of vibratory equipment during this phase. However, implementation of **Mitigation Measure M-NO-4c, Vibration Control Measures During Use of Vibratory Equipment**, which would be required to protect existing onsite structures to be retained and offsite structures, would also protect any future onsite buildings completed during Phase 1. There would be no nighttime construction-related vibration impacts on future onsite receptors.

Vibration Impacts on Planned Offsite Buildings and Receptors

Pile driving and controlled blasting at the closest planned offsite structures on the Pier 70 site could exceed the 0.5 in/sec PPV limit (see Table 4.F-12), resulting in a significant vibration impact, but with **Mitigation Measure M-NO-4a**, **Construction Vibration Monitoring,** and **Mitigation Measure M-NO-4b, Vibration Control Measures During Controlled Blasting and Pile Driving,** this impact would be reduced to a less-than-significant level. Proposed use of vibratory pile drivers for construction of the recreational dock during Phase 1 and potential effects from vibration-induced liquefaction effects would not adversely any planned structures on the Pier 70 site, a less-than-significant impact. The closest planned residential receptors would be located sufficiently distant from nighttime construction activities such that vibration levels would not exceed 0.1 in/sec PPV, a less-than-significant impact.

Therefore, overall project construction would generate vibration levels that could result in building damage at existing onsite buildings to be retained and future onsite buildings (described above), and this impact would be ***less than significant with mitigation***.

> **Mitigation Measure M-NO-4a: Construction Vibration Monitoring** (see above)
>
> **Mitigation Measure M-CR-5e: Historic Preservation Plan and Review Process for Alteration of the Boiler Stack** (see Section 4.D, Historic Architectural Resources, Impact CR-5)
>
> **Mitigation Measure M-NO-4b: Vibration Control Measures During Controlled Blasting and Pile Driving** (see above)
>
> **Mitigation Measure M-NO-4c: Vibration Control Measures During Use of Vibratory Equipment** (see above)
>
> **Significance after Mitigation:** Less than Significant

Operational Impacts

Impact NO-5: Operation of the stationary equipment on the project site could result in a substantial permanent increase in ambient noise levels in the immediate project vicinity, and permanently expose noise-sensitive receptors to noise levels in excess of standards in the San Francisco Noise Ordinance. *(Less than Significant with Mitigation)*

Stationary Noise Impacts on Existing Offsite and Future Onsite Receptors

Operation of the proposed project would increase ambient noise levels in the immediate vicinity primarily through the onsite use of stationary equipment, such as heating/ventilation/air conditioning (HVAC) systems and emergency generators. Operation of HVAC equipment (and any other stationary equipment) would be subject to the San Francisco Noise Ordinance and two noise limits specified in section 2909 of the police code. First, sections 2909 (a), (b), and (c) state that stationary sources are not permitted to result in noise levels that exceed the existing ambient (L_{90}) noise level by more than 5 dBA on residential property, 8 dBA on commercial and industrial property, and 10 dBA on public property. Second, section 2909(d) states that in order to prevent sleep disturbance, no fixed noise source may cause the noise level measured inside any sleeping or living room in a dwelling unit on residential property to exceed 45 dBA between 10 p.m. and 7 a.m. or 55 dBA between 7 a.m. and 10 p.m. with windows open, except where building ventilation is achieved through mechanical systems that allow windows to remain closed.

Although emergency generators would be exempt from noise limits specified in sections 2909(a) and (b),[34] this analysis uses these ordinance limits to determine if this noise increase is a significant impact under CEQA. Potential noise increases at the closest existing offsite noise-sensitive receptors and future onsite sensitive receptors from operation of HVAC systems and emergency generators is presented in **Table 4.F-13, Estimated Stationary Equipment Operational Noise Levels at Closest Sensitive Receptors,** and these levels are compared to the "Ambient + 5 dBA"[35] and 45-dBA interior[36] standards at the closest residential receptors.

The proposed project would result in installation of new mechanical equipment, such as HVAC systems, which would produce operational noise. Depending on size, noise from HVAC equipment could generate noise levels of up to 75 dBA (L_{eq} or L_{90}[37]) at 30 feet. The closest existing offsite

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[34] City and County of San Francisco, *San Francisco Police Code, Article 29: Regulation of Noise Guidelines for Noise Control Ordinance Monitoring and Enforcement, December 2014 Guidance* (Supersedes All Previous Guidance), December 2014. Available online at *https://www.sfdph.org/dph/files/EHSdocs/ehsNoise/GuidelinesEnforcement.pdf*, accessed August 15, 2018.

[35] Although the ordinance limit is 8 dBA at the property plane for commercial/industrial properties, the impact analysis applies the Ambient + 5 dBA threshold to all proposed uses for purposes of analysis and capturing all potential noise impacts. However, the mitigation measure specifies both the 5-dBA for residential properties and 8-dBA standard for commercial/industrial properties, consistent with section 2909 of the police code.

[36] The 45-dBA nighttime interior limit is equivalent to an exterior limit of 60 dBA with the windows open because it assumes a 15-dBA reduction is achieved with the windows open. Open windows are assumed in this analysis because these are permanent noise sources, whereas closed windows are assumed (with a 25-dBA reduction) for construction noise because it is temporary.

[37] Because these noise sources produce a constant noise level when operating (as opposed to variable noise levels), the L_{eq} noise level for this type of equipment is also considered to be equivalent to L_{90}.

TABLE 4.F-13
ESTIMATED STATIONARY EQUIPMENT OPERATIONAL NOISE LEVELS AT CLOSEST SENSITIVE RECEPTORS

Project Stationary Source and Closest Receptors	Reference Noise Level (L_{eq}/L_{90}) in dBA at 50 Feet	Minimum Distance to Closest Receptor (feet)	Distance Adjustment (dBA)	Adjusted Noise Level (L_{eq}) at Receptor (dBA)	Ambient Noise Level at Closest Property Line[a]	Ambient + 5 dBA Standard at Closest Property Line	Is Ambient + 5 dBA Standard Exceeded?	Is 45-dBA Interior / 60-dBA Exterior Nighttime Ordinance Standard Exceeded?[b]
Closest Existing Offsite Sensitive Receptor: Existing Residential Receptors located at 2502-2660 Third Street[d]								
HVAC Equipment	71[c]	410[d]	-18	53	48	53	No	No
Emergency Generator	71[c]	630[e]	-22	49	48	53	No	No
Closest Future Onsite Sensitive Receptors: Phase 1 Residents/Hotel Occupants & Possible Childcare Users								
HVAC Equipment	71[c]	80[g]	-4	**67**	45	50	Yes	Yes
Emergency Generator	71[c]	80[g]	-4	**67**	45	50	Yes	Yes
Closest Planned Offsite Sensitive Receptor: Pier 70 Residential Receptors on Pier 70 Parcels F/G and H1/H2								
HVAC Equipment	71[c]	45[f]	1	**72**	45	50	Yes	Yes
Emergency Generator	71[c]	45[f]	1	**72**	45	50	Yes	Yes

NOTES: dBA = A-weighted decibel; numbers in **bold** exceed at least one of the specified standards.

[a] Section 2901 (a) states that the "ambient" be no less than 45 dBA. Noise measurements indicate that the existing ambient (L_{90}) noise levels averaged 43 dBA over most of the site (LT-2 through LT-6; see Appendix D, Summary of Long-term Noise Measurements). The minimum ordinance limit of 45 dBA + 5 dBA or 50 dBA at residential-zoned properties is applied in this impact because application of the lower residential standard provides for the most conservative analysis. The slightly higher noise level of 48 dBA (LT-1, adjacent to existing PG&E Switchyards and Illinois Street) was applied at the western property line.

[b] The nighttime interior noise limit of 45 dBA between 10:00 p.m. and 7:00 a.m. is based on the noise limits specified in Section 2909(d) of the Noise Ordinance, and applied in this analysis as the standard. This interior limit is equivalent to a nighttime exterior limit of 60 dBA with the windows opens because it assumes a 15-dBA reduction is achieved with the windows open. Open windows are assumed for operational noise because these are permanent noise sources, whereas closed windows are assumed (with a 25-dBA reduction) for construction noise because it is temporary. Therefore, a 60-dBA exterior noise level attenuates to a 45-dBA interior noise level when open windows provide a 15-dBA noise reduction.

[c] Meyers Engineers, Letter to Perkins + Will, January 16, 2018. The project sponsor is proposing to use generators that would not exceed 75 dBA (L_{eq}) at 30 feet, which is equivalent to 71 dBA at 50 feet. The same conversion was made for HVAC equipment, which could be as high as 75 dBA (L_{eq}) at 30 feet. Because these noise sources produce a constant noise level when operating (as opposed to variable noise levels), these noise levels are also considered to be equivalent to L_{90}.

[d] The distance between HVAC equipment and the closest existing offsite receptor would be 380 feet (between the closest residential receptor on the west side of Third Street and Block 13) plus a 30-foot setback of the equipment from the project property line (380 feet plus 30 feet is 410 feet).

[e] The distance between the emergency generator and the closest existing offsite receptor would be 630 feet (between the closest residential receptor on the west side of Third Street and Block 5) plus a 30-foot setback of the equipment from the project property line (600 feet plus 30 feet is 630 feet.).

[f] Since emergency standby diesel generators are proposed to be located at least 30 feet from property lines and Pier 70 buildings could be located as close as 15 feet from the northern property line, the minimum setback distance between the generators and the closest Pier 70 receptors would be 45 feet (30 feet plus 15 feet).

[g] This setback distance represents the minimum distance between a future project sensitive receptor (resident, hotel occupant, or childcare user) and an adjacent block by including the minimum 50-foot roadway right-of-way separating some project blocks (even though some road rights-of-way are 80 feet wide) plus a 30-foot setback of the equipment from the project block property line (50 feet plus 30 feet).

SOURCE: Orion Environmental Associates, 2018 receptors are located 410 feet to the west of Block 13, while the closest future onsite receptors could be as close as 80 feet from these stationary noise sources. As indicated in Table 4.F-13, noise increases from project-related HVAC equipment on each block would not exceed the "Ambient + 5 dBA" standard at the closest existing receptors to the west, nor would it exceed the 45-dBA interior/60-dBA exterior noise limits at these receptors. However, these noise increases could exceed both of these standards at future onsite receptors, a significant impact.

Emergency generators would be required in at least 14 of the new buildings proposed to be constructed on the project site (all buildings except those on Blocks 4 and 13), plus one at the proposed wastewater pump station. The closest existing offsite sensitive receptors to the west are located 630 feet or more from these buildings (on Block 5), while the closest future onsite receptors could be located as close as 80 feet from an emergency generator. The emergency generators would be a periodic noise source since they would only be used during maintenance operations to ensure reliability and during a power failure. Operation of generators during a power failure or other emergency would be exempt from the restrictions of the City's noise ordinance. Maintenance operation of emergency standby diesel generators would occur for approximately four hours per month (50 hours annually) for testing and such a short noise event would not substantially alter ambient noise levels.

Emergency standby diesel generators typically generate noise levels between 75 dBA and 85 dBA (L_{eq}) at 50 feet and the project sponsor is proposing to use generators that would not exceed 75 dBA (L_{eq} or L_{90}[38]) at 30 feet.[39] As indicated in Table 4.F-13, noise increases from the operation of proposed emergency generators would not exceed the "Ambient + 5 dBA" standard at the closest existing receptors to the west, nor would it exceed the 45-dBA interior / 60-dBA exterior noise limits at these receptors, which would be a *less-than-significant* impact on existing receptors. However, these generators could result in noise increases that exceed both of these standards at future onsite receptors, a significant impact.

With incorporation of noise attenuation measures into HVAC equipment and emergency generators (e.g., provision of sound enclosures/barriers, addition of roof parapets to block noise) and compliance with the 45-dBA interior/60-dBA exterior noise limits specified in **Mitigation Measure M-NO-5, Stationary Equipment Noise Controls**, stationary equipment noise would be reduced, and acceptable noise levels would be achieved at all future onsite sensitive receptors (residents, hotel occupants, and childcare users). With mitigated noise levels not exceeding the "Ambient + 5 dBA" and 45-dBA nighttime interior (with windows open) noise standards at the closest onsite sensitive receptors (consistent with section 2909(d)), potential noise impacts on future onsite receptors would be ***less than significant with mitigation***.

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[38] Because these noise sources produce a constant noise level when operating (as opposed to variable noise levels), the L_{eq} noise level for this type of equipment is also considered to be equivalent to L_{90}.

[39] Meyers Engineers, Letter to Perkins + Will, January 16, 2018. Emergency standby diesel generators would be located at grade and exhaust stacks would be 15 feet high.

Mitigation Measure M-NO-5: Stationary Equipment Noise Controls

For all stationary equipment on the project site, noise attenuation measures shall be incorporated into the design of fixed stationary noise sources to ensure that the noise levels meet section 2909 of the San Francisco Police Code. A qualified acoustical engineer or consultant shall verify the ambient noise level based on noise monitoring and shall design the stationary equipment to ensure that the following requirements of the noise ordinance are met:

- Fixed stationary equipment shall not exceed 5 dBA above the ambient noise level at the property plane at the closest residential uses (Blocks 1, 5 - 8, 13 and possibly Blocks 4, 9, 12, and 14, depending on the use ultimately developed) and 8 dBA on blocks where commercial/industrial uses are developed (Blocks 2, 3, 10, 11, and possibly Blocks 4, 12, and 14, depending on the use ultimately developed);
- Stationary equipment shall be designed to ensure that the interior noise levels at adjacent or nearby sensitive receptors (residential, hotel, and childcare receptors) do not exceed 45 dBA.

Noise attenuation measures could include installation of critical grade silencers, sound traps on radiator exhaust, provision of sound enclosures/barriers, addition of roof parapets to block noise, increasing setback distances from sensitive receptors, provision of intake louvers or louvered vent openings, location of vent openings away from adjacent residential uses, and restriction of generator testing to the daytime hours.

The project sponsor shall demonstrate to the satisfaction of the Environmental Review Officer (ERO) that noise attenuation measures have been incorporated into the design of all fixed stationary noise sources to meet these limits prior to approval of a building permit.

Significance after Mitigation: Less than Significant

Stationary Noise Impacts on Planned Offsite Receptors

Operation of the proposed project would increase ambient noise levels on the Pier 70 site's southern boundary, primarily through the use of onsite stationary equipment, such as HVAC systems and emergency generators. Potential noise increases at the closest planned offsite noise-sensitive receptor from operation of HVAC systems and emergency generators are presented in Table 4.F-13.

As indicated in Table 4.F-13, noise increases from project-related HVAC equipment and emergency diesel standby generators would have the potential to exceed the "Ambient + 5 dBA" and 45-dBA interior/60-dBA exterior standards at the closest planned offsite receptors. With incorporation of noise attenuation measures into HVAC equipment and emergency generators (e.g., provision of sound enclosures/barriers, addition of roof parapets to block noise) and compliance with the "Ambient + 5 dBA" and 45-dBA interior/60-dBA exterior noise standards specified in **Mitigation Measure M-NO-5, Stationary Equipment Noise Controls**, HVAC and emergency generator noise would be reduced and acceptable noise levels would be achieved at all planned offsite sensitive receptors. With mitigated noise levels not exceeding the "Ambient + 5 dBA" and 45-dBA nighttime interior (with windows open) noise standards (consistent with section 2909(d)), potential noise impacts on planned offsite receptors would be reduced to ***less than significant with mitigation***.

> **Mitigation Measure M-NO-5: Stationary Equipment Noise Controls** (see above)
>
> **Significance after Mitigation:** Less than Significant

Impact NO-6: Events that include outdoor amplified sound would not result in substantial temporary or periodic increases in ambient noise levels. *(Less than Significant)*

Development of open space uses in proximity to future onsite sensitive receptors (residents, hotel occupants, and childcare users) would increase the potential for noise conflicts or sleep disturbance. Sources of noise typically associated with non-residential uses that can cause conflicts or sleep disturbance at adjacent noise-sensitive uses include playing of amplified sound at outdoor events and noisy activities in open space areas. The potential for noise conflicts or sleep disturbance would be greatest where amplified sound systems are used and events occur during the more noise-sensitive late evening/nighttime hours.

The significance criterion for evaluating whether events would result in a significant impact is based on a perceived doubling of loudness, which is generally equivalent to a 10-dBA increase above ambient noise levels, and the potential for sleep disturbance, which is evaluated based on the potential for event noise between the hours of 10 p.m. and 7 a.m. to exceed 45 dBA at residential interior locations. In addition to these quantitative standards, the evaluation also considers the frequency of events.

Events could include movie nights in the park, farmers markets, fairs, performances, food trucks, block parties, and weddings. Noise levels associated with farmers markets, food trucks, or block parties are not expected to exceed the above significance criteria (doubling in the loudness or cause sleep disturbance), a *less-than-significant* noise impact.

However, other events would be allowed in all open space areas. Key components of the open space program for the proposed project include the Waterfront Park, Potrero Point Park, Louisiana Paseo, and Power Station Park (see Figure 2-8 in Chapter 2, Project Description, p. 2-23). The Waterfront Park would extend along the project site's shoreline, providing spill-out spaces for retail, quiet spaces, waterfront viewing terraces, and a waterfront playground. Louisiana Paseo would be a plaza-type open space that would extend north-south through the interior of the project site between Blocks 6 and 7, Blocks 6 and 10, and Blocks 10 and 11. It would have spill-out space for outdoor dining in these open space areas. Power Station Park would extend east-west through the interior of the project site and connect the Louisiana Paseo to Waterfront Park, providing flexible lawn spaces suitable to accommodate two soccer fields and other active and passive recreational opportunities. These active/passive recreational activities (including soccer fields and rooftop recreational facilities) would not involve large crowds and would be subject to noise ordinance limits. Therefore, noise generated by these recreational uses is not expected to exceed the above significance criteria (doubling in the loudness or cause sleep disturbance), which would be a *less-than-significant* noise impact.

In general, events such as weddings can generate noise levels of 80 to 100 dBA when dance music is played depending on proximity to the speakers, while a loud orchestra or rock band can generate noise levels of 90 to 115 dBA (front rows of audience).[40,41] With future onsite ambient noise levels expected to be in the range of 60 to 65 dBA (L_{dn}), performances, fairs, weddings, or any events involving amplified sound generating noise levels of 80 to 115 dBA would have the potential to cause a 10-dBA noise increase (generally perceived as a doubling of loudness) above future onsite ambient noise levels of 60 to 65 dBA (L_{dn}). However, compliance with noise limits and permit requirements, as specified in sections 49 and 1060.1 of the police code, would ensure that noise impacts from amplified sound generated at such events would minimize potential noise disturbance effects for the following reasons:

- Section 49 prohibits the operation of amplified sound equipment between the hours of 10 p.m. and 7 a.m. so as to be plainly audible at a distance of 50 feet from the property line of the property where the sound is generated.

- Section 1060.1 requires a permit for limited live performance locales (live performances presented in an area of 200 square feet or less), one-time events (such as a concert, parade, fair, festival, athletic event, or block party), and one-time outdoor amplified sound events (an outdoor gathering, occurrence or event at which no entertainment is furnished). The San Francisco Entertainment Commission is required to hold a public hearing as part of the permit review process.

- As part of the permit application process for limited live performance locales, section 1060.5.1 requires preparation of a plan for the business to operate, specifying information such as the days and hours of operation, number of patrons, the types or classes of live performances (in terms of the types of instruments, number of performers, and sound levels), specific description of the sound amplification system, and whether the business intends to project sound outside of any building or at an outdoor location. If amplified sound would occur outdoors, a statement certifying compliance with maximum noise levels established under the police and health codes, and whether the event would take place within 300 feet of a hospital, school, place of worship, courthouse, public library, or mortuary, would be required.

- Permits for one-time events (section 1060.29(a) and (g)) and one-time sound amplification events (section 1060.29.2(a) and (c)(2)) would limit events to no more than 12 days at the same premises within any 12-month period. If amplified sound equipment would be used in an outdoor area, a plan for the business to operate such outdoor equipment is required and must specify information such as the equipment location, days and hours of operation, specific description of the sound amplification system including the sound to be amplified (music or speech), a statement certifying compliance with maximum noise levels established under the police and health codes, and whether the event would take place within 300 feet of a hospital, school, place of worship, courthouse, public library, or mortuary.

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[40] DJSPACEBAR Entertainment Services, *How loud is a decibel (dB)?, http://www.djspacebar.com/Site_Popups/.html*, accessed on August 15, 2018; Sound Advice Working Group, *Sound Advice Note 11, Pubs and Clubs, Amplified music played in nightclubs, bars, pubs and restaurants,* 2007, *http://www.soundadvice.info/thewholestory/san11.htm#,* accessed on August 3, 2018.

[41] This allows comfortable conversation (not raised voices) at distances of six feet or less. (US Environmental Protection Agency, *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety,* Appendix D, Table D-1, p. D-5 (p. 157 online), March 1974, *https://nepis.epa.gov/* (search for publication number 550974004), accessed on August 6, 2018.

Compliance with noise limits established under the San Francisco Police and Health codes (which limits residential interior noise levels to 45 dBA or less between 10 p.m. and 7 a.m.), time restrictions (i.e., amplified sound cannot be audible at 50 feet from the property line after 10 p.m.), and other permit requirements specified in sections 49 and 1060 of the police code would ensure that periodic and temporary noise increases from amplified sound associated with the various proposed events would be ***less than significant***.

Mitigation: None required.

Impact NO-7: Proposed rooftop bars and restaurants that include outdoor amplified sound would not result in substantial temporary or periodic increases in ambient noise levels. *(Less than Significant)*

Development of rooftop bars and restaurants on any of the non-residential buildings in proximity to future onsite sensitive receptors (residents, hotel occupants, and childcare users) would increase the potential for noise conflicts or sleep disturbance, particularly if they include amplified sound systems that are used during the more noise-sensitive late evening/nighttime hours.

The significance criterion for evaluating whether amplified sound would result in a significant impact is based on a perceived doubling of loudness, which is generally equivalent to a 10-dBA increase above ambient noise levels, and the potential for sleep disturbance, which is evaluated based on the potential for event noise between the hours of 10 p.m. and 7 a.m. to exceed 45 dBA at residential interior locations.

Background amplified music in bars or restaurants is typically set below conversation levels (60 to 70 dBA) so that patrons are able to converse. Such noise levels would not exceed expected future onsite ambient noise levels (60 to 65 dBA, Ldn) at the closest residential, hotel or childcare receptors, which could be located as close as across the street (a minimum of 80 feet away). These commercial uses could operate after 10 p.m., but are required to comply with various noise ordinance limits. Section 49 of the San Francisco Police Code would prohibit the operation of amplified sound equipment between the hours of 10 p.m. and 7 a.m. so as to be plainly audible at a distance of 50 feet from the property line of the property where the sound is generated. Therefore, operation of these commercial uses in compliance with this noise limit would ensure that amplified music would not be audible at any nearby residential or hotel receptors during the nighttime hours and would not cause residential interior noise levels to exceed 45 dBA. In addition, residential and hotel uses would be subject to Title 24 noise insulation standards and compliance with these standards would reduce the transmission of outdoor noise to indoor environments, which would minimize potential noise impacts on residential receptors and hotel occupants, (including occupants of hotel rooms located directly below a rooftop bar or restaurant). Therefore, periodic and temporary noise increases from amplified music associated with rooftop bars or restaurants would be ***less than significant***.

Mitigation: None required.

Impact NO-8: Project traffic would result in a substantial permanent increase in ambient noise levels. ***(Significant and Unavoidable with Mitigation)***

Project Level Traffic Noise Impacts

Operation of the proposed project would result in permanent increases in ambient noise levels along roadways in the project vicinity, primarily through project-related increases in traffic. As explained above under "Methodology for Analysis of Operational Impacts," p. 4.F-23 the following thresholds are applied to determine the significance of project-related traffic noise increases: (1) an increase of more than 5 dBA is considered a significant traffic noise increase; and (2) in places where the existing or resulting noise environment is "Conditionally Acceptable," "Conditionally Unacceptable," or "Unacceptable" for noise-sensitive uses based the San Francisco Land Use Compatibility Chart for Community Noise (Figure 4.F-4, p. 4.F-16 above), any noise increase greater than 3 dBA is considered a significant traffic noise increase.

Noise modeling was completed to estimate existing (baseline) and future (with the proposed project) traffic noise levels along 75 street segments in the project area based on traffic volumes presented in Section 4.E, Transportation and Circulation. Noise modeling results are presented in **Table 4.F-14**, **Summary of Existing and Project Traffic Noise Levels**.

Traffic Noise Impacts on Existing and Planned Offsite Receptors

Table 4.F-14 indicates that project implementation would result in traffic noise increases ranging from 0 to 18.8 dBA on local roadways near the project site. Of the 75 roadway segments examined, traffic noise increases would not exceed the above thresholds except on the following seven street segments, resulting in significant impacts at these locations:

- Illinois Street between 20th and 22nd Streets (adjacent to Pier 70 site)
- Illinois Street between 22nd Street and Humboldt Street (adjacent to project site)
- 22nd Street east of Illinois Street (at the project site and Pier 70 boundaries)
- 22nd Street between Third and Illinois streets (adjacent to the project site)
- Humboldt Street east of Illinois Street (on the project site)
- 23rd Street east of Illinois Street (at southern project boundary)
- 23rd Street between Third and Illinois streets (adjacent to the project site)

Three of these street segments are located on the project site while the remaining four are located adjacent to the project site or Pier 70 site. The greatest noise increases (5.5 to 18.8 dBA) would occur on streets providing access to the project site: Illinois Street, 22nd Street, Humboldt Street, and 23rd Street. Substantial noise increases (4 to 5 dBA) would occur on two segments adjacent to the project site or Pier 70 site and on two more distant cross-street segments between Third and Illinois streets: 19th and 20th streets. Noise increases on the remaining 68 street segments analyzed would be less than 3 dBA.

TABLE 4.F-14
SUMMARY OF EXISTING AND PROJECT TRAFFIC NOISE LEVELS

Street	Segment or Cross-Street	Ldn/CNEL Noise Level (dBA) at 50 Feet from Roadway Centerline		
		Existing	With Proposed Project	Project Change
Illinois Street	North of 20th	59.3	61.7	2.4
	20th to 22nd	59.2	**63.1**	**3.9**
	22nd to Humboldt	59.2	**63.5**	**4.3**
	Humboldt to 23rd	59.2	63.7	4.5[a]
	23rd to 24th	59.0	62.7	3.8[a]
	24th to 25th	58.8	62.6	3.8[a]
	25th to Cesar Chavez	58.6	61.9	3.3[a]
	South of Cesar Chavez	59.3	59.3	0.0
Third Street	North of 16th	67.0	67.7	0.7
	16th to 18th	66.5	67.8	1.2
	18th to 19th	65.7	67.5	1.8
	19th to 20th	65.7	67.3	1.6
	20th to 22nd	65.9	67.0	1.1
	22nd to 23rd	66.0	67.4	1.4
	23rd to 24th	66.1	67.9	1.9
	24th to 25th	66.2	68.0	1.8
	25th to 26th	66.2	67.6	1.4
	26th to Cesar Chavez	65.9	67.5	1.5
	South of Cesar Chavez	66.2	66.4	0.1
Indiana Street	North of 22nd	54.5	55.0	0.5
	22nd to 23rd	56.9	57.5	0.6
	23rd to 25th	57.3	58.1	0.8
	South of 25th	57.4	57.4	0.0
Pennsylvania Avenue	North of 22nd	58.5	58.9	0.3
	22nd to 23rd	60.6	61.4	0.9
	23rd to 25th	62.6	63.8	1.2
	25th to Cesar Chavez	64.3	65.4	1.1
	South of Cesar Chavez	62.9	64.5	1.6
Tennessee Street	North of 18th	52.0	53.0	1.1
	18th to 19th	55.0	55.6	0.6
	19th to 20th	55.1	55.6	0.6
	20th to 22nd	54.0	54.6	0.7
	South of 22nd	50.3	50.3	0.0
Minnesota Street	North of 18th	54.2	54.3	0.2
	18th to 22nd	56.0	56.2	0.1
	South of 22nd	49.3	49.3	0.0

TABLE 4.F-14 (CONTINUED)
SUMMARY OF EXISTING AND PROJECT TRAFFIC NOISE LEVELS

		Ldn/CNEL Noise Level (dBA) at 50 Feet from Roadway Centerline		
Street	**Segment or Cross-Street**	**Existing**	**With Proposed Project**	**Project Change**
16th Street	East of Third	59.3	59.9	0.6
	West of Third	64.9	65.7	0.8
18th Street	East of Third	55.4	57.4	2.0
	Third to Tennessee	58.2	60.4	2.2
	Tennessee to Minnesota	59.2	60.2	1.0
	West of Minnesota	61.0	61.0	0.0
19th Street	East of Third	48.8	53.8	5.0[a]
	Third to Tennessee	50.8	50.8	0.0
	West of Tennessee	50.0	50.0	0.0
20th Street	East of Illinois	49.5	49.5	0.0
	Illinois to Third	56.3	59.9	3.6
	Third to Tennessee	57.7	58.4	0.6
	West of Tennessee	58.1	58.4	0.2
22nd Street	East of Illinois	51.2	**62.7**	**11.5**
	Illinois to Third	55.9	61.4	**5.5**
	Third to Indiana	57.0	59.2	2.2
	Indiana to Pennsylvania	57.2	59.2	2.0
	Pennsylvania to Tennessee	57.5	59.4	1.9
	Tennessee to Minnesota	57.1	59.3	2.2
	West of Minnesota	57.0	58.0	1.0
Humboldt Street	East of Illinois	41.5	**60.4**	**18.8**
23rd Street	East of Illinois	53.9	**64.8**	**10.9**
	Illinois to Third	55.0	64.2	**9.1**
	Third to Indiana	57.2	60.1	2.9
	Indiana to Pennsylvania	57.6	60.1	2.5
	West of Pennsylvania	47.1	47.1	0.0
24th Street	East of Illinois	46.1	46.1	0.0
	Illinois to Third	47.6	47.6	0.0
	West of Third	50.7	50.7	0.0
25th Street	East of Illinois	49.7	49.7	0.0
	Illinois to Third	52.9	55.0	2.1
	Third to Indiana	60.3	62.2	2.0
	Indiana to Pennsylvania	60.1	61.6	1.5
	West of Pennsylvania	58.8	58.8	0.0

TABLE 4.F-14 (CONTINUED)
SUMMARY OF EXISTING AND PROJECT TRAFFIC NOISE LEVELS

Street	Segment or Cross-Street	Ldn/CNEL Noise Level (dBA) at 50 Feet from Roadway Centerline		
		Existing	With Proposed Project	Project Change
26th Street	East of Third	33.1	33.1	0.0
	West of Third	49.1	49.1	0.0
Cesar Chavez Boulevard	East of Illinois	56.7	56.7	0.0
	Illinois to Third	61.4	64.0	2.7
	Third to Pennsylvania	66.6	68.6	2.0
	West of Pennsylvania	66.2	67.2	1.0

NOTES:

Noise levels may vary by up to one-tenth of a decibel due to rounding. Noise levels in **bold** exceed either of the following threshold increases when compared to baseline noise levels: (1) an increase of more than 5 dBA, or (2) an increase of more than 3 dBA in areas where the existing or resulting noise increase exceeds acceptable (or satisfactory) levels for the affected use (see Figure 4.F-4, above).

Change in noise levels in **bold** indicate a significant noise increase and noise levels in **bold** indicate a significant impact on future onsite residential, childcare, and hotel uses.

Traffic noise modeling was completed using the Federal Highway Administration RD-77-108 model. Assumptions include: speed limit on all streets is 25 mph except on 16th, Third, and Cesar Chavez, where the posted speed limit is 30 mph; vehicle mix is 98% Autos/1.5% Medium Trucks/0.5% Heavy Trucks; day-night split: 76% day (7 a.m. to 7 p.m.), 12% evening (7 p.m. to 10 p.m.), and 12% night (10 p.m. to 7 a.m.). Background noise levels due to traffic on other roadways (such as cross-streets or nearby freeways) and non-traffic-related activities are not reflected in these noise levels. Noise levels in this table are intended to indicate incremental noise changes due to project implementation. Since they do not include background noise levels, they may not necessarily reflect actual noise levels along these roadway segments if there are other nearby sources of noise. Changes between scenarios analyzed may not show change due to rounding in the noise modeling results.

Modeled noise levels in this table reflect traffic diversions that could result from project-related impacts on Muni (see Impact TR-5 in Section 4.E, Transportation and Circulation for more details). In addition, the project would include a shuttle service program as part of its proposed TDM program to provide access to the BART 16th Street station and Caltrain 22nd Street station. The future shuttle bus schedule is not known at this time, but it is anticipated that any increase in noise levels due to shuttle trips would be relatively minor and these trips have been adequately accounted for in the modeled traffic noise analysis above.

[a] Although this noise increase exceeds 3 dBA, it is not determined to be significant because existing or future noise levels are Acceptable to existing adjacent industrial/commercial uses.

SOURCE: Orion Environmental Associates, 2018

Traffic generated by the proposed project would result in a substantial permanent increase in ambient noise levels in the project vicinity, at times resulting in increases of up to 18.8 dBA, a significant noise impact. Implementation of vehicle trip reduction measures, as required in **Mitigation Measure M-TR-5, Implement Measures to Reduce Transit Delay**, would reduce project-related traffic noise levels. However, since the effectiveness of this mitigation measure and the resulting level of traffic noise reduction is unknown, traffic noise increases along these roadway segments are considered to be ***significant and unavoidable with mitigation***. There are no other feasible measures that could further reduce project-related vehicle trips and consequent traffic noise.

Mitigation Measure M-TR-5: Implement Measures to Reduce Transit Delay (see Chapter 4, Section 4E, Transportation and Circulation, Impact TR-5)

Significance after Mitigation: Significant and Unavoidable. With traffic noise increases on four of the street segments of more than 9 dBA, these noise increases would likely continue to be significant even with additional vehicle trip reduction measures required under Mitigation Measure M-TR-5. There are no other feasible measures that could further reduce noise generated by project-related vehicle trips.

Traffic Noise Impacts on Future Onsite Receptors

Based on the San Francisco Land Use Compatibility Chart for Community Noise (Figure 4.F-4, p. 4.F-16), noise levels up to 60 dBA (Ldn) are considered satisfactory (Acceptable) for residential, hotel, and childcare[42] uses, and no special noise insulation measures are required; between 60 dBA and 70 dBA (Ldn), noise levels are considered Conditionally Acceptable for residential and childcare uses, while noise levels between 60 dBA and 80 dBA are considered Conditionally Acceptable for hotel uses.

As indicated in Table 4.F-14, future with-project traffic noise levels along the sections of 22nd, Humboldt, and 23rd streets east of Illinois Street and along the section of Illinois Street adjacent to the project site are considered to be Conditionally Acceptable for residential, childcare, and hotel uses. Since all project blocks have frontage along one or more of these streets, these noise-sensitive uses could be exposed to Conditionally Acceptable noise levels in the future, a significant impact. However, with the required incorporation of noise attenuation measures, as specified in **Mitigation Measure M-NO-8, Design of Future Noise-Sensitive Uses**, this impact would be ***less than significant with mitigation***. This mitigation measure would ensure that noise attenuation features will achieve acceptable interior noise levels at noise-sensitive receptor locations based on future (existing plus project and cumulative) traffic noise levels.

Mitigation Measure M-NO-8: Design of Future Noise-Sensitive Uses

Prior to issuance of a building permit for vertical construction of a residential building or a building with childcare or hotel uses, a qualified acoustical consultant shall conduct a noise study to determine the need to incorporate noise attenuation features into the building design in order to meet a 45-dBA interior noise limit. This evaluation shall be based on noise measurements taken at the time of the building permit application and the future cumulative traffic (year 2040) noise levels expected on roadways located on or adjacent to the project site (i.e., 67 dBA on Illinois Street, 66 dBA on 22nd Street, 60 dBA on Humboldt Street, and 64 dBA on 23rd Street at 50 feet from roadway centerlines) to identify the STC ratings required to meet the 45-dBA interior noise level. The noise study and its recommendations and attenuation measures shall be incorporated into the final design of the building and shall be submitted to the San Francisco Department of Building Inspection for review and approval. The project sponsor shall implement recommended noise attenuation measures from the approved noise study as part of final project design for buildings that would include residential, hotel, and childcare uses.

Significance after Mitigation: Less than Significant. Implementation of the above mitigation measure would ensure that the proposed project's increases in ambient noise levels on the project site would not significantly affect the proposed project's noise sensitive uses because interior noise environments would be designed to meet a 45-dBA interior noise limit.

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[42] The City's Land Use Compatibility Chart for Community Noise (Figure 4.F.3) does not specify acceptable noise levels for child care facilities, but the City considers childcare uses to be as noise-sensitive as residential uses.

Cumulative Impacts

Construction

Impact C-NO-1: Cumulative construction of the proposed project combined with construction of other past, present, and reasonably foreseeable future projects would cause a substantial temporary or periodic increase in ambient noise levels. ***(Significant and Unavoidable with Mitigation)***

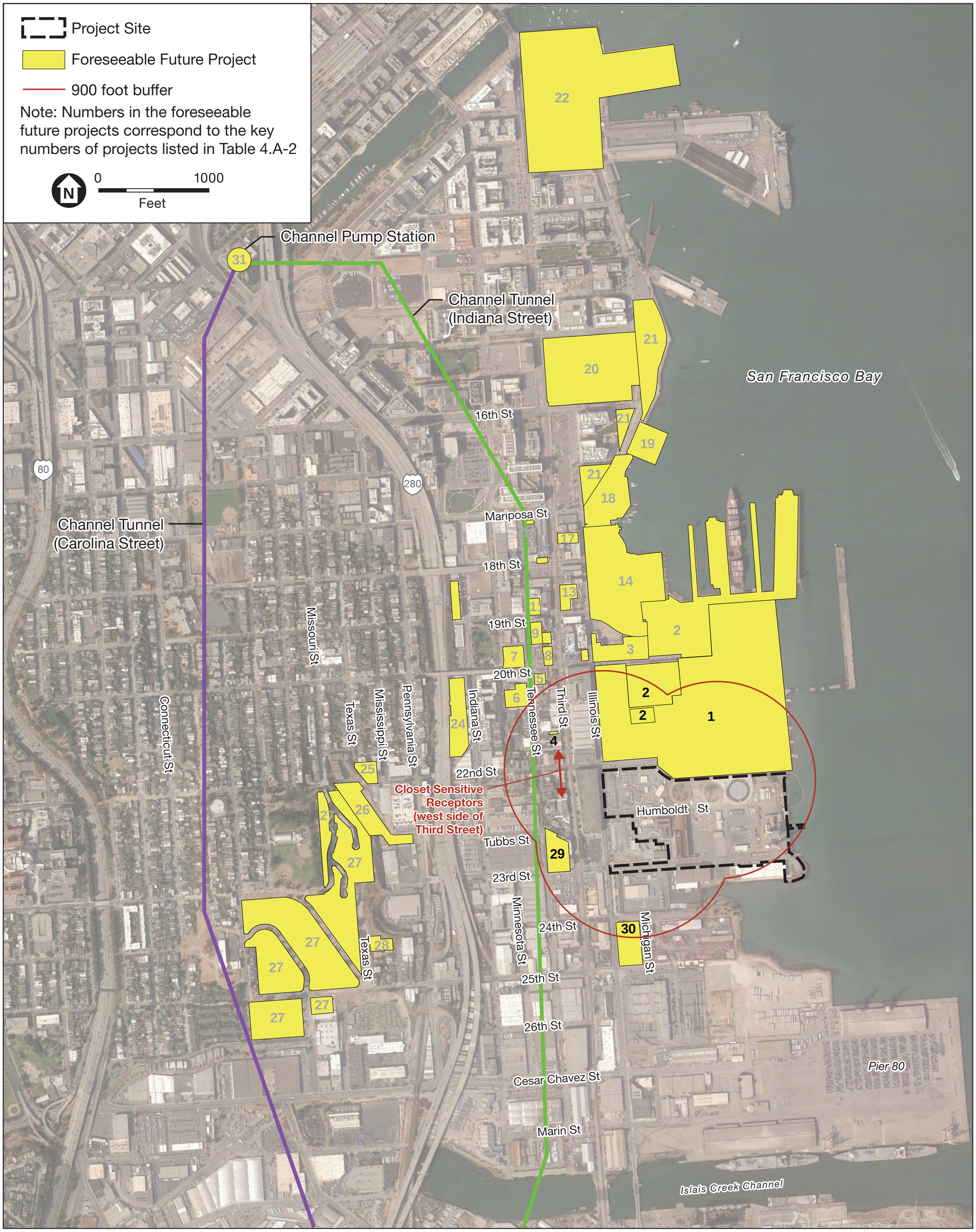
In general, the potential for cumulative noise increases associated with project construction would result if there are any other projects located nearby that could be constructed at the same time and could affect the same sensitive receptors. The closest existing sensitive receptors to the project site are residential units located along the west side of Third Street approximately 380 feet west of the project site. The locations of these and other nearby sensitive receptors are generally indicated with orange shading in Figure 4.F-2, p. 4.F-10 above**.** A nursery school and church are located one block farther to the west, and construction noise levels would be lower at these two sensitive receptors because they are farther away. Based on the possible construction phasing of the proposed project and Pier 70 project (see Figure 4.F-5, p. 4.F-24), the closest future sensitive receptors that could be affected by cumulative construction noise increases from both of these projects would be Parcel G on the Pier 70 site.

As noted in the Setting section above under "Existing and Future/Planned Sensitive Receptors," the project's area of noise influence is 900 feet, and this 900-foot area is delineated on **Figure 4.F-6, Cumulative Projects – Noise**. As indicated in this figure, cumulative projects located within the 900-foot area are as follows:

- Pier 70 Mixed-Use District project (#1 on Figure 4.F-6) is located north of the project site and at least 380 feet from the closest existing sensitive receptors west of Third Street (described above). This cumulative analysis assumes that this project could generate construction-related noise levels and peak construction truck traffic levels similar to and at the same time as the proposed project. Given the proximity of this project, construction traffic would likely affect the same roads.

- SF Port Re-Tenanting of Pier 70 Shipyard (#2 on Figure 4.F-6) is also located immediately north of the Pier 70 site, approximately 570 feet north of the project site, and a minimum of about 700 feet northeast of the closest existing sensitive receptors located west of Third Street. This project is located farther from the closest existing sensitive receptors west of Third Street than the Pier 70 site and the project site. The extent and timing of construction of this project is unknown. This cumulative analysis assumes that the proposed Re-Tenanting project could generate construction-related noise levels associated with surface preparation and building construction activities. Potential construction-related truck traffic from this cumulative project could not be estimated.

- 1201-1225 Tennessee Street (#29 on Figure 4.F-6) is located south of the closest existing sensitive receptors located west of Third Street. Since this residential project has already been constructed, it is now a noise-sensitive residential receptor that is located approximately 380 feet from project-related construction activities, and therefore, would not contribute to cumulative construction-related noise increases.



SOURCE: Google Earth; ESA, 2017

Figure 4.F-6
Cumulative Projects - Noise

- 1499 Illinois Street/1401-1443 Illinois Street/700 25th Street commercial-office project (#30 on Figure 4.F-6) is located 650 feet southeast of the closest existing sensitive receptors located west of Third Street and 625 feet southwest of the project site. The extent of construction and timing of this project is unknown, and this cumulative analysis assumes that construction-related noise levels for this project would be associated with surface preparation and building construction activities. Construction-related truck traffic is expected to travel to/from the south and not contribute to cumulative noise increases at residential uses in the Dogpatch neighborhood to the north of this commercial-office project site.

Cumulative Noise Impacts on Existing Offsite Receptors

With respect to existing offsite receptors, the closest cumulative project where concurrent construction would have the potential to cumulatively increase noise levels at existing sensitive receptors would be the Pier 70 Mixed-Use District project, which is also located at least 380 feet from the closest existing sensitive receptors west of Third Street. When noise levels of 94 dBA (Leq) associated with impact pile driving and rock drilling on the Pier 70 site are combined with noise levels of 94 dBA (Leq) associated with impact pile driving and rock drilling on the project site, and are adjusted for distance, the two projects could generate a cumulative noise level of 75 dBA (Leq) at these closest sensitive receptors on the west side of Third Street. When construction-related noise levels of 83 dBA (Leq), from the SF Port Re-Tenanting of Pier 70 Shipyard project and 1499 Illinois Street/1401-1443 Illinois Street/700 25th Street commercial-office project, typically associated with surface preparation and foundation work, are adjusted for distance to the closest sensitive receptors located west of Third Street, cumulative construction noise would not measurably increase above 75 dBA (Leq) at these receptors. This cumulative noise level of 75 dBA (Leq) at the closest sensitive receptors would not exceed the "Ambient + 10 dBA" limit of 78 dBA (Leq) during the daytime hours.[43] Furthermore, this cumulative construction noise level would be below the Federal Transit Administration's limit of 90 dBA at sensitive receptor locations. Therefore, potential cumulative noise increases would be ***less than significant*** at existing offsite sensitive receptor locations. In addition, industrial buildings located between Third and Illinois streets would attenuate construction noise generated at the Pier 70 site and most of the project site for the closest existing sensitive receptors located on the west side of Third Street, reducing the cumulative construction noise level and further minimizing the potential for cumulative noise impacts at these receptors.

Cumulative Noise Impacts on Future Planned Offsite and Proposed Onsite Receptors

With respect to future onsite and offsite receptors, concurrent construction of the proposed project and Pier 70 project could cumulatively increase noise levels at future sensitive receptors on the project site as well as on the Pier 70 site, particularly near where the project sites abut one another (see Figure 4.F-3, Future Planned Noise-Sensitive Receptors at the Pier 70 Site and Planned Construction Dates, p. 4.F-11 above). In general, the proposed project's construction phases along the northern project boundary would be completed after the Pier 70 project's construction phases along this boundary, which would minimize the potential for cumulative construction-related noise impacts on future onsite sensitive receptors located along this boundary. However, if

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[43] The "Ambient + 10 dBA" limit is based on the measured daytime Leq of 68 dBA at ST-5, which was located adjacent to 2660 Third Street (see Table 4.F-2).

residential receptors occupy the Pier 70 project's Parcel G by 2024, they would be subject to cumulative noise increases from concurrent construction activities on the Pier 70 project's Parcel H1 (2027-2029) and the proposed project's adjacent Block 3 (2025-2028) for possibly up to two years (2027 and 2028). Pier 70 residential receptors located at the east end of Parcel G could be subject to cumulative noise increases of up to 93 dBA if impact pile driving and controlled rock fragmentation occurred on the west end of Parcel H1 and Block 3 at the same time, which would exceed the Federal Transit Administration's limit of 90 dBA and "Ambient + 10 dBA" limit of 60 dBA (L_{eq}).[44] The project's contribution of up to 89 dBA from such activities would contribute considerably to this significant cumulative impact.

Implementation of noise controls during all construction phases as specified in **Mitigation Measure M-NO-1, Construction Noise Control Measures**, would reduce the project's contribution to this cumulative impact on the closest Pier 70 receptors on Parcel G, assuming they are present when construction on Block 3 occurs. However, the feasibility of quieter, alternative pile driving methods cannot be determined at this time, and the potential would still exist that cumulative noise levels from simultaneous operation of the noisiest types of construction equipment on both Parcel H1 and Block 3 could still exceed the Federal Transit Administration's standard of 90 dBA and the "Ambient + 10 dBA" standard for the duration of the project's construction activities. Given this uncertainty, this cumulative impact would be ***significant and unavoidable with mitigation***.

Mitigation Measure M-NO-1: Construction Noise Control Measures (see Impact NO-1, above)

Significance after Mitigation: Significant and Unavoidable

Cumulative Vibration Impacts on Existing and Future Receptors

In order to evaluate whether vibration from construction of the proposed project in combination with vibration from construction of other nearby projects could result in significant cumulative vibration impacts on the closest existing and future sensitive receptors, threshold distances can be derived from vibration levels listed in Table 4.F-12. As indicated in this table, vibration from pile driving could exceed the 0.5 in/sec PPV standard for cosmetic damage at a distance of 100 feet from the vibration source and such levels could adversely affect buildings, particularly historic buildings.

Operation of heavy equipment during nighttime hours within approximately 50 feet of a receptor could exceed the 0.1 in/sec PPV sleep disturbance standard.[45] Of the above-listed cumulative projects, all would be located well beyond these threshold distances except for the Pier 70 Mixed-Use District project. Since there would be no nighttime construction proposed as part of the Pier 70 project, there would be no potential for cumulative sleep disturbance impacts on any future planned receptors on the Pier 70 site (no cumulative impact).

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[44] The "Ambient + 10 dBA" limit is based on the measured daytime Leq of 50 dBA at ST-4, which was located at the northern site boundary on the north side of proposed Block 3 (see Table 4.F-2).

[45] No pile driving or controlled rock fragmentation would occur at the project site or any cumulative projects during the nighttime hours.

There would be a potential for significant cumulative construction-related vibration impacts if pile driving occurred simultaneously on both the project site and the Pier 70 site within 100 feet of a building. There are no existing historic structures located within this proximity. The following structures could be located within 100 feet of both project-related and Pier 70-related pile driving activities: new buildings on project Blocks 1 – 4, 13, and 14 and new buildings on Pier 70 Parcels HDY 1/2, F, G, and H1/H2. As described above in Impact NO-2, pile driving associated with deep or intermediate foundations would occur on Blocks 3 and 4, and blasting or controlled rock fragmentation could also be required if Greywacke bedrock is encountered during excavation of sub-grade parking levels at any of these blocks. A significant cumulative impact would occur if concurrent construction activities at the Pier 70 parcels involved pile driving or other vibration-inducing activities, and the project's contribution to this cumulative impact would be considerable (i.e., significant). Implementation of **Mitigation Measure M-NO-4a, Vibration Control Measures During Controlled Blasting and Pile Driving,** would reduce the project's contribution to this cumulative impact to less than cumulatively considerable. This measure would require vibration controls sufficient to ensure that vibration levels would not exceed the 0.5 in/sec PPV vibration limit, and all potential vibration sources would need to be considered when determining the need. for vibration controls. Therefore, this cumulative vibration impact from simultaneous construction of the proposed project and the Pier 70 project would be ***less than significant with mitigation***.

> **Mitigation Measure M-NO-4a: Vibration Control Measures During Controlled Blasting and Pile Driving** (see Impact NO-4, above)

Cumulative Increases in Offsite Haul Truck Traffic

Construction activities associated with the proposed project in combination with construction of the Pier 70 Mixed-Use District project could result in temporary cumulative increases in construction-related traffic (including truck traffic) on construction routes such as Third Street, Illinois Street, 25th Street, and Cesar Chavez Street. These are the streets that provide access to/from the I-280 and SR 101 freeways. The project's 15-year construction duration from 2020 through 2034 would overlap with Pier 70 project's 11-year construction duration from 2018 through 2029, resulting in an increased potential for cumulative temporary truck traffic noise increases along local access roads during the nine to ten years of construction overlap. Since peak truck traffic increases only occur for short periods during certain construction activities, the likelihood that the highest truck traffic increases from both projects would occur at the same time would be low given that highest truck volume of up to 200 trips per day would occur for only four months of the 15-year construction duration and that fewer than 100 truck trips per day would occur over 90 percent of the construction duration. However, if the highest levels of truck traffic from these two projects were to occur simultaneously, and truck volumes from both projects were approximately twice the highest level estimated for the project (2.4 dBA increase on Illinois Street or 0.8 dBA increase on Third Street, see Impact NO-3), a cumulative increase of 4.0 dBA on Illinois Street and 1.4 dBA increase on Third Street would result. Such increases would not exceed the 3-dBA or 5-dBA noise increase standards for traffic noise on Third Street or the 5-dBA standard on Illinois Street, but could exceed the 3-dBA standard at existing and future residential receptors located on Illinois Street north of the project site if all construction trucks associated with both projects traveled north on Illinois Street (see Approach to Analysis, Methodology for Analysis of Operational Impacts above for more discussion of these standards).

Given that: (1) it is unlikely that peak truck traffic increases from both projects would overlap; (2) it is unlikely that all these trucks would travel north on Illinois Street; (3) any peak overlapping cumulative increases would occur for a limited time (a maximum of four months); and (4) Conditionally Acceptable noise levels on Illinois Street (north of Humboldt Street) are only slightly above the 60-dBA level of acceptability for residential uses, cumulative haul truck traffic noise increases from both projects is considered to be ***less than significant***.

Nevertheless, these less-than-significant cumulative noise increases would still increase ambient noise levels along truck routes as a result of these two projects' overlapping construction schedules and could result in disturbance of residents in the Dogpatch neighborhood. Therefore, implementation of **Improvement Measure I-NO-A**, which would encourage project-related construction trucks to use truck routes that avoid streets where there are residential uses to the extent feasible, would help reduce the effects of the project's construction-related truck traffic noise increases. There are existing residential receptors on Third Street between 22nd and 23rd streets and on Illinois Street north of 20th Street, and residential development is planned on the Pier 70 site along Illinois Street between 20th and 22nd streets. Since there are no existing or planned residential uses along Illinois Street to the south (between 23rd Street and Cesar Chavez Street), Cesar Chavez Street, and 25th Street (between Illinois and 25th streets) between Third Street and the I-280 and SR 101 freeways, the project's construction-related trucks should maximize use of this route for regional freeway access. This improvement measure could be incorporated into and implemented as part of the **Improvement Measure I-TR-A,** in Section 4.E, Transportation and Circulation.

> **Mitigation Measure M-NO-1: Construction Noise Control Measures** (see Impact NO-1, above)
>
> **Improvement Measure I-NO-A: Avoidance of Residential Streets** (see Impact NO-3 above)
>
> **Improvement Measure I-TR-A, Construction Management Plan and Public Updates** (see Section 4.E, Transportation and Circulation, Impact TR-1)
>
> **Significance after Mitigation:** Significant and Unavoidable

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Operation

Impact C-NO-2: Cumulative traffic increases would cause a substantial permanent increase in ambient noise levels in the project vicinity. *(Significant and Unavoidable with Mitigation)*

As indicated in **Table 4.F-15**, **Summary of Cumulative Traffic Noise Levels,** traffic noise increases related to cumulative development (including the proposed project and the Pier 70 Mixed-Use District project) in the project area would result in cumulative traffic noise increases of up to 18.3 dBA (L_{dn}) when compared to existing traffic noise levels on local street segments. Cumulative traffic noise increases along the following 28 street segments would exceed the 3-dBA or 5-dBA noise increase significance standards for traffic noise (see Approach to Analysis, Methodology for Analysis of Operational Impacts above for more discussion of these standards):

- Illinois Street (7 segments from north of 20th Street to Cesar Chavez)
- Third Street (3 segments from 16th to 23rd streets)
- Indiana Street (2 segments from 23rd to south of 25th streets)
- 16th Street (2 segments from west of Third Street to Illinois Street)
- 20th Street (2 segments from east of Third Street to east of Illinois Street)
- 22nd Street (3 segments from west of Third Street to east of Illinois Street)
- Humboldt Street (1 segment east of Illinois Street)
- 23rd Street (3 segments from Indiana Street to east of Illinois Street)
- 24th Street (2 segments from Third Street to east of Illinois Street)
- 25th Street (1 segment from Third Street to Illinois Street)
- Cesar Chavez (2 segments from Third Street to Illinois Street and west of Pennsylvania Street)

These street segments are adjacent to or within six blocks of the project site and several provide direct access to the site. As noted in Table 4.F-15, there are existing residential uses adjacent to at least seven of these street segments, while there are commercial or industrial uses adjacent to the remaining 19 street segments. Given that traffic noise levels along these street segments would exceed an increase of 5 dBA, or 3 dBA where the resulting noise levels are Conditionally Acceptable, Conditionally Unacceptable, or Unacceptable, these cumulative traffic noise increases on the above-listed 26 street segments would be a significant impact.

Of the 28 street segments where significant cumulative traffic noise increases would occur, the project would contribute more than 10 percent of the significant cumulative traffic noise increase to 23 of the above 28 street segments (see Table D-2 in Appendix D for more details); and, therefore, the project's contribution to cumulative traffic noise increases would be cumulatively considerable, a significant impact.

Incorporation of noise attenuation measures specified in **Mitigation Measure M-NO-8, Design of Future Noise-Sensitive Uses**, would achieve acceptable interior noise levels at future onsite noise-sensitive receptors based on future (existing plus project and cumulative) traffic noise levels, reducing this cumulative impact to *less than significant with mitigation***.** In addition, implementation of additional transportation demand management measures required in **Mitigation Measure M-TR-5, Implement Measures to Reduce Transit Delay,** could reduce project-related traffic noise levels and the project's contribution to the cumulative traffic noise increases. However, the resulting level of traffic noise reduction cannot be quantified at this time, and it is likely that cumulative noise increases at existing and planned offsite receptors would still exceed the significance standards for traffic noise increases on some of the above-listed street segments. Since the effectiveness of this mitigation measure to substantially reduce project-related traffic noise increases is unknown, this EIR assumes that the proposed project would result in a considerable contribution to this significant cumulative impact. Therefore, this impact is ***significant and unavoidable with mitigation***.

TABLE 4.F-15
SUMMARY OF CUMULATIVE TRAFFIC NOISE LEVELS

		Ldn/CNEL Noise Level (dBA) at 50 Feet from Roadway Centerline		
Street	**Segment or Cross-Street**	**Existing**	**Cumulative (2040)[a]**	**Cumulative Change**
Illinois Street	North of 20th	59.3	66.5	**7.1**
	20th to 22nd	59.2	67.5	**8.4**
	22nd to Humboldt	59.2	**67.0**	**7.8**
	Humboldt to 23rd	59.2	**67.1**	**7.9**
	23rd to 24th	59.0	65.7	**6.8**
	24th to 25th	58.8	65.8	**7.0**
	25th to Cesar Chavez	58.6	64.9	**6.3**
	South of Cesar Chavez	59.3	60.9	1.5
Third Street	North of 16th	67.0	69.7	2.7
	16th to 20th	66.5	70.1	**3.6**
	20th to 22nd	65.9	69.6	**3.7**
	22nd to 23rd	66.0	70.6	**4.6**
	23rd to 25th	66.1	70.5	4.4[b]
	25th to Cesar Chavez	66.2	70.2	4.0[b]
	South of Cesar Chavez	66.2	68.3	2.1
Indiana Street	North of 23rd	56.9	57.5	0.6
	23rd to 25th	57.3	61.3	**4.0**
	South of 25th	57.4	61.0	**3.6**
Pennsylvania Avenue	North of 23rd	60.6	63.4	2.8
	23rd to 25th	62.6	65.9	3.3[b]
	25th to Cesar Chavez	64.3	67.4	3.0
	South of Cesar Chavez	62.9	66.0	3.1
16th Street	East of Third	59.3	65.3	**6.0**
	West of Third	64.9	69.0	**4.1**
20th Street	East of Illinois	49.5	65.3	**15.8**
	Illinois to Third	56.3	64.3	**8.0**
	West of Third	58.1	58.3	0.2
22nd Street	East of Illinois	51.2	**65.8**	**14.6**
	Illinois to Third	55.9	**65.4**	**9.5**
	West of Third	57.5	**60.6**	**3.1**
Humboldt Street	East of Illinois	41.5	**59.8[b]**	**18.3**
23rd Street	East of Illinois	53.9	**64.3**	**10.4**
	Illinois to Third	55.0	65.1	**10.1**
	Third to Indiana	57.2	62.6	**5.4**
	Indiana to Pennsylvania	57.6	62.5	5.0[b]
	West of Pennsylvania	47.1	50.7	3.6[b]
24th Street	East of Illinois	46.1	54.8	**8.7**
	West of Illinois	47.6	53.3	**5.7**

TABLE 4.F-15 (CONTINUED)
SUMMARY OF CUMULATIVE TRAFFIC NOISE LEVELS

Street	Segment or Cross-Street	Ldn/CNEL Noise Level (dBA) at 50 Feet from Roadway Centerline		
		Existing	Cumulative (2040)[a]	Cumulative Change
25th Street	East of Illinois	49.7	54.8	5.0[b]
	Illinois to Third	54.6	61.4	**6.8**
	Third to Indiana	60.3	64.7	4.4[b]
	Indiana to Pennsylvania	60.1	63.8	3.7[b]
	West of Pennsylvania	58.8	60.3	1.5
Cesar Chavez Boulevard	East of Illinois	56.7	57.4	0.7
	Illinois to Third	61.4	66.6	**5.3**
	Third to Pennsylvania	66.6	70.4	3.8[b]
	West of Pennsylvania	66.2	69.3	**3.1**

NOTES:

Noise levels may vary by up to one-tenth of a decibel due to rounding. Noise levels in bold exceed either of the following threshold increases when compared to baseline noise levels: (1) an increase of more than 5 dBA, or (2) an increase of more than 3 dBA in areas where the existing or resulting noise increase exceeds acceptable (or satisfactory) levels for the affected use (see Figure 4.F-4, above).

Noise levels in **bold** indicate a significant noise increase and also indicate a significant impact on future onsite residential, childcare, and hotel uses.

Traffic noise modeling was completed using the Federal Highway Administration RD-77-108 model. Assumptions include: speed limit on all streets is 25 mph except on 16th, Third, and Cesar Chavez, where the posted speed limit is 30 mph; vehicle mix is 98% Autos/1.5% Medium Trucks/0.5% Heavy Trucks; day-night split: 76% day (7 a.m. to 7 p.m.), 12% evening (7 p.m. to 10 p.m.), and 12% night (10 p.m. to 7 a.m.). Background noise levels due to traffic on other roadways (such as cross-streets or nearby freeways) and non-traffic-related activities are not reflected in these noise levels. Noise levels in this table are intended to indicate incremental noise changes due to project implementation and future growth. Since they do not include background noise levels, they may not necessarily reflect actual noise levels along these roadway segments if there are other nearby sources of noise. Changes between scenarios analyzed may not show change due to rounding in the noise modeling results.

The project would include a shuttle service program as part of its proposed TDM program to provide access to the BART 16th Street station and Caltrain 22nd Street station. The future shuttle bus schedule is not known at this time, but it is anticipated that any increase in noise levels due to shuttle trips would be relatively minor and these trips have been adequately accounted for in the modeled traffic noise analysis above.

[a] Cumulative traffic noise levels are based on existing traffic in addition to traffic generated by the proposed project, Pier 70 project and all other foreseeable projects identified in Section 4.A.6, Approach to Cumulative Impact Analysis.

[b] Although this noise increase exceeds 3 dBA, it is not determined to be significant because existing or future noise levels are Acceptable to existing adjacent industrial/commercial uses.

SOURCE: Orion Environmental Associates, 2018

Mitigation Measure M-NO-8: Design of Future Noise-Sensitive Uses (see Impact NO-8, above)

Mitigation Measure M-TR-5: Implement Measures to Reduce Transit Delay (see Chapter 4, Section 4.E, Transportation and Circulation, Impact TR-5)

Significance after Mitigation: Significant and Unavoidable. Significant cumulative noise increases on 23 street segments would likely continue to be significant even with additional transportation demand management measures required in Mitigation Measure M-TR-5. There are no other feasible measures that could further reduce project-related vehicle trips. However, incorporation of noise attenuation measures specified in Mitigation Measure M-NO-8 would achieve acceptable interior noise levels at future onsite noise-sensitive receptors, reducing this cumulative impact to *less than significant with mitigation***.**

4.G Air Quality

4.G.1 Introduction

This section discusses the existing air quality conditions in the project area, presents the regulatory framework for air quality management, and analyzes the potential for the proposed project to affect existing air quality conditions, both regionally and locally; including impacts from emissions generated on a temporary basis from construction activities as well as those generated over the long term from operation of the proposed project. The analysis determines whether those emissions are significant under applicable air quality standards and identifies feasible mitigation measures for significant adverse impacts. This section also includes an assessment of potential odor impacts and an analysis of cumulative air quality impacts. Greenhouse gas (GHG) emissions resulting from the proposed project's operations and the consequent impacts on climate change are addressed in Appendix B, the initial study for the proposed project. Supplemental air quality information supporting the analysis in this section is provided in Appendix E, Air Quality Supporting Information.

The analysis in this section is based on a review of existing air quality conditions in the Bay Area region and air quality regulations administered by the U.S. Environmental Protection Agency (U.S. EPA), the California Air Resources Board, and the Bay Area Air Quality Management District. This analysis includes methodologies identified in the current Bay Area Air Quality Management District CEQA Air Quality Guidelines[1] and its companion documentation.

4.G.2 Environmental Setting

Climate and Meteorology

The project site is in the San Francisco Bay Area Air Basin. Air quality in the basin is influenced by such natural factors as topography, meteorology, and climate, in addition to the presence of existing air pollution sources and ambient conditions. The air basin's moderate climate steers storm tracks away from the region for much of the year, although storms often affect the region from November through April. San Francisco's proximity to the onshore breezes stimulated by the Pacific Ocean provides generally very good air quality in the city and at the project site.

Annual temperatures in the project area average in the mid-50s (degrees Fahrenheit), ranging from the low 40s on winter mornings to the mid-70s during summer afternoons. Daily and seasonal oscillations of temperature are small because of the moderating effects of the nearby San Francisco Bay. In contrast to the steady temperature regime, rainfall is highly variable and confined almost exclusively to the "rainy" period from November through April. Precipitation varies widely from year to year as shifts in the annual storm track of a few hundred miles can mean the difference between a very wet year and drought conditions.

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[1] Bay Area Air Quality Management District *CEQA Air Quality Guidelines*, Updated May 2017, *http://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en*, accessed April 23, 2018.

Atmospheric conditions such as wind speed and direction, and variable air temperatures interact with the physical features of the landscape to influence the movement and dispersal of air pollutants, regionally. The project site is 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. The prevailing wind direction on the San Francisco mainland is from the west at an average annual wind speed of 10.3 miles per hour.[2] At higher temperatures ozone formation can increase.

Ambient Air Quality – Criteria Air Pollutants

As required by the 1970 Federal Clean Air Act, the U.S. EPA initially identified six 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" and 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* (NO_2), *sulfur dioxide* (SO_2), and *lead* are the six criteria air pollutants originally identified by the U.S. EPA. Later, subsets of PM were identified and permissible levels were established. These include *PM of 10 microns in diameter or less* (PM_{10}) and *PM of 2.5 microns in diameter or less* ($PM_{2.5}$).

The Bay Area Air Quality Management District has jurisdiction to regulate air quality within the nine-county San Francisco Bay Area Air Basin. Accordingly, 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.G-1**, **Summary of San Francisco Air Quality Monitoring Data (2013-2017)**, presents a five-year summary for 2013 to 2017 of the highest annual criteria air pollutant concentrations, recorded at the air quality monitoring station operated and maintained by the air district at 16th and Arkansas streets, approximately 1 mile northwest of the project site. It also compares these concentrations with the most stringent applicable ambient air quality standards (whether state or federal). As attainment with air quality standards is determined on a basin-wide basis, it is possible for the basin to be in attainment with state or federal standards for a given pollutant notwithstanding an exceedance for a given pollutant standard at a local monitoring station. Concentrations shown in bold indicate only a localized exceedance of that standard.

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* or VOCs by some regulatory agencies) and *oxides of nitrogen* (NOx) in the presence of sunlight.

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[2] Western Regional Climate Center, Website query, Prevailing Wind Direction in California, *https://wrcc.dri.edu/Climate/west_lcd_show.php?iyear=2008&sstate=CA&stag=sanfrancisco&sloc=San+Francisco*, accessed April 23, 2018.

TABLE 4.G-1
SUMMARY OF SAN FRANCISCO AIR QUALITY MONITORING DATA (2013-2017)

Pollutant	Most Stringent Applicable Standard	Number of Days Standards Were Exceeded and Maximum Concentrations Measured[a]				
		2013	2014	2015	2016	2017
Ozone						
Maximum 1-Hour Concentration (ppm)	>0.09[b]	0.069	0.079	0.085	0.070	0.087
Days 1-Hour Standard Exceeded		0	0	0	0	0
Maximum 8-Hour Concentration (ppm)	>0.070[c]	0.059	0.069	0.067	0.057	0.054
Days 8-Hour Standard Exceeded		0	0	0	0	0
Carbon Monoxide (CO)						
Maximum 1-Hour Concentration (ppm)	>20[b]	1.8	1.6	1.8	1.7	2.5
Days 1-Hour Standard Exceeded		0	0	0	0	0
Maximum 8-Hour Concentration (ppm)	>9.0[b]	1.4	1.2	1.3	1.1	1.4
Days 8-Hour Standard Exceeded		0	0	0	0	0
Suspended Particulates (PM_{10})						
Maximum 24-Hour Concentration ($\mu g/m^3$)	>50[b]	44	36	47	29	**77**
Monitoring Days 24-Hour Standard Exceeded[d]		0	0	0	0	2
Suspended Particulates ($PM_{2.5}$)						
Maximum 24-Hour Concentration ($\mu g/m^3$)	>35[c]	**49**	33	35	20	**50**
Days 24-Hour Standard Exceeded		2	0	0	0	7
Annual Average ($\mu g/m^3$)	>12[b,c]	10.1	7.7	7.6	7.5	9.7
Nitrogen Dioxide (NO_2)						
Maximum 1-Hour Concentration (ppm)	>0.100[c]	0.07	0.08	0.07	0.06	0.07
Days 1-Hour Standard Exceeded		0	0	0	0	0

NOTES:

Bold values are in excess of applicable standard.
ppm = parts per million.
$\mu g/m^3$ = micrograms per cubic meter.

[a] Number of days exceeded is for all days in a given year, except for PM_{10}. PM_{10} has been monitored every 12 days effective January 2013.
[b] State standard, not to be exceeded.
[c] Federal standard, not to be exceeded.
[d] Based on a sampling schedule of approximately 30 samples per year for PM10. All other pollutants are monitored continuously, including PM2.5.

SOURCE: Bay Area Air Quality Management District (BAAQMD), Bay Area Air Pollution Summary, 2013 – 2017, *http://www.baaqmd.gov/air-quality/air-quality-summaries*, accessed April 18, 2018.

The main sources of ROG and NOx, often referred to as *ozone precursors*, are combustion processes (including motor vehicle engines) and the evaporation of solvents, paints, and fuels. In the Bay Area, automobiles are the single largest source of ozone precursors. Ozone is referred to as a regional air pollutant because its precursors are transported and diffused by wind concurrently with ozone production through the photochemical reaction process. Ozone causes eye irritation, airway constriction, and shortness of breath and can aggravate existing respiratory diseases, such as asthma, bronchitis, and emphysema.

According to published data, and as shown in Table 4.G-1, above, the most stringent applicable standards for ozone (state one-hour standard of 0.09 parts per million [ppm] and the federal eight-hour standard of 0.075 ppm) were not exceeded in San Francisco between 2013 and 2017. In 2015, the U.S. EPA strengthened the eight-hour ozone standard to 0.070 ppm, and the new standard became effective December 28, 2015.

Carbon Monoxide

CO is an odorless, colorless gas usually formed as the result of the incomplete combustion of fuels. The single largest source of CO is motor vehicles; the highest emissions occur during low travel speeds, stop-and-go driving, cold starts, and hard acceleration. Exposure to high concentrations of CO reduces the oxygen-carrying capacity of the blood and can cause headaches, nausea, dizziness, and fatigue; impair central nervous system function; and induce *angina* (chest pain) in persons with serious heart disease. Very high levels of CO can be fatal. The table also shows that the more stringent state CO standards were not exceeded between 2013 and 2017. Measurements of CO indicate hourly maximums ranging between 8 and 13 percent of the more stringent state standard, and maximum 8-hour CO levels that are approximately 12 to 16 percent of the allowable 8-hour standard.

Particulate Matter

Particulate matter is a class of air pollutants that consists of heterogeneous solid and liquid airborne particles from human-made and natural sources. Particulate matter is measured in two size ranges: PM_{10} and $PM_{2.5}$. In the Bay Area, motor vehicles generate about one-half of the San Francisco Bay Area Air Basin's particulates, through tailpipe emissions as well as brake pad and tire wear. Wood burning in fireplaces and stoves, industrial facilities, and ground-disturbing activities such as construction are other sources of such 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 the California Air Resources Board, 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." Studies of children's health in California have demonstrated that particle pollution "may significantly reduce lung function growth in children."[3] The California Air Resources Board also reports that statewide attainment of PM 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.[4] Among the criteria air pollutants that are regulated, particulates appear to represent a serious ongoing health hazard. As long ago as 1999, the Bay Area Air Quality Management District was reporting 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. $PM_{2.5}$ is of particular concern because epidemiologic studies have demonstrated that people who live near freeways, especially people who live within 500 feet of freeways or high-traffic roadways, have poorer health outcomes,

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[3] California Air Resources Board, *Recent Research Findings: Health Effects of Particulate Matter and Ozone Air Pollution*, November 2007, p.1.

[4] Ibid.

including increased asthma symptoms and respiratory infections and decreased pulmonary function and lung development in children.[5]

As presented above in Table 4.G-1, the state 24-hour PM_{10} standard was exceeded on two monitored occasions between 2013 and 2017 in San Francisco. It may conservatively be estimated that the state 24-hour PM_{10} standard of 50 micrograms per cubic meter ($\mu g/m^3$) was exceeded on up to 24 days per year between 2013 and 2017, and the state 24-hour $PM_{2.5}$ standard was exceeded on nine monitored occasions between 2013 and 2017.[6] The federal and state annual average standards were not exceeded between 2013 and 2017.

Nitrogen Dioxide

NO_2 is a reddish brown gas that is a byproduct of combustion processes. Automobiles and industrial operations are its main sources. Aside from its contribution to ozone formation, NO_2 can increase the risk of acute and chronic respiratory disease and reduce visibility. NO_2 may be visible as a coloring component of the air on high pollution days, especially in conjunction with high ozone levels. The current state one-hour standard for NO_2 (0.18 ppm) is being met in San Francisco. In 2010, the U.S. EPA implemented the current one-hour NO_2 standard (0.10 ppm), which is presented in **Table 4.G-2, State and Federal Ambient Air Quality Standards and Attainment Status for the San Francisco Bay Area Air Basin**, below. Currently, the San Francisco Bay Area Air Basin is designated as an attainment area for the NO_2 standard.[7] As shown in Table 4.G-1, this new federal standard was not exceeded at the San Francisco station between 2013 and 2017.

The U.S. EPA has also established requirements for a new monitoring network to measure NO_2 concentrations near major roadways in urban areas with a population of 500,000 or more. Sixteen new near-roadway monitoring sites are required in California, three of which 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 may result in a need to change area designations in the future. The California Air Resources Board will revise the area designation recommendations, as appropriate, once sufficient monitoring data become available.

Sulfur Dioxide

SO_2 is a colorless, acidic gas with a strong odor. It is produced by the combustion of sulfur-containing fuels such as oil, coal, and diesel. SO_2 has the potential to damage materials and can cause health effects at high concentrations. It can irritate lung tissue and increase the risk of acute and chronic respiratory disease.[8] Pollutant trends suggest that the San Francisco Bay Area Air Basin currently meets and will continue to meet the state standard for SO_2 for the foreseeable future.

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[5] 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.

[6] PM_{10} is sampled every 12th day; therefore, actual days over the standard may have been up to 12 times the numbers listed in the table. $PM_{2.5}$ is continuously monitored.

[7] U.S. EPA, Nitrogen Dioxide Designations June 2017, *https://www.epa.gov/nitrogen-dioxide-designations/2010-nitrogen-dioxide-standards-state-recommendations-and-epa*, accessed March 15, 2018.

[8] Bay Area Air Quality Management District, *CEQA Air Quality Guidelines*, May 2017, *http://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en*, accessed April 23, 2018.

TABLE 4.G-2
STATE AND FEDERAL AMBIENT AIR QUALITY STANDARDS AND ATTAINMENT STATUS FOR THE SAN FRANCISCO BAY AREA AIR BASIN

		State (SAAQS[a])		Federal (NAAQS[b])	
Pollutant	**Averaging Time**	**Standard**	**Attainment Status**	**Standard**	**Attainment Status**
Ozone	1-hour	0.09 ppm	**N**	NA	See Note c
	8-hour	0.070 ppm	**N**	0.070 ppm[d]	**N**/Marginal
Carbon Monoxide (CO)	1-hour	20 ppm	A	35 ppm	A
	8-hour	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 ppm	A
	24-hour	0.04 ppm	A	0.14 ppm	A
	Annual	NA	NA	0.03 ppm	A
Particulate Matter (PM_{10})	24-hour	50 µg/m^3	**N**	150 µg/m^3	U
	Annual[e]	20 µg/m^3 [f]	**N**	NA	NA
Fine Particulate Matter ($PM_{2.5}$)	24-hour	NA	NA	35 µg/m^3	**N**
	Annual	12 µg/m^3	**N**	12 µg/m^3	U/A
Sulfates	24-hour	25 µg/m^3	A	NA	NA
Lead	30-day	1.5 µg/m^3	A	NA	NA
	Cal. Quarter	NA	NA	1.5 µg/m^3	A
	Rolling 3-month average	NA	NA	0.15	U
Hydrogen Sulfide	1-hour	0.03 ppm	U	NA	NA
Visibility-Reducing Particles	8-hour	See Note g	U	NA	NA

NOTES:

A = Attainment; **N** = Non-attainment; U = Unclassified; NA = Not Applicable, no applicable standard; ppm = parts per million; µg/m^3 = micrograms per cubic meter.

[a] SAAQS = state ambient air quality standards (California). SAAQS for ozone, CO (except Lake Tahoe), SO_2 (1-hour and 24-hour), NO_2, PM, and visibility-reducing particles are values that are not to be exceeded. All other state standards shown are values not to be equaled or exceeded.

[b] NAAQS = national ambient air quality standards. NAAQS, other than ozone and particulates, and those based on annual averages or annual arithmetic means, are not to be exceeded more than once a year. The 8-hour ozone standard is attained when the 3-year average of the fourth highest daily concentration is 0.08 ppm or less. The 24-hour PM_{10} standard is attained when the 3-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 3-year average of the 98th percentile is less than the standard.

[c] The U.S. Environmental Protection Agency (EPA) revoked the national 1-hour ozone standard on June 15, 2005.

[d] This Federal 8-hour ozone standard was approved by U.S. EPA in October 2015 and became effective on December 28, 2015.

[e] State standard = annual geometric mean; national standard = annual arithmetic mean.

[f] In June 2002, the California Air Resources Board established new annual standards for $PM_{2.5}$ and PM_{10}.

[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.

SOURCES: Bay Area Air Quality Management District, Standards and Attainment Status, 2017, *http://www.baaqmd.gov/research-and-data/air-quality-standards-and-attainment-status*, accessed April 23, 2018.
U.S. EPA National Ambient Air Quality Standards, 2016. Available online at https://www.epa.gov/criteria-air-pollutants/naaqs-table. Accessed January 19, 2016.

In 2010, the U.S. EPA implemented a new one-hour SO_2 standard, which is presented in Table 4.G-2. The U.S. EPA initially designated the San Francisco Bay Area Air Basin as an attainment area for SO_2. Similar to the new federal standard for NO_2, the U.S. EPA established requirements for a new monitoring network to measure SO_2 concentrations beginning in January 2013.[9] No additional SO_2 monitors are required for the Bay Area because the Bay Area Air Quality Management District jurisdiction has never been designated as non-attainment for SO_2 and no state implementation plans or maintenance plans have been prepared for SO_2.[10]

Lead

Leaded gasoline (phased out in the United States beginning in 1973), paint (on older houses, cars), smelters (metal refineries), and manufacture of lead storage batteries have been the primary sources of lead released into the atmosphere. Lead has a range of adverse neurotoxic health effects, which put children at special risk. Some lead-containing chemicals cause cancer in animals. Lead levels in the air have decreased substantially since leaded gasoline was eliminated.

Ambient lead concentrations are only monitored on an as-warranted, site-specific basis in California. On October 15, 2008, the U.S. EPA strengthened the national ambient air quality standard for lead by lowering it from 1.50 $\mu g/m^3$ to 0.15 $\mu g/m^3$ on a rolling three-month average. The U.S. EPA revised the monitoring requirements for lead in December 2010.[11] These requirements focus on airports and large urban areas resulting in an increase in 76 monitors nationally. Lead monitoring stations in the Bay Area are located at Palo Alto Airport, Reid-Hillview Airport (San Jose), and San Carlos Airport. Non-airport locations for lead monitoring are in Redwood City and San Jose.

Air Quality Index

The U.S. EPA developed the Air Quality Index scale to make the public health impacts of air pollution concentrations easily understandable. The index, 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 through 500 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 limiting 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.

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[9] U.S. EPA, *Fact Sheet: Revisions to the Primary National Ambient Air Quality Standard, Monitoring Network, and Data Reporting Requirements for Sulfur Dioxide*, June 2, 2010.

[10] Bay Area Air Quality Management District, *2013 Air Monitoring Network Plan*, July 2014, p. 27, *http://www.baaqmd.gov/~/media/Files/Technical%2oServices/2013_Network_Plan.ashx?la=en*, accessed January 19, 2016.

[11] U.S. EPA *Fact Sheet Revisions to Lead Ambient Air Quality Monitoring Requirements*, December 14, 2012.

- 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.
- Maroon (301-500) indicates air quality is "hazardous." This would trigger health warnings of emergency conditions, and the entire population is more likely to be affected.

The Air Quality Index numbers refer to specific amounts of pollution in the air. They are based on the federal air quality standards for ozone, CO, NO_2, SO_2, PM_{10}, and $PM_{2.5}$. In most cases, the federal standard for these air pollutants corresponds to the number 100 on the index chart. Thus, if the concentration of any of these pollutants rises above its respective standard, the air quality can be unhealthy for the public. In determining the air quality forecast, local air districts, including the Bay Area Air Quality Management District, use the anticipated concentration measurements for each of the major pollutants, convert them into index numbers, and determine the highest index for each zone in a district.

Readings below 100 on the Air Quality Index scale would not typically affect the health of the general public. Levels above 300 rarely occur in the United States. Index statistics over recent years indicate that air quality in the Bay Area is predominantly in the "Good" or Moderate" categories and is healthy on most days for most people. Historical air district data indicate that the San Francisco Bay Area Air Basin experienced air quality in the red level (unhealthy) on 13 days between the years 2013 and 2017. The October 2017 fires in Northern California resulted in the federal 24-hour $PM_{2.5}$ standard being exceeded on up to seven days just in the first part of the month of October 2017 in certain counties.[12] Even though the air district's data have not been validated yet, these levels of $PM_{2.5}$ in many counties have been the highest levels recorded in recent times. As a result, the index in several neighboring counties reached the "very unhealthy" designation, ranging from values of 201 to 300. During that period, the air district issued "Spare the Air" alerts and recommended that individuals stay inside with windows closed and refrain from significant outdoor activity. However, this was an extraordinary event and is a rare occurrence in the Bay Area.

As shown in **Table 4.G-3, Air Quality Index Statistics for the San Francisco Bay Area Air Basin**, the basin had a total of 15 orange-level (unhealthy for sensitive groups) days in 2013, 11 days in 2014, 19 days in 2015, 13 days in 2016, and nine days in 2017. Between 2013 and 2017, the air basin experienced a total of 13 red-level (unhealthy) days and in 2017, three purple-level (very unhealthy) days.

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[12] Bay Area Air Quality Management District, Air Monitoring Data, *http://www.baaqmd.gov/about-air-quality/current-air-quality/air-monitoring-data?DataViewFormat=monthly&DataView=tech&StartDate=10/24/2017&Parameter=316*, accessed October 24, 2017.

TABLE 4.G-3
AIR QUALITY INDEX STATISTICS FOR THE SAN FRANCISCO BAY AREA AIR BASIN

Air Quality Index Statistics for San Francisco Bay Area Air Basin	Number of Days by Year				
	2013	2014	2015	2016	2017
Unhealthy for Sensitive Groups (Orange)	15	11	19	13	9
Unhealthy (Red)	1	1	0	2	9
Very Unhealthy (Purple)	0	0	0	0	3

SOURCE: Bay Area Air Quality Management District, 2018

Toxic Air Contaminants and Local Health Risks and Hazards

In addition to criteria air pollutants, individual projects may emit *toxic air contaminants* (TACs). TACs collectively refer to a diverse group of air pollutants that may cause chronic (i.e., of long duration) and acute (i.e., severe but short-term) adverse effects on 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. Thus, 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 are not subject to ambient air quality standards but are regulated by the Bay Area Air Quality Management District using a risk-based approach to determine which sources and which pollutants to control as well as the degree of control. A *health risk assessment* is an analysis that estimates human health exposure to toxic substances, and when considered together with information regarding the toxic potency of the substances, a health risk assessment provides quantitative estimates of health risks.[13]

Exposures to fine PM ($PM_{2.5}$) are strongly associated with mortality, respiratory diseases, and poor lung development in children, and other health effects, such as hospitalization for cardiopulmonary disease.[14] *Diesel particulate matter* (DPM), a byproduct of diesel fuel combustion, is also of concern. The California Air Resources Board identified DPM as a TAC in 1998, primarily based on evidence demonstrating cancer effects in humans.[15] 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.

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[13] In general, a health risk assessment is required if the Bay Area Air Quality Management 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 is then subject to 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.

[14] San Francisco Department of Public Health, *Assessment and Mitigation of Air Pollutant Health Effects from Intra-Urban Roadways: Guidance for Land Use Planning and Environmental Review*, May 2008.

[15] California Air Resources Board, Fact Sheet, "The Toxic Air Contaminant Identification Process: Toxic Air Contaminant Emissions from Diesel-fueled Engines," October 1998.

San Francisco Modeling of Air Pollution Exposure Zones

In an effort to identify areas of San Francisco most adversely affected by sources of TACs and elevated concentrations of particulate matter, the City of San Francisco partnered with the Bay Area Air Quality Management District to inventory and assess air pollution exposure from vehicles, stationary sources, and area sources within San Francisco. Citywide dispersion modeling was conducted using *AERMOD*[16] to assess the emissions from the following primary sources: vehicles on local roadways, permitted stationary sources, port and maritime sources, and diesel emissions from Caltrain. Emissions of PM_{10} (DPM is assumed equivalent to PM_{10}), $PM_{2.5}$, and total organic gases (TOG) were modeled on a 20 by 20–meter receptor grid covering the entire city. The citywide modeling results represent a comprehensive assessment of existing cumulative exposures to air pollution throughout the city. The methodology and technical documentation for modeling citywide air pollution are available in the document entitled, *The San Francisco Community Risk Reduction Plan: Technical Support Documentation*.[17]

Model results were used to identify areas in the city with poor air quality, which were designated as *Air Pollutant Exposure Zones* (APEZ), based on the following health-protective criteria: (1) cumulative $PM_{2.5}$ concentrations greater than 10 $\mu g/m^3$ and/or (2) excess cancer risk from the contribution of emissions from all modeled sources greater than 100 per one million persons exposed. See below for evidence supporting these standards.

An additional health vulnerability layer was incorporated in the APEZ for those San Francisco ZIP codes in the worst quintile of Bay Area Health Vulnerability scores (ZIP Codes 94102, 94103, 94105, 94124, and 94130). In these areas, the standard for identifying areas as being within the zone were lowered to: (1) excess cancer risk from the contribution of emissions from all modeled sources greater than 90 per one million persons exposed and/or (2) cumulative $PM_{2.5}$ concentrations greater than 9 $\mu g/m^3$.

Lastly, all parcels within 500 feet of a major freeway were also included in the APEZ, consistent with findings in California Air Resources Board's Air Quality and Land Use Handbook: A Community Health Perspective, which suggests air pollutant levels decrease substantially at approximately 500 feet from a freeway.[18]

Citywide modeling results identified that the project site is currently not located in an area that meets the APEZ criteria.

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 (Particulate Matter Policy Assessment). In this document,

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[16] AERMOD is the U.S. EPA's preferred or recommended steady state air dispersion plume model. For more information on AERMOD and to download the AERMOD Implementation Guide, *www.epa.gov/ttn/scram/dispersion_prefrec.htm#aermod*, accessed September 17, 2018.

[17] Bay Area Air Quality Management District, San Francisco Department of Public Health, and San Francisco Planning Department, *The San Francisco Community Risk Reduction Plan: Technical Support Documentation*, December 2012.

[18] 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 April 23, 2018.

U.S. EPA staff concluded that the then-current federal annual $PM_{2.5}$ standard of 15 μg/m^3 should be revised to a level within the range of 13 to 11 μg/m^3, with evidence strongly supporting a standard within the range of 12 to 11 μg/m^3. The APEZs for San Francisco are based on the health protective $PM_{2.5}$ standard of 11 μg/m^3, as supported by the U.S. EPA's Particulate Matter Policy Assessment, although lowered to 10 μg/m^3 to account for uncertainty in accurately predicting air pollutant concentrations using emissions modeling programs.

Excess Cancer Risk

The 100 per one million persons exposed (100 excess cancer risk) criterion discussed above in the "San Francisco Modeling of Air Pollution Exposure Zones" section is based on U.S. EPA guidance for conducting air toxic analyses and making risk management decisions at the facility and community-scale level.[19] As described by the Bay Area Air Quality Management District, the U.S. EPA considers a cancer risk of 100 per one million or less to be within the "acceptable" range of cancer risk. Furthermore, in the 1989 preamble to the benzene National Emissions Standards for Hazardous Air Pollutants (NESHAP) rulemaking,[20] 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 cases is also consistent with the ambient cancer risk in the most pristine portions of the Bay Area based on air district regional modeling.[21]

In addition to monitoring criteria pollutants, both the Bay Area Air Quality Management District and California Air Resources Board operate TAC monitoring networks in the San Francisco Bay Area Air Basin. These stations measure 10 to 15 TACs, depending on the specific station. The TACs selected for monitoring are those that traditionally have been found in the highest concentrations in ambient air and therefore tend to produce the most significant risk. The nearest air district ambient TAC monitoring station to the project area is the station at 10 Arkansas Street in San Francisco. The ambient concentrations of carcinogenic TACs measured at the Arkansas Street station, approximately 0.5 mile west of the project site, are presented in **Table 4.G-4, 2017 Annual Average Ambient Concentrations of Carcinogenic Toxic Air Contaminants Measured at Bay Area Air Quality Management District Monitoring Station, 10 Arkansas Street, San Francisco**. The estimated cancer risk from a lifetime exposure (70 years) to these substances is also reported in the table. 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 Bay Area as a whole. Therefore, the estimated average lifetime cancer risk resulting from exposure to TAC concentrations monitored at the San Francisco station do not appear to be any greater than for the Bay Area as a region.

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[19] Bay Area Air Quality Management District, *Revised Draft Options and Justification Report, California Environmental Quality Act Thresholds of Significance,* October 2009, p. 67, *http://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/revised-draft-ceqa-thresholds-justification-report-oct-2009.pdf?la=en*, accessed April 23, 2018.

[20] 54 *Federal Register* 38044, September 14, 1989.

[21] Bay Area Air Quality Management District, *Revised Draft Options and Justification Report, California Environmental Quality Act Thresholds of Significance*, October 2009, p. 67.

TABLE 4.G-4
2017 ANNUAL AVERAGE AMBIENT CONCENTRATIONS OF CARCINOGENIC TOXIC AIR CONTAMINANTS MEASURED AT BAY AREA AIR QUALITY MANAGEMENT DISTRICT MONITORING STATION, 10 ARKANSAS STREET, SAN FRANCISCO

Substance	Concentration	Cancer Risk per Million[a]
Gaseous TACs (ppb)		
Acetaldehyde	0.69	10
Benzene	0.216	56
1,3-Butadiene	0.036	39
Carbon Tetrachloride*	0.093	71
Formaldehyde	1.64	35
Perchloroethylene	0.009	1
Methylene Chloride	0.114	1
Chloroform	0.028	2
Trichloroethylene	0.010	0.3
Particulate TACs (ng/m^3)		
Chromium (Hexavalent)*	0.078	32
Total Risk for All TACs		**248.3**

NOTES:

TACs = toxic air contaminants; ppb = part per billion; ng/m^3 = nanograms per cubic meter; *= 2016 data provided for this substance as 2017 data was insufficient per the California Air Resources Board.

[a] Cancer risks were estimated by applying published unit risk values to the measured concentrations.

SOURCE: CARB, Ambient Air Toxics Summary-2016, *http://www.arb.ca.gov/adam/toxics/sitesubstance.html*, accessed April 19, 2018.

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 vehicles also contribute to particulates by generating road dust and tire wear. Epidemiologic studies have demonstrated that people living close to freeways or busy roadways have poorer health outcomes, including increased asthma symptoms and respiratory infections, and decreased pulmonary function and poor lung development in children. Air pollution monitoring conducted in conjunction with epidemiologic studies has confirmed that roadway-related health effects vary with modeled exposure to PM and NO_2. In traffic-related studies, the additional non-cancer health risk attributable to roadway proximity was seen within 1,000 feet of the roadway and was strongest within 300 feet.[22] As a result, the California Air Resources Board recommends that new sensitive land uses not be located within 500 feet of a freeway or urban roads carrying 100,000 vehicles per day. The project site is not located within 500 feet of such a freeway or roadway.

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[22] 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 April 23, 2018.

Diesel Particulate Matter

The California Air Resources Board identified DPM as a TAC in 1998, primarily based on evidence demonstrating cancer effects in humans. 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. The board estimated that as of 2000, the average Bay Area cancer risk from exposure to DPM, based on a population-weighted average ambient DPM concentration, is approximately 480 in one million, which is much higher than the risk associated with any other toxic air pollutant routinely measured in the region. The statewide risk from DPM as determined by the board declined from 750 in one million in 1990 to 570 in one million in 1995; by 2000, the board estimated the average statewide cancer risk from DPM at 540 in one million.[23,24]

In 2000, the California Air Resources Board approved a comprehensive Diesel Risk Reduction Plan to reduce diesel emissions from both new and existing diesel-fueled vehicles and engines. Subsequent board regulations apply to new trucks and diesel fuel. With new controls and fuel requirements, 60 trucks built in 2007 would have the same particulate exhaust emissions as one truck built in 1988.[25] The regulation is anticipated to result in an 80 percent decrease in statewide diesel health risk in 2020 as compared with the diesel risk in 2000. Despite notable emission reductions, the board recommends that proximity to sources of DPM emissions be considered in the siting of new sensitive land uses. The board 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, the California Air Resources Board'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.[26]

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. More sensitive population groups include: the elderly and the young; those with higher rates of respiratory disease, such as asthma and chronic obstructive pulmonary disease; and those with other environmental or occupational health exposures (e.g., indoor air quality) that affect cardiovascular or respiratory diseases. The air district defines sensitive receptors as children, adults, and seniors occupying or residing in residential

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[23] California Air Resources Board, *California Almanac of Emissions and Air Quality - 2009 Edition*, Table 5-44 and Figure 5-12, *http://www.arb.ca.gov/aqd/almanac/almanac09/chap509.htm*, accessed April 23, 2018.

[24] This calculated cancer risk value from ambient air exposure in the Bay Area can be compared against the lifetime probability of being diagnosed with cancer in the United States, from all causes, which for men is more than 40 percent (based on a sampling of 17 regions nationwide), or greater than 400,000 in one million, according to the American Cancer Society. (American Cancer Society, last revised October. 1, 2014, *http://www.cancer.org/cancer//lifetime-probability-of-developing-or-dying-from-cancer*.)

[25] Pollution Engineering, *New Clean Diesel Fuel Rules Start*. July, 2006.

[26] California Air Resources Board, *Air Quality and Land Use Handbook: A Community Health Perspective,* April 2005, *http://www.arb.ca.gov/ch/.pdf*, accessed April 23, 2018.

dwellings, schools, day care centers, hospitals, and senior-care facilities. Workers are not considered sensitive receptors because all employers must follow regulations set forth by the Occupation Safety and Health Administration to ensure the health and well-being of their employees.[27]

The proximity of sensitive receptors to motor vehicles is an air pollution concern, especially in San Francisco where building setbacks are limited and roadway volumes are higher than most other parts of the Bay Area. Vehicles also contribute to particulates by generating road dust and through tire wear.

Existing sensitive receptors evaluated in this EIR include a representative sample of known residents (child and adult) in the surrounding neighborhood, and other sensitive receptors (school children, hospital/nursing home patients, etc.) located in the surrounding community and along the expected travel routes of the on-road delivery and haul trucks. The health risk impact analysis in this document also includes receptor locations out to a distance of 3,280 feet (1,000 meters) from the project site, consistent with citywide health risk modeling discussed above. In addition to the residential receptors, four schools and a daycare within 1,200 feet of the project site were identified: Dogpatch Alternative School (site 2), Potrero Kids Daycare, La Picola Scuola Italiana, and Friends of Potrero Hill Nursery School.

The project site is not located within an area with risk factors that meet the APEZ criteria. Background cancer risk values on the project site range from 27 to 99 in one million, with background values ranging from seven to 695 in one million within 3,280 feet (1,000 meters) of the site. Background $PM_{2.5}$ concentrations range from 8.4 to 8.6 μg/m^3 on the project site, with background values varying between 8.1 and 58 μg/m^3 within 3,280 feet (1,000 meters) of the site. The nearest offsite receptors within an APEZ are located approximately 900 feet to the west and are so designated due to the proximity of Interstate 280. Receptors within 3,280 feet (1,000 meters) of the project boundary are located both within and outside of the APEZ and impacts are assessed accordingly as discussed below in the "Approach to Analysis" section.

Existing Stationary Sources of Air Pollution

The Bay Area Air Quality Management District's inventory of permitted stationary sources of emissions shows eight permitted stationary emission facilities present within or near the 1,000-foot zone of influence[28] of the project site. The sources at these permitted facilities include printers, stationary diesel engines for power generators, a gas station, and the now decommissioned Potrero Power Plant (which was removed from the City's baseline model as part of this analysis). The BAE Systems ship repair facility north of the project site, which once operated diesel-fired electric generators to maintain power for ships while at dry dock and also conducted sandblasting activities, has not been an active facility for over one year.

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[27] Bay Area Air Quality Management District, *Recommended Methods for Screening and Modeling Local Risks and Hazards*, May 2011, p. 12.

[28] For assessing community risks and hazards, a 1,000-foot radius is recommended around the project property boundary. The Bay Area Air Quality Management District recommends that any proposed project that includes the siting of a new source or receptor assess associated impacts within 1,000 feet, taking into account both individual and nearby cumulative sources. As explained above, the health risk assessment evaluated sources within a larger area of 3,280 feet (1,000 meters).

Major Roadways Contributing to Air Pollution

Third Street, Mariposa Street, 25th Street, and Cesar Chavez Street are arterial roadways within 3,280 feet (1,000 meters) of the project site that carry at least 10,000 vehicles in annual average daily traffic based on the City's *SF CHAMP* roadway model.[29] This traffic contributes to concentrations of $PM_{2.5}$, DPM, and other air contaminants emitted from motor vehicles near the street level. Both Interstate 280 and the Caltrain rail line are also located within 3,280 feet (1,000 meters) from the project site. Aside from the surrounding major roadways, the only other areas of mobile-source activity or otherwise "non-permitted" sources (e.g., railyards, trucking distribution facilities, and high-volume fueling stations) located within 3,280 feet (1,000 meters) of the project site are the SF MUNI Woods Division storage and maintenance yards located at 22nd and Indiana streets and the Islais Creek Motor Coach Maintenance and Operations Facility at Cesar Chavez and Illinois streets.

4.G.3 Regulatory Framework

Federal Regulations

The 1970 Clean Air Act (last amended in 1990) requires that regional planning and air pollution control agencies prepare a regional air quality plan to outline the measures by which both stationary and mobile sources of pollutants are planned to 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 ample margin of safety) to which the public can be exposed without adverse health effects. They are designed in consideration of those segments of the public most susceptible to respiratory distress, including asthmatics, the very young, the elderly, people weak from other illness or disease, or persons engaged in strenuous work or exercise. Healthy adults can tolerate occasional exposure to air pollution levels that are somewhat above ambient air quality standards without the risk of adverse health effects.

The current attainment status for the San Francisco Bay Area Air Basin, with respect to federal standards, is summarized above in Table 4.G-2. In general, the basin experiences low concentrations of most pollutants when compared to federal standards, except for ozone and PM (PM_{10} and $PM_{2.5}$), for which standards are exceeded periodically (see Table 4.G-1).

State Regulations

California Clean Air Act

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 already established its own air quality standards when federal standards were established, and because of the unique meteorological conditions in California, there is considerable diversity between the state and national ambient air quality standards, as shown in

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[29] San Francisco County Transportation Authority, Chained Activity Modeling Process version 4.3.0, Average Daily Traffic Volumes, provided to ESA, August 2, 2012.

Table 4.G-2. California ambient standards are 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 sections 39600 et seq.), which, like its federal counterpart, required the designation of areas as in attainment or in non-attainment, but based these designations on state ambient air quality standards rather than the federal standards. As indicated in Table 4.G-2, the San Francisco Bay Area Air Basin is designated as "non-attainment" for state ozone, PM_{10}, and $PM_{2.5}$ standards, and is designated as "attainment" for the other pollutants.

Toxic Air Contaminants

In 2005, the California Air Resources Board approved a regulatory measure to reduce emissions of toxic and criteria 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 five consecutive minutes or periods aggregating more than five minutes in any one hour. Buses or vehicles also must turn off their engines upon stopping at a school and must not turn their engines on more than 30 seconds before beginning to depart from a school. Also, state law Senate Bill 352 was adopted in 2003 and limits locating public schools within 500 feet of a freeway or busy traffic corridor (section 17213 of the Education Code; section 21151.8 of the Public Resources Code).

Title 24 (Building Energy Efficiency Standards)

Title 24 of the California Code of Regulations is the means by which California regulates energy consumption. The Title 24 Building Energy Efficiency Standards apply to energy consumed for heating, cooling, ventilation, water heating, and lighting in new residential and nonresidential buildings. The Title 24 standards, first adopted by the California Energy Commission in 1978, are updated periodically to incorporate new energy efficiency technologies and methods.

The California Green Building Standards Code was adopted as part of Title 24 in 2008 and was last updated in 2016. The code establishes voluntary standards for planning and design for energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, sustainable site development, and internal air contaminants.

The project sponsor is including sustainability elements within both the proposed Design for Development and Infrastructure Plan documents addressing renewable energy considerations. So the project would, at minimum, comply with the state's Title 24 energy efficiency requirements and the state Green Building Requirements (discussed below).

In May of 2018, the California Energy Commission adopted its triennial (2019) update to the California Energy Code (Title 24, part 6; Building Energy Efficiency Standards). The updated standards are anticipated for publication on January 1, 2019 and will be effective January 1, 2020. The 2019 Energy Standards focus on three key areas: residential photovoltaic systems, residential and nonresidential ventilation requirements, and nonresidential lighting requirements. For ventilation, the updates will increase air filtration requirements to a *Minimum Efficiency Reporting*

Value (MERV) of 13, necessary for filtering out the smallest category of potentially harmful particulates. This filtration requirement applies to all habitable spaces in high-rise residential buildings[30], hotel/motel buildings, and nonresidential buildings other than healthcare facilities that are mechanically heated or mechanically cooled.

The filtration requirement reduces indoor exposure to particulate matter including DPM and thus will reduce cancer risk to occupants of applicable buildings for which an application for a building permit or renewal of an existing permit is filed after January 1, 2020.

California Green Buildings Standards Code (CALGreen)

On July 17, 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (Part 11, Title 24) was adopted as part of the California Building Standards Code (Title 24 California Code of Regulations). The 2013 California Green Building Standards Code (24 California Code of Regulations, Part 11), also known as the CALGreen Code, contains mandatory requirements for new residential and nonresidential buildings (including buildings for retail, office, public schools and hospitals) throughout California. The development of the CALGreen Code is intended to reduce energy and water consumption, reduce construction waste; make buildings more efficient in the use of materials and energy; and reduce environmental impacts during and after construction.

The CALGreen Code provides standards for bicycle parking, carpool/vanpool/electric vehicle spaces, light and glare reduction, grading and paving, energy efficient appliances, renewable energy, graywater systems, water efficient plumbing fixtures, recycling and recycled materials, pollutant controls (including moisture control and indoor air quality), acoustical controls, storm water management, building design, insulation, flooring, and framing, among others.

Regional Regulations

Bay Area Air Quality Management District

The Bay Area Air Quality Management District is the regional agency with jurisdiction over the nine-county San Francisco Bay Area Air Basin, which includes San Francisco, Alameda, Contra Costa, Marin, San Mateo, Santa Clara, and Napa counties and portions of Sonoma and Solano counties. It is responsible for attaining and maintaining federal and state air quality standards in the basin. Specifically, it monitors ambient air pollutant levels throughout the basin and develops and implements strategies to attain these standards. It also establishes and enforces local air quality rules and regulations for these purposes. A list of some of the applicable air district rules is provided below.

- **Regulation 2, Rule 2 (New Source Review):** This regulation contains requirements for best available control technology and emissions offsets.

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[30] A high-rise residential building is defined as a building, other than a hotel/motel, of Occupancy Group R-2 or R-4 with four or more habitable stories.

- **Regulation 2, Rule 5 (New Source Review of TACs):** This regulation outlines guidance for evaluating TAC emissions and their potential health risks.
- **Regulation 6, Rule 1 (Particulate Matter):** This regulation restricts emissions of particulate matter darker than No. 1 on the Ringlemann Chart to less than three minutes in any one hour.
- **Regulation 7 (Odorous Substances):** This regulation establishes general odor limitations on odorous substances and specific emissions limitations on certain odorous compounds.
- **Regulation 8, Rule 3 (Architectural Coatings):** This regulation limits the quantity of volatile organic compounds (VOCs) in architectural coatings.
- **Regulation 9, Rule 6 (NO_X emissions from natural gas–fired boilers and water heaters):** This regulation limits emissions of NO_X generated by natural gas–fired boilers.
- **Regulation 9, Rule 8 (Stationary Internal--Combustion Engines):** This regulation limits emissions of NO_X and CO from stationary internal--combustion engines of more than 50 horsepower.
- **Regulation 11, Rule 2 (Hazardous Pollutants):** This regulation limits emissions of asbestos during demolition, renovation, milling, and manufacturing and establishes appropriate waste disposal procedures.

Per its *Engineering Policy and Procedure Manual*,[31] the air district requires implementation of best available control technology for toxics and would deny an authority to construct or a permit to operate for any new or modified source of TACs that exceeds a cancer risk of 10 in one million or a chronic or acute hazard index of 1.0. The permitting process under the air district Regulation 2, Rule 5 requires a Health Risk Screening Analysis, the results of which are posted on the air district's website.

Bay Area Air Quality Planning Relative to State and Federal Standards

Federal Air Quality Plan

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 non-attainment (with the exception of areas designated as non-attainment for the state PM_{10} standard). The most recent Bay Area ozone plan prepared in response to federal air quality planning requirements is the 2001 Ozone Attainment Plan.

California Air Quality Plan

Bay Area plans addressing state standards are prepared with the cooperation of the Bay Area Air Quality Management District, the Metropolitan Transportation Commission (MTC), and the Association of Bay Area Governments (ABAG). In April 2017, the air district adopted the *2017 Clean*

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[31] Bay Area Air Quality Management District, Engineering Policy and Procedure Manual, 2013, *http://www.baaqmd.gov/~//files/engineering/policy_and_procedures/engineering-policy-and-procedure-manual.pdf?la=en*, accessed April 23, 2018.

Air Plan[32] whose primary goals are to protect public health and to protect the climate. The plan includes a wide range of proposed control measures to reduce combustion-related activities, decrease fossil fuel combustion, improve energy efficiency, and decrease emissions of potent GHGs. The *2017 Clean Air Plan* updates the *Bay Area 2010 Clean Air Plan* and complies with state air quality planning requirements as codified in the California Health and Safety Code. The San Francisco Bay Area Air Basin is designated non-attainment for both the one- and eight-hour state ozone standards. In addition, emissions of ozone precursors in the basin contribute to air quality problems in neighboring air basins. Under these circumstances, state law requires the Clean Air Plan to include all feasible measures to reduce emissions of ozone precursors and to reduce the transport of ozone precursors to neighboring air basins.

The 2017 Clean Air Plan contains 85 measures to address reduction of several pollutants: ozone precursors, particulate matter, air toxics, and/or GHGs. Other measures focus on a single type of pollutant, potent GHGs such as methane and black carbon, or harmful fine particles that affect public health. These control strategies are grouped into the following categories:

- Stationary Source Measures;
- Transportation Control Measures;
- Energy Control Measures;
- Building Control Measures;
- Agricultural Control Measures;
- Natural and Working Lands Control Measures;
- Waste Management Control Measures;
- Water Control Measures; and
- Super GHG Control Measures.

Local Regulations

San Francisco General Plan

The San Francisco General Plan includes the 1997 Air Quality Element.[33] The plan objectives are as follows:

- **Objective 1:** Adhere to State and Federal air quality standards and regional programs.
- **Objective 2:** Reduce mobile sources of air pollution through implementation of the Transportation Element of the General Plan.
- **Objective 3:** Decrease the air quality impacts of development by coordination of land use and transportation decisions.

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[32] Bay Area Air Quality Management District, *Draft 2017 Clean Air Plan, Spare the Air, Cool the Climate,* 2017, *http://www.baaqmd.gov/~/media/files/planning-and-research/plans/2017-clean-air-plan/baaqmd.pdf?=CAP+2017+Draft&utm_medium=email&utm_content=article3_link1*, accessed on April 23, 2018.

[33] San Francisco Planning Department, Air Quality Element of the *San Francisco General Plan*, July 1997, updated in 2000.

- **Objective 4:** Improve air quality by increasing public awareness regarding the negative health effects of pollutants generated by stationary and mobile sources.
- **Objective 5:** Minimize particulate matter emissions from road and construction sites.
- **Objective 6:** Link the positive effects of energy conservation and waste management to emission reductions.

San Francisco Construction Dust Control Ordinance

The City of San Francisco has adopted San Francisco Health Code article 22B and San Francisco Building Code section 106.A.3.2.6, which together are the Construction Dust Control Ordinance. The ordinance requires that all site preparation work, demolition, or other construction activities within San Francisco that have the potential to create dust or to expose or disturb more than 10 cubic yards or 500 square feet of soil comply with specified dust control measures whether or not the activity requires a permit from the San Francisco Department of Building Inspection. For projects larger than 0.5 acre, the Dust Control Ordinance requires that the project sponsor submit a dust control plan for approval by the San Francisco Department of Public Health prior to issuance of a building permit by San Francisco Department of Building Inspection or Port of San Francisco.

Building permits will not be issued without written notification from the director of public health that the applicant has a site-specific dust control plan, unless the director waives the requirement. The Construction Dust Control Ordinance requires project sponsors and contractors responsible for construction activities to control construction dust on the site or implement other practices that result in equivalent dust control that are acceptable to the director of public health. Dust suppression activities may include watering of all active construction areas sufficiently to prevent dust from becoming airborne; increased watering frequency may be necessary whenever wind speeds exceed 15 miles per hour. Reclaimed water must be used if required by article 21, section 1100 et seq. of the San Francisco Public Works Code. The project site is about 29 acres in size, and therefore the project sponsor would be required to prepare a dust control plan.

San Francisco Health Code Provisions for Urban Infill Development (Article 38)

San Francisco adopted article 38 of the San Francisco Health Code in 2008, with revisions that took effect in December 2014. The revised code requires that sensitive land use developments within the mapped Air Pollutant Exposure Zones (APEZ) incorporate Minimum Efficiency Reporting Value 13 (MERV-13)-equivalent ventilation systems to remove particulates from outdoor air. This regulation also applies to conversion of uses to a sensitive use (residential, senior care facilities, day care centers, etc.). The project site is not currently identified as within an APEZ.[34] See Impact AQ-4 below for more information on the background of health risks on the project site.

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[34] San Francisco Department of Public Health, Air Pollution Exposure Zone Map, Inset 2, *https://www.sfdph.org///EHSdocs/AirQuality/AirPollutantExposureZoneMap.pdf*, accessed April 23, 2018.

4.G.4 Impacts and Mitigation Measures

Significance Criteria

The criteria for determining the significance of impacts in this analysis are consistent with the environmental checklist in Appendix G of the CEQA Guidelines, as modified by the San Francisco Planning Department. For the purpose of this analysis, implementation of the project would have a significant effect on air quality if the project would:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal, state, or regional ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors);
- Expose sensitive receptors to substantial pollutant concentrations; or
- Create objectionable odors affecting a substantial number of people.

Approach to Analysis

Project Features

Construction Activities

Construction of the proposed project has the potential to create air quality impacts through the use of heavy-duty construction equipment, construction workers' vehicle trips, and truck hauling trips. In addition, fugitive dust emissions would result from site disturbance including controlled rock fragmentation, dry-mix concrete batch plant, and rock crushing, and fugitive ROG emissions would result from application of architectural coatings and paving.

Project Operations, Stationary Sources and Transportation Sources

The proposed project would generate operational emissions from a variety of sources, including stationary sources (diesel emergency generators); area sources (natural gas combustion for cooking, consumer products, architectural coatings, and landscape equipment); and from mobile sources (daily automobile and truck trips and operation of the proposed shuttle service program).

Transportation Demand Management Plan

The project sponsor has developed a draft Transportation Demand Management (TDM) plan and would implement a final approved TDM plan, which would reduce operational air pollutant emissions by reducing the number of vehicle trips that would otherwise be generated by the project. The TDM plan would implement measures to encourage non-auto modes of transportation by building a dense, walkable, mixed-use, transit-oriented development, reducing onsite parking, and prioritizing safety, especially for bicyclists and pedestrians.

Key strategies in the draft TDM plan include bike sharing stations, ample bicycle parking facilities, bike lanes, unbundled parking, car-sharing and shuttle services, and other approaches to discourage use of single-occupant private vehicles. The TDM plan would implement amenities and education strategies regarding transportation choices, including real-time occupancy data for shared parking facilities and production of brochures and newsletters.

Methodology for Analyzing Air Quality Impacts

In general, the proposed project would result in two categories of potential air quality impacts. First, the project would result in air pollution through construction activity. Second, the project would generate air pollutants during project operations, due to increased vehicle travel and new stationary sources (i.e., up to 15 new emergency standby diesel generators). The proposed project includes a variety of proposed uses including some that could potentially generate TAC emissions from fume hoods or other sources, such as research and development (R&D)/life science uses and production, distribution, and repair (PDR) uses. During the approximately 15-year construction period, operation of earlier phases of the project would overlap with construction of later phases.

Each of these categories of project impacts would result in: (1) impacts from criteria air pollutant emissions, which are generally regional in nature, and (2) impacts associated with exposure to TACs and PM2.5, which is a localized health impact expressed in terms of exposure to PM2.5 annual average concentrations and the probability of contracting cancer per 100 in one million persons exposed to TAC concentrations. The assessment of criteria air pollutant impacts addresses the second and third bulleted significance thresholds identified above. The assessment of localized health risk and exposure to PM2.5 concentrations addresses the fourth bulleted significance threshold identified above.

With respect to odors, the assessment methodology used is the screening distance approach. The Bay Area Air Quality Management District’s 2017 CEQA Guidelines provide guidance in the form of screening distances, to help evaluate potential odor impacts. They identify potential odor sources of particular concern, such as wastewater treatment plants, oil refineries, asphalt plants, chemical manufacturing, painting/coating operations, coffee roasters, food processing facilities, recycling operations and metal smelters, and recommend buffer zones around them to avoid potential odor conflicts.

Air quality analysis conducted for this impact assessment uses the emission factors, models, and tools distributed by a variety of agencies including California Air Resources Board, the California Air Pollution Control Officers Association, the California Office of Environmental Health Hazard Assessment (March 2015), and the U.S. EPA. Additionally, the analysis uses methodologies identified in the Bay Area Air Quality Management District *CEQA Air Quality Guidelines* (May 2017). While the air district is currently developing an update to its *CEQA Air Quality Guidelines* which may or may not include changes to its thresholds of significance, no draft has yet been made public and therefore this analysis applies the most recent guidance available.

Air Quality Plan Consistency

The applicable air quality plan is the Bay Area Air Quality Management District's 2017 Clean Air Plan. Consistency with the Clean Air Plan can be determined if the project supports the goals of the plan, includes applicable control measures from the plan and would not disrupt or hinder implementation of any plan control measures. Consistency with the Clean Air Plan is the basis for determining whether the proposed project would conflict with or obstruct implementation of an applicable air quality plan, the first bulleted significance criterion identified above.

Criteria Air Pollutants

Table 4.G-5, Criteria Air Pollutant Thresholds, identifies quantitative criteria air pollutant significance thresholds followed by a discussion of each threshold. Projects that would result in criteria pollutant emissions below these significance thresholds would not violate an air quality standard, contribute substantially to an air quality violation, or result in a cumulatively considerable net increase in criteria air pollutants within the San Francisco Bay Area Air Basin.[35]

TABLE 4.G-5
CRITERIA AIR POLLUTANT THRESHOLDS

Pollutant	Average Daily Emissions (pounds per day)	Maximum Annual Emissions (tons per year)
ROG	54	10
NOx	54	10
PM_{10}	82	15
$PM_{2.5}$	54	10
Fugitive Dust	Construction dust ordinance or other best management practices to control fugitive dust emissions	

SOURCE: Bay Area Air Quality Management District, *CEQA Air Quality Guidelines*, June 2017, p. 2-2, *http://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en*, accessed March 26, 2018.

The thresholds of significance for criteria air pollutants are based on substantial evidence presented in Appendix D of the 2017 Bay Area Air Quality Management District *CEQA Air Quality Guidelines* and the district's 2009 *Revised Draft Options and Justification Report* concerning CEQA thresholds.[36]

The significance thresholds are based on the state and federal Clean Air Acts' emissions limits for stationary sources. To ensure that new stationary sources do not cause or contribute to a violation of an air quality standard, Bay Area Air Quality Management District Regulation 2, Rule 2 requires that any new source that emits criteria air pollutants above a specified emissions limit must offset those emissions. For ozone precursors ROG and NOx, the offset emissions level is an annual

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[35] Bay Area Air Quality Management District, *CEQA Air Quality Guidelines*, p. 2-1, May 2017, *http://www.baaqmd.gov/~//files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en*, accessed March 26, 2018.

[36] Bay Area Air Quality Management District, CEQA Air Quality Guidelines, May 2017, p. 2-2; Bay Area Air Quality Management District, *Revised Draft Options and Justification Report*, *California Environmental Quality Act Thresholds of Significance*, p. 17, October 2009.

average of 10 tons per year (or 54 pounds per day).[37] These levels represent emissions below which new sources are not anticipated to contribute to an air quality violation or result in a considerable net increase in criteria air pollutants that could result in increased health effects.

The Federal New Source Review program was created under the federal Clean Air Act to ensure that stationary sources of air pollution are constructed in a manner that is consistent with attainment of federal health-based ambient air quality standards. For PM_{10} and $PM_{2.5}$, the emissions limit under the New Source Review program is 15 tons per year (82 pounds per day) and 10 tons per year (54 pounds per day), respectively. These emissions limits represent levels at which a source is not expected to have a significant impact on air quality.[38]

Although these regulations apply to new or modified stationary sources, land use development projects also generate ROG, NOx, PM_{10}, and $PM_{2.5}$ emissions from increases in vehicle trips, energy use, architectural coating, and construction activities. Therefore, the identified thresholds are applied to the construction and operational phases of land use projects. Those projects that would result in emissions below these thresholds would not be considered to contribute to an existing or projected air quality violation or result in a considerable net increase in ozone precursors or PM.

The proposed project incorporates several options associated with four of the project elements. As further described in Chapter 2 under Section 2.E.1, Proposed Land Use Plan, the proposed project incorporates a flexible land use program in which certain blocks on the project site are designated for either residential or commercial uses (referred to as "flex blocks"), where future market conditions would ultimately determine the type and amount of land uses to be developed on those blocks. A *sensitivity analysis*[39] was undertaken which showed that the operational emissions from the maximum office scenario would be higher than the maximum residential scenario, primarily resulting from greater vehicle trips that would be generated by commercial uses. Therefore, the operational impact analysis is based on the maximum office scenario. A similar sensitivity analysis was performed for construction emissions but, except for emissions of ROG, construction emissions were generally similar among foreseeable buildout scenarios. Consequently, construction-related emissions of ROG were calculated assuming implementation of the maximum residential scenario.

Fugitive dust emissions are typically generated during construction phases. Studies have shown that the application of best management practices (BMPs) at construction sites significantly controls fugitive dust,[40] and individual measures have been shown to reduce fugitive dust by anywhere from 30 to 90 percent.[41] The Bay Area Air Quality Management District has identified

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[37] Bay Area Air Quality Management District, *Revised Draft Options and Justification Report, California Environmental Quality Act Thresholds of Significance*, p. 17, October 2009.

[38] Bay Area Air Quality Management District, *Revised Draft Options and Justification Report, California Environmental Quality Act Thresholds of Significance*, p. 16, October 2009.

[39] A sensitivity analysis is a technique used to determine how different values of an independent variable will impact a particular dependent variable under a given set of assumptions. In this case, it was used to determine which land use assumptions would yield the most emissions.

[40] Western Regional Air Partnership, *WRAP Fugitive Dust Handbook*, September 7, 2006, *wrapair.org/forums/dejf/fdh/content/FDHandbook_Rev_06.pdf*, accessed April 23, 2018.

[41] Bay Area Air Quality Management District, *Revised Draft Options and Justification Report, California Environmental Quality Act Thresholds of Significance*, October 2009, p. 27.

eight BMPs to control fugitive dust emissions from construction activities.[42] San Francisco's Construction Dust Control Ordinance requires a number of fugitive dust control measures to ensure that construction projects do not result in visible dust. The project would be subject to the Construction Dust Control Ordinance, which is the basis for determining the significance of air quality impacts from fugitive dust emissions.

Construction Emissions of Criteria Air Pollutants

Mass average daily and annual combustion criteria pollutant and off-gassing emissions[43] were estimated using the emission factors from California Air Resources Board's OFFROAD and EMission FACtors 2014 (EMFAC2014) model.[44,45] Emissions were evaluated consistent with the methodology used by the California Emissions Estimator Model (CalEEMod) (version 2016.3.2), an emissions estimation/evaluation model that was developed in collaboration with the air quality management districts of California. CalEEMod separates the construction process into multiple phases to account for various construction scenarios, including demolition, site preparation, grading, building, architectural coating, and paving phases. From these construction phases, CalEEMod estimates emissions from the following sources:

- Off-road equipment;
- On-road mobile vehicle trips associated with workers, vendors and hauling;
- Fugitive dust emissions (PM_{10} and $PM_{2.5}$) associated with demolition, excavation and grading, truck loading and entrained road dust; and
- ROG emission associated with application of architectural coatings (paints and finishes) and paving.

In addition, fugitive dust emissions would also be generated by controlled rock fragmentation, the dry mix concrete batch plant, and rock crushing activities.

Total construction emissions by phase were calculated and converted from tons per year to pounds per day using the estimated construction duration of each phase of construction for comparison against the significance thresholds. As there would be an overlap of construction and operational activities and variations in the duration of construction activities for each phase, estimated emissions are compared to both the average daily and maximum annual thresholds in Table 4.G-5 above. Please refer to Appendix E, Air Quality Supporting Information, for a detailed list of project-specific equipment considered and duration assumptions.

During the project's approximately 15-year construction period, construction activities would result in emissions of ozone precursors and PM, as discussed below. Because operation of earlier phases would occur during construction of later phases, the construction analysis accounts for operational emissions that would occur simultaneously with construction of later phases. Therefore, operational

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[42] Bay Area Air Quality Management District, *CEQA Air Quality Guidelines*, May 2011, pp. 8-3.

[43] For example, evaporative emissions of ROG from the application of architectural coatings and asphalt paving.

[44] California Air Resources Board. 2014. *EMFAC2014.* Version 1.0.7. *https://www.arb.ca.gov/msei/categories.htm.*

[45] While the California Air Resources Board has published updated EMFAC2017 emission factors in December of 2017, these updated factors have not yet been approved by U.S. EPA. Please refer to Appendix E for a technical memorandum on the ramifications of using the latest EPA-approved model.

emissions are evaluated after each of the six phases of construction and upon buildout of each phase using the CalEEMod model. This allows for an analysis of the total emissions that would occur from construction activities and simultaneous operations during the 15-year construction period.

The emissions estimates provided in this analysis are based on conservative assumptions, including the expectation that a relatively large amount of construction takes place during a relatively intensive and overlapping schedule. Because of this conservative assumption, actual average daily or maximum annual emissions could be less than those estimated in this analysis. The phasing of project implementation would be subject to changes due to market conditions and other unanticipated factors, and construction could extend beyond 2034. If construction is delayed or occurs over a longer period, extending beyond 2034, emissions could be reduced because of (1) newer and cleaner-burning construction equipment fleet mix and/or (2) a less intensive and overlapping buildout schedule (i.e., fewer daily emissions occurring over a longer period). Conversely, if construction is accelerated and occurs over a shorter period, average daily emissions could increase. However, the project sponsor has indicated that the construction schedule used in this analysis is a reasonable and conservative schedule of actual construction activities for purposes of analyzing impacts, and that construction would not likely occur at a more rapid pace than is analyzed in this section.

Assumptions regarding construction phasing and equipment use were based on information received from the project sponsor and its construction consultants.[46] A complete list of the construction equipment for each phase, construction phase duration assumptions, and changes to modeling default values used in this analysis is included in Appendix E. The assessment of construction air quality impacts considers each of the following emissions sources:

1. Off-road construction vehicles and equipment (including generators)
2. Asphalt paving
3. Application of architectural coatings
4. On-road vehicles (travel and idling)
5. Controlled rock fragmentation
6. In-water equipment (tugs, cranes, pile drivers and clamshell dredging)

Sources one through three were analyzed using CalEEMod methodologies, as described above. Idling and travel emissions from on-road vehicles were estimated using emission factors from the EMFAC2014 model.[47] Emissions from in-water equipment were estimated using the methodology from the California Air Resource Board's Emissions Estimation Methodology for Commercial Harbor Craft Operating in California.[48]

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[46] California Barrel Company, spreadsheet, email communication with ESA, January 10, 2018.

[47] California Air Resources Board. *EMFAC2014.* Version 1.0.7, effective December 14, 2015, *https://www.arb.ca.gov/msei/categories.htm#emfac2014*, accessed March 1, 2018.

[48] California Air Resources Board. 2012. *Emissions Estimation Methodology for Commercial Harbor Craft Operating in California*. Appendix B, *https://www.arb.ca.gov/msei/chc-appendix-b-emission-estimates-ver02-27-2012.pdf,* accessed May 2, 2018.

Operational Emissions of Criteria Air Pollutants

Mass average daily and annual mobile and area source emissions were estimated using the CalEEMod (version 2016.3.2) emissions model. CalEEMod quantifies emissions from operational activities based on the project land use types and user-defined inputs for project location, operational year, and climate zone.

The project would generate operational emissions from a variety of sources, including stationary sources (diesel emergency generators); area sources (natural gas combustion in stoves, consumer products, architectural coatings, and landscape equipment); and from mobile sources (daily automobile and truck trips). Potential emissions from 15 emergency diesel generators (stationary sources) were estimated based on California Air Resources Board/U.S. EPA Tier 2 emission standards, conservatively assuming that each parcel with buildings higher than 75 feet would require such equipment. All emergency generators would range in size from 120 kilowatts (kW) to 2,000 kW, per information provided by the project sponsor. Specifications for generators is not available but it is assumed that generators would operate a maximum of 50 hours per year (consistent with Bay Area Air Quality Management District permitting limits). Project operational emissions of criteria pollutants from vehicle, stationary (backup generators), and area sources are summed to determine total operational emissions.

Area-source and energy emissions were calculated using the CalEEMod model based on the type and size of land uses associated with the proposed project, including the estimated number of residents. Other area sources are consumer products, architectural coatings[49], and landscaping equipment. San Francisco County-specific consumer product emission rate data[50] were used in the CalEEMod model to estimate daily VOC emissions.

Mobile-source emissions would result from vehicle trips (auto and truck) associated with the proposed project and were also calculated using the CalEEMod model based on the number of vehicle trips identified in the transportation analysis conducted for the project, which considered operation of the proposed shuttle service program.[51] Operational emission calculations for entrained road dust are based on San Francisco-specific silt loadings.[52]

A detailed quantification of operations-related criteria air pollutant emissions was conducted for the proposed project assuming the maximum office scenario[53] at project build out, year 2034, as well as at the completion of each incremental phase of construction: in 2025 (completion of Phase 1), in 2026

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[49] A sensitivity analysis was performed for construction emissions but, except for emissions of ROG, construction emissions were generally similar among foreseeable buildout scenarios. Consequently, construction-related emissions of ROG were calculated assuming implementation of the maximum residential scenario.

[50] San Francisco's ROG emissions from consumer products in 2008 was 5.30 tons (California Air Resources Board. 2009 *Estimated Annual Average Emissions, San Francisco County*, *https://www.arb.ca.gov/app/emsinv/emssumcat_query.php?F_=2008&F_DIV=-4&F_SEASON=A&SP=2009&F_AREA=CO&F_CO=38&F_COAB*, accessed September 26, 2018); and San Francisco's assumed square footage was 703,541,231 square feet. Therefore, the emission factor used was 1.51e-5 lbs/(sq.ft-day). The total building square footage the City of San Francisco Environmental Planning Department relied upon in this calculation is San Francisco Planning Department 2011 Land Use data.

[51] Adavant Consulting, Memorandum: Potrero Power Station Mixed-use Development Project Estimation of Project Travel Demand, DEIR Appendix C.

[52] CARB, Miscellaneous Process Methodology 7.9, Entrained Road Travel, Paved Road Dust, Revised April 2016.

[53] The Maximum Office Scenario reflects the worst case emissions of possible development options because vehicle trip generation would be greatest under this option.

(completion of Phase 2), in 2028 (completion of Phase 3), in 2031 (completion of Phase 4), and in 2032 (completion of Phase 5). The criteria air pollutant significance thresholds reflect when a project would contribute considerably to significant air quality impacts. Operational emissions are added to construction emissions when they would occur concurrently.

Other Criteria Pollutants

Regional concentrations of CO in the Bay Area have not exceeded the state standards in the past 24 years, and SO_2 concentrations have never exceeded the standards. The primary source of CO emissions from development projects is vehicle traffic. Construction-related SO_2 emissions represent a negligible portion of basin-wide emissions, and construction-related CO emissions represent less than 5 percent of the Bay Area basin-wide CO emissions. As discussed previously, the Bay Area is in "attainment" for both CO and SO_2. Furthermore, the Bay Area Air Quality Management District has demonstrated, based on modeling, that to exceed the California ambient air quality standard of 9.0 ppm (eight-hour average) or 20.0 ppm (one-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). The transportation analysis indicates that the intersections near the project site with the greatest vehicle volumes would be Cesar Chavez Street and Pennsylvania Avenue with hourly volumes of 5,791 in year 2040 with the project, which is less than 24,000. Therefore, given the Bay Area's attainment status and the limited CO and SO_2 emissions that could result from the project, a quantitative analysis of these criteria pollutants is not required.

Local Health Risks and Hazards

In addition to criteria air pollutants, the proposed project would emit TACs. The project-related impact of toxic substances in soil that may become airborne, such as naturally occurring asbestos, is discussed in Section 4.K, Hazards and Hazardous Materials.

As part of this project, Ramboll conducted a health risk assessment for the proposed project to estimate health risks from exposures to TACs. The assessment examined all sensitive receptors within 3,280 feet (1,000 meters) of the project boundary, updated the citywide Community Risk Reduction Plan (CRRP) model to include specific locations of existing stationary sources, and updated cancer risk values based on the latest (2015) guidance by the California Office of Environmental Health Hazard Assessment. A previously performed review of citywide CRRP modeling data found that the emissions from the BAE Systems sources were incorrectly located causing the adjacent Pier 70 Mixed-Use District project site to the north to be incorrectly designated as being within an Air Pollutant Exposure Zone (APEZ). Ramboll worked with the air district to more accurately locate these emissions within the citywide model, and revised modeling was conducted to reassess cancer risk and $PM_{2.5}$ concentrations within the project area and its surroundings. This updated modeling demonstrated that the adjacent Pier 70 Mixed-Use District project site does not meet the criteria for being within an APEZ at this location, meaning that the existing excess cancer risk is below 100 per one million and $PM_{2.5}$ concentrations are below 10 $\mu g/m^3$.

The proposed project would locate new sensitive receptors (primarily residential land uses and potential day care facilities) under both of the analyzed scenarios. The entirety of the project site was assessed as a potential sensitive receptor area using a 66-foot (20-meter) receptor grid. Refer to Figure 2-5, p. 2-16, of Chapter 2, Project Description, for specific locations of proposed onsite residential uses. Exposure assessment guidance[54] assumes that people in residences would be exposed to air pollution 24 hours per day, 350 days per year, for 30 years as the basis for calculating cancer risk in all health risk assessments. Therefore, the air pollutant exposure to residents typically results in the greatest adverse health outcome for all population groups.

As discussed previously, neither the onsite receptors nor the nearest offsite receptors are located within an area that currently meets the APEZ criteria. For receptors not located in areas that meet the APEZ criteria, a health risk assessment is conducted to determine whether the proposed project would, in combination with other existing sources in the area, result in a given offsite or onsite receptor meeting the APEZ criteria.

If a receptor point that is not in the APEZ under existing conditions would meet the APEZ criteria with the project, a significant project-level health risk impact would occur if the magnitude of the project-level contribution is more than 0.3 $\mu g/m^3$ of $PM_{2.5}$ or if the project would contribute an additional excess cancer risk greater than 10.0 per million persons exposed. The 0.3 $\mu g/m^3$ $PM_{2.5}$ concentration and the excess cancer risk of 10.0 per one million persons exposed are the levels below which the air district considers new sources to not make a considerable contribution to cumulative health risks.[55]

Health Risk Assessment Methodology

A health risk assessment is used to determine if a particular chemical poses a significant risk to human health and, if so, under what circumstances. The assessment prepared for this project focuses on $PM_{2.5}$ and TACs because these pose significant health impacts at the local level.[56] The methodologies for the TAC analysis were based on the most recent Bay Area Air Quality Management District Recommended Methods for Screening and Modeling Local Risks and Hazards,[57] which recommends the use of the U.S. EPA's AERMOD model.

Consistent with the Community Risk Reduction Plan-Health Risk Assessment (CRRP-HRA), the air toxics analysis evaluated health risks and $PM_{2.5}$ concentrations resulting from the proposed project upon the surrounding community. For the proposed project, this would include construction emissions over the course of buildout, operational traffic (which was assessed using the air district's screening tables as described in Appendix E), and stationary sources (the 15 emergency generators). The methodologies used to evaluate emissions for the proposed project and cumulative health risk

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[54] California Environmental Protection Agency, *The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessment*, February 2015, *http://oehha.ca.gov/air/hot_spots/2015/.pdf*, accessed March 26, 2018.

[55] Bay Area Air Quality Management District, *California Environmental Quality Act Guidelines Update, Proposed Air Quality CEQA Thresholds of Significance*, May 3, 2010, *www.baaqmd.gov/~/media/Files/Planning%20and%20Research//_Thresholds_Report_%20May_3_2010_Final.ashx?la=en*, accessed March 26, 2018.

[56] Bay Area Air Quality Management District, *CEQA Air Quality Guidelines*, May 2017, p. 5-1.

[57] Bay Area Air Quality Management District, *Recommended Methods for Screening and Modeling Local Risks and Hazards*, May 2012, *http://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/risk-modeling-approach-may-2012.pdf?la=en*, accessed April 23, 2018.

assessment are based on the most recent air district CEQA Guidelines and the most recent Air Toxics Hot Spots Program Risk Assessment Guidelines.[58]

Some onsite parcels are designated as flexible land uses (i.e., those that could potentially serve as residential or commercial buildings). For the health risk assessment, a conservative approach was adopted whereby the worst-case air concentrations from the project were estimated by assuming the higher emissions among all the land use scenarios, as well as assessing the entirety of the project site as a potential sensitive receptor area using a 66-foot (20-meter) receptor grid, given that residential uses and child care facilities could be located across the project site.

The cancer risk analysis in the health risk assessment for the project is based on DPM concentrations from on- and off-road construction equipment, as well as the operational DPM concentrations from the emergency generators. Concentrations of TACs from the proposed project construction emissions were estimated using the U.S. EPA's preferred atmospheric dispersion modeling system (AERMOD), as were project-related operational stationary sources (emergency generators). The most recent version of the American Meteorological Society/Environmental Protection Agency regulatory air dispersion model (AERMOD Version 16216r) was used to evaluate ambient air concentrations of DPM and PM2.5 at on- and offsite receptors.[59]

The incremental health risks and hazards attributed to project-related traffic were predicted using the air district's Roadway Screening tools which were adjusted to account for the updates based on the Office of Environmental Health Hazard Assessment risk assessment guidelines (2015).

AERMOD requires a number of inputs including meteorological data. For this health risk assessment, Bay Area Air Quality Management District's Mission Bay meteorological data for 2008 were used, which aligns with the San Francisco CRRP-HRA Methodology.[60] For detail with regard to terrain and land use considerations, emission rates, source parameters, and risk characterization methods applied in the assessment, please refer to Appendix E.

In order to evaluate health impacts to onsite and offsite receptors, receptors were placed at locations co-located with the receptors used in the CRRP-HRA and within 3,280 feet (1,000 meters) of the project site, including future residents on the planned Pier 70 Mixed-Use District project. With the exception of Block 4, sensitive receptors were modeled at a height of 6 feet (1.8 meters), above terrain height, a default breathing height for ground-floor receptors, consistent with the CRRP-HRA analysis. On Block 4, sensitive receptors were modeled at a height of 15 feet (4.8 meters) above terrain height as no sensitive uses would be allowed at ground-level due to deed restrictions.

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[58] California State the Office of Environmental Health Hazard Assessment (OEHHA), 2015, The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments, August, *http://www.oehha.ca.gov//hot_spots//.pdf*, accessed April 23, 2018.

[59] U.S. EPA. 2015. Addendum: User's Guide for the AMS/U.S. EPA Regulatory Model - AERMOD. Office of Air Quality Planning and Standards. Research Triangle Park, North Carolina. U.S. EPA-454/B-03-001, September 2004). June, *https://www3.epa.gov/ttn/scram/models/aermod/aermod_userguide.zip*, accessed April 23, 2018.

[60] Bay Area Air Quality Management District, San Francisco Department of Public Health, & San Francisco Planning Department. 2012. The San Francisco Community Risk Reduction Plan: Technical Support Document. December.

Offsite sensitive receptors were identified based on residential land use and/or zoning, and field confirmation. Parcels that are characterized as "residential" using data from SF OpenData, the City and County of San Francisco's official open data portal[61] as well as onsite locations categorized as residential or those that could potentially be used for residential housing were modeled as sensitive receptors. The project sponsor has indicated that daycare facilities could be located anywhere on the project site. Therefore, daycare uses were assumed to be located on all blocks within the project site. Offsite daycare facilities and schools were also identified and modeled. State health risk assessment guidance assumes greater exposure durations for residential receptors than for child care facilities, both of which are assumed to have children present. Consequently, all receptors were modeled as residential receptors as a worst-case analysis.

Excess lifetime cancer risks were estimated as the upper-bound incremental probability that an individual will develop cancer over a lifetime as a direct result of exposure to potential carcinogens. The estimated risk is expressed as a probability. The cancer risk attributed to a chemical is calculated by multiplying the chemical intake or dose at the human exchange boundaries (e.g., lungs) by the chemical-specific cancer potency factor. Estimated excess cancer risks were calculated using the sensitivity factors and breathing rates recommended by the Office of Environmental Health Hazard Assessment.[62]

Children living offsite were assumed to be present at one location during the entire construction period. Other offsite and onsite residents were assumed to be present at one location for 30 years, consistent with the Office of Environmental Health Hazard Assessment guidance.

The health risk assessment evaluated excess cancer risk and $PM_{2.5}$ concentrations as a result of exposure to both construction and operational emissions.

Odors

This analysis evaluates whether the proposed project would create objectionable odors that would affect a substantial number of people (e.g., by introducing new land uses that are typically associated with odor complaints).

Methodology for Analyzing Cumulative Impacts

By definition, regional air pollution is largely a cumulative impact in that no single project is sufficient in size, by itself, to cause non-attainment of air quality standards. The contribution of a project's air emissions to regional air quality impacts is, by its nature, a cumulative effect. Emissions from past, present, and reasonably foreseeable future projects in the vicinity also have or will contribute to adverse regional air quality impacts on a cumulative basis. No single project by itself would be sufficient in size to result in non-attainment of ambient air quality standards in the San Francisco Bay Area Air Basin. Instead, a project's individual emissions contribute to existing cumulative air quality conditions.[63] As described above, the project-level thresholds for

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[61] San Francisco City and County. 2016. SF OpenData, *https://data.sfgov.org/*, accessed April 23, 2018.

[62] Office of Environmental Health Hazard Assessment, The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments, August 2015, *http://www.oehha.ca.gov/air/_spots/pdf/HRAguidefinal.pdf*, accessed April 23, 2018.

[63] Bay Area Air Quality Management District, *CEQA Air Quality Guidelines*, May 2017, p. 2-1.

criteria air pollutants are based on levels by which new sources are not anticipated to contribute to an air quality violation or result in a considerable net increase in criteria air pollutants. Therefore, if a project's emissions are below the project-level thresholds, the project would not result in a considerable contribution to cumulative regional air quality impacts.

Similarly, the health risk assessment takes into account the cumulative contribution of localized health risks to sensitive receptors from sources included in the citywide modeling plus the proposed project's sources. Additionally, the construction-related and operational TAC emissions from the planned Pier 70 Mixed-Use District project parcels immediately north of the project site are considered in the cumulative health risk analysis. Other future projects, whose emissions have not been incorporated into the existing citywide health risk modeling are also taken into consideration. However, unlike criteria air pollutants, health risks are localized impacts because beyond 1,000 feet from an emission source, pollutants disperse, and pollutant levels tend to return to background levels. Thus, cumulative health risks are typically assessed based on cumulative emissions sources within 1,000 feet of a project site, which, for purposes of this EIR, include those on the Pier 70 Mixed-Use District project site.

A modified construction schedule for the Pier 70 Mixed-Use District project was used to evaluate cumulative health risks to future residents of the Pier 70 Mixed-Use District project. This was done in order to evaluate a hypothetical reasonable worst-case scenario for exposure of future Pier 70 Mixed-Use District project residents to construction and operational emissions from both the project and subsequent phases of the Pier 70 Mixed-Use District project, in the event that the construction phase is modified in the future. The modification includes: (1) moving the start of construction to 2019 (originally assumed to begin at 2018 per the Pier 70 Mixed-Use District project EIR), (2) having Phase 3 and Phase 5 construction occur simultaneously (2021 – 2023) after Phase 1 construction, (3) having Phase 2 and Phase 4 construction occur simultaneously (2024 – 2026). Construction Phases 2 – 5 are assumed to apply construction emissions minimization mitigation that is required by the Pier 70 Mixed-Use District project EIR approvals. The residential blocks on the Pier 70 Mixed-Use District project closest to the proposed project (Blocks F, G, H1 and H2) are assumed to begin occupancy in 2024, as they would be built during construction phases 3 and 5. Thus, residents occupying these blocks would be exposed to emissions not only from subsequent phases of construction for the Pier 70 Mixed-Use District project but also from the proposed project's construction emissions beginning in year 2024 and onwards.

Impact Evaluation

Impact AQ-1: During construction the proposed project would not generate fugitive dust that could violate an air quality particulate standard, contribute substantially to an existing or projected particulate violation, or result in a cumulatively considerable net increase in particulate concentrations. *(Less than Significant)*

Construction of the proposed project has the potential to create temporary air quality impacts through emissions of fugitive dust. Fugitive dust emissions would result from site disturbance including excavation, grading, trenching, rock crushing, controlled rock fragmentation and operation of an onsite dry mix concrete batch plant. Dust emissions would be generated by proposed controlled rock fragmentation techniques that could be employed and could include one or a combination of the following: pulse plasma rock fragmentation, controlled foam or hydraulic injection, and/or controlled blasting (see Section 2.F.1 Construction Overview and Schedule for a more detailed description of controlled rock fragmentation techniques). Controlled rock fragmentation emissions of fugitive dust would primarily result from controlled blasting operations and crushing equipment, if such techniques are employed.

Project-related demolition, excavation, grading, and other construction activities may cause wind-blown dust, which would contribute particulate matter to the local atmosphere. The Construction Dust Control Ordinance, described above under Local Regulations, requires all site preparation work, demolition, or other construction activities within San Francisco that have the potential to create dust or expose or disturb more than 10 cubic yards, or 500 square feet, of soil to comply with specified dust control measures, whether or not the activity requires a permit from the director of public health.

Building permits will not be issued without written notification from the director of public health that states that the applicant has a site-specific Dust Control Plan. A Dust Control Plan is required for projects that would disturb 0.5 acres or more. Since the project site is about 29 acres in size, a Dust Control Plan is required. The Construction Dust Control Ordinance requires the project sponsor and the contractors who are responsible for construction activities to minimize visible dust on the site. Minimum dust control measures that apply to all projects include watering all construction areas sufficiently to prevent dust from becoming airborne; providing as much water as necessary to control dust (without creating runoff) in any area of land clearing, earth movement, excavation, drillings, and other dust-generating activity; during excavation and dirt- moving activities, wet sweep or vacuum the streets, sidewalks, paths, and intersections where work is in progress at the end of the workday; covering any inactive stockpiles greater than 10 cubic yards or 500 square feet of excavated materials, and using dust enclosures, curtains, and dust collectors as necessary to control dust in the excavation area.

Other dust control measures in the required site-specific Dust Control Plan could include but are not limited to: wetting down the area around soil improvements; an analysis of wind direction; placement of dust monitors; recordkeeping for particulate monitoring results; inspections and record keeping for visible dust; and establishing a hotline for surrounding community members to call and report visible dust problems. Reclaimed water must be used for watering down the construction area if required by article 21, section 1100 et seq., of the San Francisco Public Works Code. City Ordinance 175-91 requires the use of non-potable water for soil compaction and dust control undertaken in conjunction with any construction or demolition project occurring within the boundaries of San Francisco, unless permission is obtained from the San Francisco Public Utilities Commission (SFPUC). SFPUC operates a recycled water fill station at the Southeast Water Pollution Control Plant, which provides recycled water at no charge.

In addition to the requirements listed above, the site-specific Dust Control Plan would require the project sponsor to submit a map to the director of public health that shows all sensitive receptors within 1,000 feet of the site. The project sponsor would be required to designate an individual to monitor project compliance with these dust control requirements. Compliance with the regulations and procedures set forth by the Construction Dust Control Ordinance would ensure that potential dust-related air quality impacts during project construction would be reduced to a less-than-significant level.

Mitigation: None required.

Impact AQ-2: During construction (including construction phases that overlap with project operations), the proposed project would generate criteria air pollutants which would violate an air quality standard, contribute substantially to an existing or projected air quality violation, or result in a cumulatively considerable net increase in criteria air pollutants. *(Significant and Unavoidable with Mitigation)*

Construction of the proposed project has the potential to create temporary air quality impacts through emissions of criteria air pollutants associated with the use of heavy-duty construction equipment, construction workers' vehicle trips, and truck hauling trips. Fugitive ROG emissions would result from application of architectural coatings and paving. The assessment of construction air quality impacts considers each of these potential sources. Demolition and construction activities would require the use of drill rigs, heavy trucks, excavators, material loaders, cranes, and other mobile, marine-based and stationary construction equipment. During the project's approximately 15-year construction period, construction activities would result in emissions of ozone precursors and PM, as discussed below. Because operation of earlier phases would occur during construction of later phases, the construction analysis accounts for operational emissions that would occur simultaneously with construction of later phases.

As stated in the methodology section, construction emissions of NO_X, PM_{10} and $PM_{2.5}$ would be similar under the different buildout scenarios, but ROG emissions would be greater under the maximum residential scenario. Consequently, construction-related emissions of ROG were calculated assuming the maximum residential scenario as a worst-case assumption.

Tables 4.G-6A and 4.G-6B, **Unmitigated Average Daily and Maximum Annual Emissions for the Project During Construction**, presents construction-period emissions for the proposed project. Phase 0.1[64] involves site preparation activities by the project sponsor (grading, soil excavation) in the future PG&E remediation area, but it should be noted that PG&E's environmental remediation activities are independent of the project. As shown in Tables 4.G-6A and 4.G-6B, construction-related emissions of NO_X would exceed significance thresholds for all phases of construction; this would be a *significant* impact. The primary source of NO_X emissions would be off-road construction equipment (representing approximately 95 percent of total unmitigated NO_X emissions). ROG and NO_X thresholds would be exceeded when the majority of construction activities would occur and when the greatest number of construction phases would overlap with project operations; this would also be a *significant* impact. The primary source of ROG emissions would be fugitive emissions from

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[64] Project construction schedule provided by the Project Sponsor. Phase 0 involves demolition, site preparation, and rough grading for the entire Project between 2020 and 2022. Phase 0.1 is included within the boundary of Phase 0 but is subject to PG&E remediation efforts which could impact schedule for completion of work in this area and would occur in 2024.

architectural coatings and asphalt paving activities (representing approximately 58 percent of total unmitigated ROG emissions). Emissions of construction-related PM10 and PM2.5 would be below significance thresholds (i.e., *less-than-significant* impact) during all construction phases.

TABLE 4.G-6A
UNMITIGATED AVERAGE DAILY EMISSIONS FOR THE PROJECT DURING CONSTRUCTION, INCLUDING OVERLAPPING CONSTRUCTION AND OPERATION IN LB/DAY

	Average Daily Emissions (lb/day)*			
	ROG	**NOx**	**PM_{10}**	**$PM_{2.5}$**
Significance Thresholds	**54**	**54**	**82**	**54**
Phase 0 Construction	10	**98**	4.2	4.0
Above Threshold?	No	**Yes**	No	No
Phases 0 and 1 Construction	35	**206**	8.9	8.4
Above Threshold?	No	**Yes**	No	No
Phase 1 and 2 Construction	45	**154**	6.5	6.2
Above Threshold?	No	**Yes**	No	No
Phase 0.1, 1 and 2 Construction	48	**190**	7.4	7.1
Above Threshold?	No	**Yes**	No	No
Phase 1, 2 and 3 Construction	**56**	**197**	8.2	7.8
Above Threshold?	**Yes**	**Yes**	No	No
Phase 2 and 3 Construction + Phase 1 Operation	**55**	**124**	17	7.9
Above Threshold?	**Yes**	**Yes**	No	No
Phase 3 Construction + Phase 1 and 2 Operation	**53**	**91**	20	8.2
Above Threshold?	No	**Yes**	No	No
Phase 3 and 4 Construction + Phase 1 and 2 Operation	**70**	**142**	22	9.9
Above Threshold?	**Yes**	**Yes**	No	No
Phase 4 Construction + Phase 1 through 3 Operation	**67**	**111**	24	9.7
Above Threshold?	**Yes**	**Yes**	No	No
Phase 4, 5 and 6 Construction + Phase 1 through 3 Operation	**98**	**160**	25	11
Above Threshold?	**Yes**	**Yes**	No	No
Phase 5 and 6 Construction + Phase 1 through 4 Operation	**103**	**128**	32	12
Above Threshold?	**Yes**	**Yes**	No	No
Phase 6 Construction + Phase 1 through 5 Operation	**100**	**109**	37	14
Above Threshold?	**Yes**	**Yes**	No	No
Phases 1 through 6 Operation**	**105**	**102**	42	15
Above Threshold?	**Yes**	**Yes**	No	No

NOTES: **Bolded** numerical values are totals during construction of a given phase with the addition of operational emissions from previous phases. If the total exceeds a threshold, then the exceedance is identified by shading and a **bolded** "Yes" response.

For each construction phase, annual emissions are divided over the number of construction days for the given phase, to determine the average daily emissions.

* Average daily construction emissions in lb/day are calculated by taking the total construction emissions for a phase and dividing by the number of working days (260 construction working days in a year).
** See Table 4.G-8, below for breakdown of operational emissions.
*** Detailed construction and operational emissions by Phase can be found in Tables 5a, 8a, 8b, 8e and 8f of the Air Quality Appendix.
**** Note that totals may not match sums of intermediate values presented in this table or Air Quality Appendix tables due to rounding.

SOURCE: Ramboll, Tables, Figures and CalEEMod Output, 2018. See Appendix E.

TABLE 4.G-6B
UNMITIGATED MAXIMUM ANNUAL EMISSIONS FOR THE PROJECT DURING CONSTRUCTION, INCLUDING OVERLAPPING CONSTRUCTION AND OPERATION IN TON/YEAR

	Maximum Annual Emissions (ton/year)			
	ROG	**NOx**	**PM_{10}**	**$PM_{2.5}$**
Significance Threshold	**10**	**10**	**15**	**10**
Phase 0 Construction	1.3	**13**	0.55	0.52
Above Threshold?	No	**Yes**	No	No
Phases 0 and 1 Construction	4.6	**27**	1.2	1.1
Above Threshold?	No	**Yes**	No	No
Phases 1 and 2 Construction	5.8	**20**	0.85	0.81
Above Threshold?	No	**Yes**	No	No
Phases 0.1, 1 and 2 Construction	6.0	**22**	0.89	0.85
Above Threshold?	No	**Yes**	No	No
Phases 1, 2 and 3 Construction	7.3	**26**	1.1	1.0
Above Threshold?	No	**Yes**	No	No
Phases 2 and 3 Construction + Phase 1 Operation	8.4	**18**	2.8	1.3
Above Threshold?	No	**Yes**	No	No
Phase 3 Construction + Phases 1 and 2 Operation	9.0	**14**	3.6	1.4
Above Threshold?	No	**Yes**	No	No
Phases 3 and 4 Construction + Phases 1 and 2 Operation	**11**	**21**	3.9	1.6
Above Threshold?	**Yes**	**Yes**	No	No
Phase 4 Construction + Phases 1 through 3 Operation	**11**	**18**	4.3	1.7
Above Threshold?	**Yes**	**Yes**	No	No
Phases 4, 5 and 6 Construction + Phases 1 through 3 Operation	**15**	**24**	4.4	1.8
Above Threshold?	**Yes**	**Yes**	No	No
Phases 5 and 6 Construction + Phases 1 through 4 Operation	**17**	**21**	5.8	2.2
Above Threshold?	**Yes**	**Yes**	No	No
Phase 6 Construction + Phases 1 through 5 Operation	**18**	**19**	6.7	2.5
Above Threshold?	**Yes**	**Yes**	No	No
Phases 1 through 6 Operation**	**19**	**19**	7.6	2.8
Above Threshold?	**Yes**	**Yes**	No	No

NOTES: **Bolded** numerical values are totals during construction of a given phase with the addition of operational emissions from previous phases. If the total exceeds a threshold, then the exceedance is identified by shading and a **bolded** “Yes” response.

For each construction phase, annual emissions are divided over the number of construction days for the given phase, to determine the average daily emissions.

* Average daily construction emissions in lb/day are calculated by taking the total construction emissions for a phase and dividing by the number of working days (260 construction working days in a year).
** See Table 4.G-8, below for breakdown of operational emissions.
*** Detailed construction and operational emissions by Phase can be found in Tables 5a, 8a, 8b, 8e and 8f of the Air Quality Appendix.
**** Note that totals may not match sums of intermediate values presented in this table or Air Quality Appendix tables due to rounding.

SOURCE: Ramboll, Tables, Figures and CalEEMod Output, 2018. See Appendix E.

Health Implications of Significant Impacts Related to Emissions of Ozone Precursors

ROG and NOx are ozone precursors, and the main health concern of exposure to ground-level ozone is effects on the respiratory system, especially on lung function. Several factors influence these health impacts: the concentrations of ground-level ozone in the atmosphere; the duration of exposure; the average volume of air breathed per minute; the length of intervals between short-term exposures; and the sensitivity of the person to the exposure.[65,66] The concentration of ground-level ozone in the atmosphere is influenced by the volume of air available for dilution, the temperature, and the intensity of ultraviolet light. In the Bay Area, the worst case conditions for ozone formation occur in the summer and early fall on warm, windless, sunny days.[67]

Given these various factors, it is difficult to predict the magnitude of health effects from the project's exceedance of significance criteria for regional ROG and NOx emissions. The increase in emissions associated with the proposed project represents a fraction of total San Francisco Bay Area Air Basin regional ROG emissions (up to 19 tons per year or 0.05 tons per day compared to an estimated 213 tons per day in the basin region in 2017)[68] and NOx emissions (up to 27 tons per year or 0.07 tons per day compared to an estimated 244 tons per day in the basin region in 2017). Although Table 4.G-1 in the Setting section above indicates that the most stringent applicable ozone standards were not exceeded at the San Francisco-Arkansas Street monitoring station between 2013 and 2017, the San Francisco Bay Area Air Basin experienced an average of 9.2 days of ozone exceedance per year between 2013 and 2017.[69] The proposed project's ROG and NOx increases could contribute to new or exacerbated air quality violations in the basin region by contributing to more days of ozone exceedance or result in Air Quality Index values that are unhealthy for sensitive groups and other populations. As shown in Table 4.G-3 in the Setting section above, the basin has averaged between nine and 19 days per year that are considered unhealthy for sensitive groups and had 13 unhealthy (red) days in the last five years for which data are available. On unhealthy days, persons are recommended to avoid both prolonged and heavy-exertion outdoor activities.[70] In addition, there were three days designated as very unhealthy (purple) in 2017 during the October fires in the north bay.

Mitigation of Construction-Related and Operational Air Quality Impacts

To address ROG and NOx emissions that would exceed significance thresholds during construction of the proposed project, **Mitigation Measure M-AQ-2a, Construction Emissions Minimization,** shown below, has been identified and would apply during all construction phases.

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[65] The World Bank Group, *Pollution Prevention and Abatement Handbook 1998: Toward Cleaner Production*, pp. 227–230, 1999, *www.ifc.org/wps/wcm/connect/dd7c9800488553e0b0b4f26a6515bb18/.pdf?MOD=AJPERES*, accessed April 23, 2018.

[66] U.S. EPA, *Air Quality Guide for Ozone,* March 2015b, *https://airnow.gov/index.cfm?action=pubs.aqiguideozone*, accessed April 23, 2018.

[67] Bay Area Air Quality Management District, *CEQA Air Quality Guidelines*, May 2017, p. C-15. Accessed January 19, 2016.

[68] California Air Resources Board, *CEPAM 2016- Standard Emission Tool February* 15, 2017, *https://www.arb.ca.gov/app/emsinv/fcemssumcat/fcemssumcat2016.php*, accessed June 6, 2018.

[69] Bay Area Air Quality Management District, *Annual Bay Area Air Quality Summaries*, 2017, *http://www.baaqmd.gov/about-air-quality/air-quality-summaries*, accessed April 23, 2018.

[70] U.S. Environmental Protection Agency, *Air Quality Index, A Guide to Air Quality and Your Health,* February 2014, *www.epa.gov/airnow/aqi_brochure_02_14.pdf,* accessed April 23, 2018.

Mitigation Measure M-AQ-2a: Construction Emissions Minimization

The project sponsor or the project sponsor's contractor shall comply with the following:

A. ***Engine Requirements.***

1. The project sponsor shall ensure that all on-road heavy-duty diesel trucks with a gross vehicle weight rating of 19,500 pounds or greater used at the project site (such as haul trucks, water trucks, dump trucks, and concrete trucks) be model year 2010 or newer.
2. All off-road equipment (including water construction equipment used onboard barges) greater than 25 horse power shall have engines that meet Tier 4 Final off-road emission standards. Tug boats used during project construction shall comply with U.S. EPA Tier 3 Marine standards for Marine Diesel Engine Emissions.
3. Since grid power will be available, portable diesel engines shall be prohibited.
4. Renewable diesel shall be used to fuel all diesel engines unless it can be demonstrated to the Environmental Review Officer (ERO) that such fuel is not compatible with on-road or off-road engines and that emissions of ROG and NOx from the transport of fuel to the project site will offset its NOx reduction potential.
5. Diesel engines, whether for off-road or on-road equipment, shall not be left idling for more than two minutes, at any location, except as provided in exceptions to the applicable state regulations regarding idling for off-road and on-road equipment (e.g., traffic conditions, safe operating conditions). The contractor shall post legible and visible signs in English, Spanish, and Chinese, in designated queuing areas and at the construction site to remind operators of the two-minute idling limit.
6. The contractor shall instruct construction workers and equipment operators on the maintenance and tuning of construction equipment, and require that such workers and operators properly maintain and tune equipment in accordance with manufacturer specifications.

B. ***Waivers.***

The ERO may waive the equipment requirements of Subsection (A)(1) if: a particular piece of off-road equipment is technically not feasible; the equipment would not produce desired emissions reduction due to expected operating modes; installation of the equipment would create a safety hazard or impaired visibility for the operator; or, there is a compelling emergency need to use other off-road equipment. If the ERO grants the waiver, the contractor must use the next cleanest piece of off-road equipment, according to the table below.

The ERO may waive the equipment requirements of Subsection (A)(2) if: a particular piece of off-road equipment with an engine meeting Tier 4 Final emission standards is not regionally available to the satisfaction of the ERO. If seeking a waiver from this requirement, the project sponsor must demonstrate to the satisfaction of the ERO that the health risks from existing sources, project construction and operation, and cumulative sources do not exceed a total of 10 $\mu g/m^3$ or 100 excess cancer risks for any onsite or offsite receptor.

The ERO may waive the equipment requirements of Subsection (A)(3) if: an application has been submitted to initiate on-site electrical power, portable diesel engines may be temporarily operated for a period of up to three weeks until on-site electrical power can be initiated or, there is a compelling emergency.

C. ***Construction Emissions Minimization Plan***. Before starting onsite ground disturbing, demolition, or construction activities, the contractor shall submit a Construction Emissions Minimization Plan to the ERO for review and approval. The plan shall state, in reasonable detail, how the contractor will meet the requirements of Section A, Engine Requirements.

   1. The Construction Emissions Minimization Plan shall include estimates of the construction timeline by phase, with a description of each piece of off-road equipment required for every construction phase. The description 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 usage and hours of operation. For off-road equipment using alternative fuels, the description shall also specify the type of alternative fuel being used.
   2. The project sponsor shall ensure that all applicable requirements of the Construction Emissions Minimization Plan have been incorporated into the contract specifications. The plan shall include a certification statement that the contractor agrees to comply fully with the plan.
   3. The contractor shall make the Construction Emissions Minimization Plan available to the public for review onsite during working hours. The contractor shall post at the construction site a legible and visible sign summarizing the plan. The sign shall also state that the public may ask to inspect the plan for the project at any time during working hours and shall explain how to request to inspect the plan. The contractor shall post at least one copy of the sign in a visible location on each side of the construction site facing a public right-of-way.

D. ***Monitoring***. After start of construction activities, the contractor shall submit quarterly reports to the ERO documenting compliance with the Construction Emissions Minimization Plan. After completion of construction activities and prior to receiving a final certificate of occupancy, the project sponsor shall submit to the ERO a final report summarizing construction activities, including the start and end dates and duration of each construction phase, and the specific information required in the plan.

Residual Impact with Implementation of Mitigation Measure M-AQ-2a

Mitigation Measure M-AQ-2a would reduce construction-related ROG emissions by approximately 31 percent during the construction of phases 1, 2 and 3. Emissions of construction-related NOx would be reduced by approximately 75 percent during construction of phases 1, 2 and 3. The large reduction in construction emissions is a result of starting with fleetwide average emission factors for the construction fleet from OFFROAD for the unmitigated scenario to applying Tier 4 Final emission factors to off-road construction equipment for the mitigated scenario. Mitigated emissions also include emissions reduction from compliance of marine engines with Mitigation Measure M-AQ-2a. Mitigated emissions are presented in **Tables 4.G-7A and 4.G-7B**, **Mitigated Average Daily and Maximum Annual Emissions for the Project During Construction**. Mitigated construction emissions, alone, would be below significance thresholds. However, simultaneous emissions from construction and operations would still exceed thresholds but would be substantially reduced by this measure. For instance, without mitigation, significant criteria pollutant impacts would occur in 2020 starting with phase 0, while with mitigation, significant impacts would not occur until phases 2 and 3 of construction (combined with phase 1 operations) in 2025. Additionally, as discussed below under Impact AQ-4, particulate emission reductions from this measure would be necessary to reduce potential health risk impacts to onsite receptors to less than significant levels. Implementation of this mitigation measure would not result in any adverse environmental effects.

TABLE 4.G-7A
MITIGATED AVERAGE DAILY EMISSIONS FOR THE PROJECT DURING CONSTRUCTION, INCLUDING OVERLAPPING CONSTRUCTION AND OPERATION IN LB/DAY

	Average Daily Emissions (lb/day)*			
	ROG	NOx	PM_{10}	$PM_{2.5}$
Significance Thresholds	**54**	**54**	**82**	**54**
Phase 0 Construction	2.6	19	0.52	0.51
Above Threshold?	No	No	No	No
Phases 0 and 1 Construction	19	43	0.88	0.87
Above Threshold?	No	No	No	No
Phases 1 and 2 Construction	31	36	0.50	0.49
Above Threshold?	No	No	No	No
Phases 0.1, 1 and 2 Construction	32	47	0.59	0.59
Above Threshold?	No	No	No	No
Phases 1, 2 and 3 Construction	39	48	0.67	0.67
Above Threshold?	No	No	No	No
Phases 2 and 3 Construction + Phase 1 Operation	46	**55**	12	4.3
Above Threshold?	No	**Yes**	No	No
Phase 3 Construction + Phases 1 and 2 Operation	48	**54**	17	6.1
Above Threshold?	No	**Yes**	No	No
Phases 3 and 4 Construction + Phases 1 and 2 Operation	**60**	**71**	17	6.3
Above Threshold?	**Yes**	**Yes**	No	No
Phase 4 Construction + Phases 1 through 3 Operation	**60**	**67**	20	7.2
Above Threshold?	**Yes**	**Yes**	No	No
Phases 4, 5 and 6 Construction + Phases 1 through 3 Operation	**85**	**88**	20	7.4
Above Threshold?	**Yes**	**Yes**	No	No
Phases 5 and 6 Construction + Phases 1 through 4 Operation	**94**	**86**	28	10
Above Threshold?	**Yes**	**Yes**	No	No
Phase 6 Construction + Phases 1 through 5 Operation	**94**	**84**	32	12
Above Threshold?	**Yes**	**Yes**	No	No
Phases 1 through 6 Operation**	**101**	**85**	37	14
Above Threshold?	**Yes**	**Yes**	No	No

NOTES: **Bolded** numerical values are totals during construction of a given phase with the addition of operational emissions from previous phases. If the total exceeds a threshold, then the exceedance is identified by shading and a **bolded** "Yes" response.

For each construction phase, annual emissions are divided over the number of construction days for the given phase, to determine the average daily emissions.

* Average daily construction emissions in lb/day are calculated by taking the total construction emissions for a phase and dividing by the number of working days (260 construction working days in a year).

** See Table 4.G-9, below for breakdown of operational emissions.

*** Note that totals may not match sums of intermediate values presented in this table or Air Quality Appendix tables due to rounding.

SOURCE: Ramboll, Tables, Figures and CalEEMod Output, 2018. See Appendix E.

TABLE 4.G-7B
MITIGATED MAXIMUM ANNUAL EMISSIONS FOR THE PROJECT DURING CONSTRUCTION, INCLUDING OVERLAPPING CONSTRUCTION AND OPERATION IN TON/YEAR

	Maximum Annual Emissions (ton/year)			
	ROG	NOx	PM_{10}	$PM_{2.5}$
Significance Threshold	**10**	**10**	**15**	**10**
Phase 0 Construction	0.34	2.5	0.067	0.067
Above Threshold?	No	No	No	No
Phases 0 and 1 Construction	2.5	5.6	0.11	0.11
Above Threshold?	No	No	No	No
Phases 1 and 2 Construction	4.1	4.7	0.064	0.064
Above Threshold?	No	No	No	No
Phases 0.1, 1 and 2 Construction	4.1	5.2	0.069	0.068
Above Threshold?	No	No	No	No
Phases 1, 2 and 3 Construction	5.1	6.3	0.087	0.087
Above Threshold?	No	No	No	No
Phases 2 and 3 Construction + Phase 1 Operation	7.2	8.7	2.2	0.78
Above Threshold?	No	No	No	No
Phase 3 Construction + Phases 1 and 2 Operation	8.3	9.2	3.1	1.1
Above Threshold?	No	No	No	No
Phases 3 and 4 Construction + Phases 1 and 2 Operation	9.9	**11**	3.1	1.1
Above Threshold?	No	**Yes**	No	No
Phase 4 Construction + Phases 1 through 3 Operation	**10**	**11**	3.6	1.3
Above Threshold?	**Yes**	**Yes**	No	No
Phases 4, 5 and 6 Construction + Phases 1 through 3 Operation	**14**	**14**	3.6	1.3
Above Threshold?	**Yes**	**Yes**	No	No
Phases 5 and 6 Construction + Phases 1 through 4 Operation	**16**	**15**	5.0	1.8
Above Threshold?	**Yes**	**Yes**	No	No
Phase 6 Construction + Phases 1 through 5 Operation	**17**	**15**	5.9	2.2
Above Threshold?	**Yes**	**Yes**	No	No
Phases 1 through 6 Operation**	**18**	**15**	6.7	2.5
Above Threshold?	**Yes**	**Yes**	No	No

NOTES: **Bolded** numerical values are totals during construction of a given phase with the addition of operational emissions from previous phases. If the total exceeds a threshold, then the exceedance is identified by shading and a **bolded** “Yes” response.

For each construction phase, annual emissions are divided over the number of construction days for the given phase, to determine the average daily emissions.

* Average daily construction emissions in lb/day are calculated by taking the total construction emissions for a phase and dividing by the number of working days (260 construction working days in a year).

** See Table 4.G-9, below for breakdown of operational emissions.

*** Detailed construction and operational emissions by Phase can be found in Tables 5b, 8c, 8d, 8g and 8h of the Air Quality Appendix.

**** Note that totals may not match sums of intermediate values presented in this table or Air Quality Appendix tables due to rounding.

SOURCE: Ramboll, Tables, Figures and CalEEMod Output, 2018. See Appendix E.

To address emissions that would occur during operation of the proposed project, the following mitigation measures, have been identified: **Mitigation Measure M-AQ-2b, Diesel Backup Generator Specifications**; **Mitigation Measure M-AQ-2c, Promote Use of Green Consumer Products**; **Mitigation Measure M-AQ-2d, Electrification of Loading Docks**; **Mitigation Measure M-TR-5, Implement Measures to Reduce Transit Delay**; **Mitigation Measure M-AQ-2e, Additional Mobile Source Control Measures**; and **Mitigation Measure M-AQ-2f: Offset Construction and Operational Emissions**.

Mitigation Measure M-AQ-2b: Diesel Backup Generator Specifications

To reduce NOx associated with operation of the proposed project, the project sponsor shall implement the following measures:

A. All new diesel backup generators shall:

   1. Have engines that meet or exceed California Air Resources Board Tier 4 off-road emission standards which have the lowest NOx emissions of commercially available generators; and
   2. Be fueled with renewable diesel, if commercially available[71], which has been demonstrated to reduce NOx emissions by approximately 10 percent.

B. All new diesel backup generators shall have an annual maintenance testing limit of 50 hours, subject to any further restrictions as may be imposed by the Bay Area Air Quality Management District in its permitting process.

C. For each new diesel backup generator permit submitted to Bay Area Air Quality Management District for the project, the project sponsor shall submit the anticipated location and engine specifications to the San Francisco Planning Department ERO for review and approval prior to issuance of a permit for the generator from the San Francisco Department of Building Inspection. 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 shall be required to be consistent with these emissions specifications. The operator of the facility at which the generator is located shall be required to maintain records of the testing schedule for each diesel backup generator for the life of that diesel backup generator and to provide this information for review to the planning department within three months of requesting such information.

Residual Impact with Implementation of Mitigation Measure M-AQ-2b

Implementation of Mitigation Measure M-AQ-2b would reduce ROG emissions from generators by 91 percent. NOx emissions from generators would be reduced by 54 percent, and emissions of PM_{10} would be reduced by 90 percent. Operational emissions would still exceed the significance thresholds as the overall contribution of generator emissions to total project emissions is very small. However, as discussed below under Impact AQ-4, particulate emission reductions from this measure are necessary to reduce potential health risk impacts to onsite receptors to less than significant levels. Implementation of this mitigation measure would not result in significant adverse environmental effects.

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[71] Neste MY renewable Diesel is available in the Bay Area through Western States Oil.

Mitigation Measure M-AQ-2c: Promote Use of Green Consumer Products

The project sponsor shall provide educational programs and/or materials for residential and commercial tenants concerning green consumer products. Prior to receipt of any certificate of final occupancy and every five years thereafter, the project sponsor shall work with the San Francisco Department of Environment to develop electronic correspondence to be distributed by email annually to residential and/or commercial tenants of each building on the project site that encourages the purchase of consumer products that generate lower than typical volatile organic compound emissions. The correspondence shall encourage environmentally preferable purchasing and shall include contact information and website links to SF Approved (www.sfapproved.org). This website also may be used as an informational resource by businesses and residents.

Residual Impact with Implementation of Mitigation Measure M-AQ-2c

SF Approved (sfapproved.org) is administrated by the department of environment, and identifies products and services that are required and recommended for use by city departments in connection with the San Francisco's Precautionary Purchasing Ordinance (section 203 of the San Francisco Environment Code). Implementation of Mitigation Measure M-AQ-2c could reduce ROG emissions associated with the use of consumer products. Given that the project sponsor does not have authority to require use of certain products, the effectiveness of this measure is unknown and no reduction in ROG emissions can be estimated from this measure. Implementation of this mitigation measure would not result in any adverse environmental effects.

Mitigation Measure M-AQ-2d: Electrification of Loading Docks

The project sponsor shall ensure that loading docks for retail, light industrial, or warehouse uses that will receive deliveries from refrigerated transport trucks incorporate electrification hook-ups for transportation refrigeration units to avoid emissions generated by idling refrigerated transport trucks.

Residual Impact with Implementation of Mitigation Measure M-AQ-2d

Mitigation Measure M-AQ-2d would reduce emissions of ROG, NOx, and PM_{10}. The number of deliveries from refrigerated transport trucks is estimated to be five deliveries per day, and application of this mitigation measure would result in a reduction of 5.6 lb/year of ROG, 42 lb/year of NOx and 0.25 lb/year of PM_{10}. Implementation of this mitigation measure would not result in significant adverse environmental effects.

Mitigation Measure M-TR-5, Implement Measures to Reduce Transit Delay (see Section 4.E, Transportation and Circulation, Impact TR-5)

Although designed to reduce transit delay, Mitigation Measure M-TR-5 would reduce vehicle trips generated by the proposed project by providing additional transportation demand management (TDM) measures to shift vehicle trips to other modes. The measure identifies a performance standard that would limit the number of project-generated vehicle trips during the p.m. peak hour to a maximum of 89 percent of the EIR-estimated values for each phase of project development. These measures could include expansion of measures already included in the project's proposed TDM Plan (e.g., providing additional project shuttle routes to alternative destinations, increases in tailored transportation marketing services, etc.) or other measures identified by the City.

Residual Impact with Implementation of Mitigation Measure M-TR-5

Shifting of a portion of project-generated vehicle trips to other modes through implementation of **Mitigation Measure M-TR-5** would reduce projected vehicle trips. Consistent with Impact TR-5 of Section 4.E Transportation and Circulation it is estimated that this measure would reduce vehicle trips by 11 percent. Application of this mitigation measure would result in a reduction of 0.3 lb/year of ROG, 1.2 lb/year of NOx and 0.7 lb/year of PM_{10}.

Mitigation Measure M-AQ-2e: Additional Mobile Source Control Measures

The following Mobile Source Control Measures from the Bay Area Air Quality Management District's 2010 Clean Air Plan shall be implemented:

- Promote use of clean fuel-efficient vehicles through preferential (designated and proximate to entry) parking and/or installation of charging stations beyond the level required by the City's Green Building code, from eight to 20 percent.
- Promote zero-emission vehicles by requesting that any car share program operator include electric vehicles within its car share program to reduce the need to have a vehicle or second vehicle and to reduce vehicle emissions as a part of the TDM program that would be required of all new developments.

Residual Impact with Implementation of Mitigation Measure M-AQ-2e

Mitigation Measure M-AQ-2e would marginally reduce mobile source emissions of ROG, NOx, and PM_{10}. No additional emissions reductions were quantified from implementation of this mitigation measure. Implementation of this mitigation measure would not result in any adverse environmental effects.

Mitigation Measures M-AQ-2a though M-AQ-2e and M-TR-5 would reduce construction and operational emissions of ozone precursors to the extent feasible. However, as indicated in Tables 4.G-7A and 4.G-7B above, project emissions of ROG and NOx would still exceed significance thresholds, both during construction and at full buildout. Because emissions during construction would exceed thresholds, all feasible mitigation measures are identified, including those for project operations which would occur during construction of later phases. For ROG and NOx emissions, the greatest threshold exceedances with inclusion of all feasible mitigation would occur during post-construction operation under full buildout when annual emissions would be 8 tons per year and 5 tons per year greater than the 10-ton-per-year thresholds for ROG and NOx, respectively. These exceedances are addressed below in **Mitigation Measure M-AQ-2f: Offset Construction and Operational Emissions**. This offset requirement is intended to offset the criteria air pollutant emissions from construction and operations remaining above significance levels after implementing the emission source reduction mitigation measures discussed.

Mitigation Measure M-AQ-2f: Offset Construction and Operational Emissions

Prior to issuance of the final certificate of occupancy for the final building associated with Phase 1, the project sponsor, with the oversight of the ERO, shall either:

(1) ***Directly fund or implement a specific offset project within San Francisco*** to achieve the equivalent to a one-time reduction of 13 tons per year of ozone precursors. To qualify under this mitigation measure, the specific emissions offset project must result

in emission reductions within the San Francisco Bay Area Air Basin that would not otherwise be achieved through compliance with existing regulatory requirements. A preferred offset project would be one implemented locally within the City and County of San Francisco. Prior to implementing the offset project, it must be approved by the ERO. The project sponsor shall notify the ERO within six months of completion of the offset project for verification; or

(2) ***Pay mitigation offset fees*** to the Bay Area Air Quality Management District Bay Area Clean Air Foundation. The mitigation offset fee, currently estimated at approximately $30,000 per weighted ton, plus an administrative fee of no more than 5 percent of the total offset, shall fund one or more emissions reduction projects within the San Francisco Bay Area Air Basin. The fee will be determined by the planning department, the project sponsor, and the air district, and be based on the type of projects available at the time of the payment. This fee is intended to fund emissions reduction projects to achieve reductions of 13 tons of ozone precursors per year, which is the amount required to reduce emissions below significance levels after implementation of other identified mitigation measures as currently calculated.

The offset fee shall be made prior to issuance of the final certificate of occupancy for the final building associated with Phase 1 of the project (or an equivalent of approximately 360,000 square feet of residential, 176,000 square feet of office, 16,000 square feet of retail, 15,000 square feet of PDR, 240,000 square feet of hotel, and 25,000 square feet of assembly) when the combination of construction and operational emissions is predicted to first exceed 54 pounds per day. This offset payment shall total the predicted 13 tons per year of ozone precursors above the 10 ton per year threshold after implementation of Mitigation Measures M-AQ-2a though M-AQ-2e and M-TR-5.

The total emission offset amount was calculated by summing the maximum daily construction and operational emissions of ROG and NOx (pounds/day), multiplying by 260 work days per year for construction and 365 days per year for operation, and converting to tons. The amount represents the total estimated operational and construction-related ROG and NOx emissions offsets required.

(3) ***Additional mitigation offset fee.*** The need for an additional mitigation offset payment shall be determined as part of the performance standard assessment of Mitigation Measure M-TR-5. If at that time, it is determined that implementation of Mitigation Measure M-TR-5 has successfully achieved its targeted trip reduction at project buildout, or the project sponsor demonstrates that the project’s emissions upon the earlier of: (a) full buildout or (b) termination of the Development Agreement are less than the 10-ton-per-year thresholds for ROG and NOx, then no further installment shall be required. However, if the performance standard assessment determines that the trip reduction goal has not been achieved, and the project sponsor is unable to demonstrate that the project’s emissions upon the earlier of: (a) full buildout or (b) termination of the Development Agreement are less than the 10-ton-per-year thresholds for ROG and NOx, then an additional offset payment shall be made in an amount reflecting the difference in emissions, in tons per year of ROG and NOx, represented by the shortfall in trip reduction.

Documentation of mitigation offset payments, as applicable, shall be provided to the planning department.

When paying a mitigation offset fee, the project sponsor shall enter into a memorandum of understanding (MOU) with the Bay Area Air Quality Management District Clean Air

> Foundation. The MOU shall include details regarding the funds to be paid, the administrative fee, and the timing of the emissions reductions project. Acceptance of this fee by the air district shall serve as acknowledgment and a commitment to (1) implement an emissions reduction project(s) within a time frame to be determined, based on the type of project(s) selected, after receipt of the mitigation fee to achieve the emissions reduction objectives specified above and (2) provide documentation to the planning department and the project sponsor describing the project(s) funded by the mitigation fee, including the amount of emissions of ROG and NOx reduced (tons per year) within the San Francisco Bay Area Air Basin from the emissions reduction project(s). To qualify under this mitigation measure, the specific emissions reduction project must result in emission reductions within the basin that are real, surplus, quantifiable, and enforceable and would not otherwise be achieved through compliance with existing regulatory requirements or any other legal requirement. The requirement to pay such mitigation offset fee shall terminate if the project sponsor is able to demonstrate that the project's emissions upon the earlier of: (a) full buildout or (b) termination of the Development Agreement are less than the 10-ton-per-year thresholds for ROG and NOx.

Residual Impact with Implementation of Mitigation Measure M-AQ-2f

Mitigation Measure M-AQ-2f would offset emissions of ROG and NOx that would exceed the respective thresholds of significance for these pollutants. Implementation of the emissions reduction project could be conducted by the Bay Area Air Quality Management District and is outside the jurisdiction and control of the City and not fully within the control of the project sponsor. Mitigation Measure M-AQ-2f also allows the project sponsor to directly fund or implement an offset project; however, no such project has yet been identified. Therefore, the residual impact of project emissions during construction and overlapping operations is conservatively considered ***significant and unavoidable with mitigation***, acknowledging the assumption that the project sponsor would implement Mitigation Measures M-AQ-2a though M-AQ-2e and M-TR-5, in addition to Mitigation Measure M-AQ-2f. Although the specific offset projects are not known, it is anticipated that implementation of this mitigation measure would not result in any adverse environmental effects.

Summary

Construction emissions of criteria air pollutants, including emissions from operational components of the project that overlap with construction phases, would exceed significance thresholds for criteria air pollutants, a significant impact. Implementation of Mitigation Measures M-AQ-2a through M-AQ-2e and M-TR-5 would reduce construction-related and operational emissions associated with the proposed project, as quantified in Tables 4.G-7A and 4.G-7B, above. However, as indicated in Tables 4.G-7A and 4.G-7B, project emissions of ROG and NOx would still exceed significance thresholds. Therefore, the project sponsor would also be required to implement Mitigation Measure M-AQ-2f, which requires the project sponsor to implement emission offsets. However, because implementation of the emissions reduction project could be conducted by the air district and is outside the jurisdiction and control of the City and not fully within the control of the project sponsor and because no specific offset project has been identified, the impact with respect to criteria air pollutants is conservatively considered ***significant and unavoidable with mitigation***.

Mitigation Measure M-AQ-2a: Construction Emissions Minimization (see above)

Mitigation Measure M-AQ-2b: Diesel Backup Generator Specifications (see above)

Mitigation Measure M-AQ-2c: Promote Use of Green Consumer Products (see above)

Mitigation Measure M-AQ-2d: Electrification of Loading Docks (see above)

Mitigation Measure M-TR-5, Implement Measures to Reduce Transit Delay (see Section 4.E Transportation and Circulation, Impact TR-5)

Mitigation Measure M-AQ-2e: Additional Mobile Source Control Measures (see above)

Mitigation Measure M-AQ-2f: Offset Construction and Operational Emissions (see above)

Significance after Mitigation: Significant and Unavoidable.

Impact AQ-3: During project operations, the proposed project would result in emissions of criteria air pollutants at levels that would violate an air quality standard, contribute to an existing or projected air quality violation, or result in a cumulatively considerable net increase in criteria air pollutants. (*Significant and Unavoidable with Mitigation*)

Operation of the proposed project has the potential to create air quality impacts, which would be associated primarily with mobile, area, stationary, and energy sources. Motor vehicle traffic would include daily resident vehicle trips, commercial employee commute trips, visitor, delivery truck, and waste management truck trips. Area sources include landscaping equipment, and the off-gassing associated with reapplication of architectural coatings, and consumer products (e.g., solvents, cleaning supplies, cosmetics, toiletries). Foreseeable stationary sources would consist of emergency diesel generators. Energy sources include natural gas combustion for stoves and industrial uses.Each of these sources was taken into account in calculating the proposed project's long-term operational emissions.

Estimated operational emissions under the maximum office scenario are summarized in **Table 4.G-8, Unmitigated Average Daily and Maximum Annual Operational Emissions at Project Buildout**. Project design features incorporating sustainability elements, including building energy efficiency measures, are included in the project analysis presented in Table 4.G-8. As shown in Table 4.G-8, project operational emissions would be below thresholds of significance for PM_{10} and $PM_{2.5}$ but above the threshold of significance for ROG and for NO_x (starting in year 2031 and each year thereafter). At full buildout in 2034, operational emissions would total 105 pounds per day of ROG, which is 51 pounds per day over the threshold. At full buildout in 2034, operational emissions would total 102 pounds per day of NO_x, which is 48 pounds per day over the threshold. This is a *significant* impact. Therefore, mitigation measures are required to reduce operational emissions.

The majority of ROG emissions are generated from area sources, including architectural coatings, consumer products, and landscaping. Of the area-source emissions, the majority of the ROG emissions (approximately 83 percent) would be from consumer products, which are the various solvents that are used in nonindustrial applications and emit VOCs during their use. These typically include cleaning supplies, kitchen aerosols, cosmetics, and toiletries. Mobile-source emissions are estimated to generate the second-highest amount of ROG emissions (approximately 12 percent). The majority of NO_x emissions would be generated by mobile sources (approximately 60 percent), natural gas combustion (approximately 19 percent), and use of emergency generators (approximately 19 percent).

TABLE 4.G-8
UNMITIGATED AVERAGE DAILY AND MAXIMUM ANNUAL OPERATIONAL EMISSIONS AT PROJECT BUILDOUT FOR THE MAXIMUM OFFICE SCENARIO[a]

	Average Daily Emissions (lb/day)			
	ROG	NOx	PM_{10}	$PM_{2.5}$
Area Source	87	1.8	2.1	2.1
Natural Gas Combustion	2.2	19	1.5	1.5
Mobile Source	13	61	37	11
Stationary Source (generators)	2.9	19	0.67	0.67
Transportation Refrigeration Units	0.065	0.49	0.0030	0.0027
Total	**105**	**102**	**42**	**15**
Significance Threshold	54	54	82	54
Above Threshold?	**Yes**	**Yes**	No	No
	Maximum Annual Emissions (ton/year)			
Area Source	16	0.32	0.39	0.39
Natural Gas Combustion	0.40	3.5	0.27	0.27
Mobile Source	2.4	11	6.8	2.0
Stationary Source (generators)	0.53	3.4	0.12	0.12
Transportation Refrigeration Units	0.012	0.090	0.00054	0.00050
Total	**19**	**19**	**7.6**	**2.8**
Significance Threshold	10	10	15	10
Above Threshold?	**Yes**	**Yes**	No	No

NOTE: **Bolded** numerical values are totals during operation. If the total exceeds a threshold, then the exceedance is identified by a **bolded** “Yes” response.

[a] The Maximum Office Scenario reflects the worst case emissions of possible development options because vehicle trip generation would be the greatest under this option. However, ROG emissions reflect the maximum residential development scenario which would result in the greatest area source emissions.

* Note that totals may not match sums of intermediate values presented in this table or Air Quality Appendix tables due to rounding.

SOURCE: Ramboll, Tables, Figures and CalEEMod Output, 2018. See Appendix E.

The increase in emissions associated with the proposed project represents 0.02 percent of total San Francisco Bay Area Air Basin regional ROG emissions (19 tons per year or 0.05 tons per day compared to an estimated 213 tons per day in the basin region in 2017) and 0.04 percent of total basin regional NOx emissions (up to 19 tons per year or 0.05 tons per day compared to an estimated 244 tons per day in the basin region in 2017.[72] Although Table 4.G-1 above, shows that the most stringent applicable ozone standards were not exceeded at the San Francisco-Arkansas Street monitoring station between 2013 and 2017, the San Francisco Bay Area Air Basin region as a whole experienced an average of nine days of exceedances per year between 2013 and 2017.[73] As discussed above in Impact AQ-1 under *Health Implications of Significant Impacts Related to Emissions of Ozone Precursors*, the ROG and NOx increase from the proposed project could contribute to an air quality violation in the air basin by contributing to more days of ozone exceedance or result in

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[72] California Air Resources Board, 2015, *CEPAM 2016- Standard Emission Tool February* 15, 2017, *https://www.arb.ca.gov/app/emsinv/fcemssumcat/fcemssumcat2016.php*, accessed June 6, 2018.

[73] Bay Area Air Quality Management District, *Annual Bay Area Air Quality Summaries*, *http://www.baaqmd.gov/about-air-quality/air-quality-summaries*, accessed April 23, 2018.

index values that would be unhealthy for sensitive groups and others. As shown in Table 4.G-3, the San Francisco Bay Area Air Basin averaged between nine and 19 days per year that were considered unhealthy for sensitive groups and zero to nine days per year that were considered unhealthy (red) in the last five years. On unhealthy days, it is recommended that people avoid both prolonged and heavy exertion in their outdoor activities.[74] In addition, there were three days designated as very unhealthy (purple) in 2017 during the October fires in the north bay.

Mitigation Measure M-AQ-2b (see Impact AQ-2, above) would require use of emergency diesel generators with Tier 4 engines to reduce significant NOx emissions. **Mitigation Measure M-AQ-2c** (see Impact AQ-2, above) would require the project sponsor to educate residential tenants and encourage commercial tenants to purchase products that are safer and better for the environment; however, given that the project sponsor does not have authority to require use of certain products, no reduction in ROG emissions can be attributed to this measure. **Mitigation Measure M-AQ-2d** (see Impact AQ-2, above) would require electrification of loading docks. The number of deliveries from refrigerated transport trucks is estimated to be five deliveries per day, and application of this mitigation measure would result in a reduction of 5.6 lb/year of ROG, 42 lb/year of NOx and 0.25 lb/year of PM_{10}. **Mitigation Measure M-TR-5, Implement Measures to Reduce Transit Delay** (see Section 4.E, Transportation and Circulation) would require implementation of additional Transportation Demand Management measures with a goal of reducing vehicle trips by 11 percent It is estimated that this measure would result in a reduction of 0.3 tons/year of ROG, 1.2 tons/year of NOx and 0.7 tons/year of PM_{10} at full buildout. **Measure M-AQ-2e** would require additional mobile source control measures through promoting use of clean fuel-efficient vehicles. **Mitigation Measure M-AQ-2f** (see Impact AQ-2, above) would require the project sponsor to be responsible, either directly or financially, for implementing mitigation offsets to compensate for the emissions remaining above significance levels after implementation of all other identified mitigation measures.

Table 4.G-9, **Mitigated Average Daily and Maximum Annual Operational Emissions at Project Buildout**, summarizes operational emissions with implementation of measures to reduce project impacts. As shown, with incorporation of identified mitigation measures, operational ROG and NOx emissions would remain in excess of the significance thresholds, which would occur once Phase 4 is operational in 2031 and in each operational year thereafter for the life of the project. Therefore, the residual impact of project emissions during operation at buildout is conservatively considered significant and unavoidable with mitigation, acknowledging the assumption that the project sponsor would implement Mitigation Measures M-AQ-2a though M-AQ-2f and M-TR-5. As described in Impact AQ-2, above, implementation of these measures could potentially reduce emissions to levels below the significance thresholds, but due to the uncertainties and unknowns with some of these measures, particularly, Mitigation Measure M-AQ-2f (Offset Construction and Operational Emissions), this impact is conservatively deemed ***significant and unavoidable with mitigation***.

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[74] U.S. Environmental Protection Agency. 2014. *Air Quality Index, A Guide to Air Quality and Your Health*, *www.epa.gov/airnow/aqi_brochure_02_14.pdf*, accessed: April 23. 2018.

TABLE 4.G-9
MITIGATED AVERAGE DAILY AND MAXIMUM ANNUAL OPERATIONAL EMISSIONS AT PROJECT BUILDOUT FOR THE MAXIMUM OFFICE SCENARIO[a]

	Average Daily Emissions (lb/day)			
	ROG	**NOx**	**PM_{10}**	**$PM_{2.5}$**
Area Source	87	1.8	2.1	2.1
Natural Gas Combustion	2.2	19	1.5	1.5
Mobile	12	54	33	10
Stationary Source (generators)	0.27	8.7	0.066	0.066
Transportation Refrigeration Units	0.050	0.38	0.0023	0.0021
Total	**101**	**85**	**37**	**14**
Significance Threshold	54	54	82	54
Above Threshold?	**Yes**	**Yes**	No	No
	Maximum Annual Emissions (ton/year)			
Area Source	16	0.32	0.39	0.39
Natural Gas Combustion	0.40	3.5	0.27	0.27
Mobile	2.1	9.9	6.1	1.8
Stationary Source (generators)	0.049	1.6	0.012	0.012
Transportation Refrigeration Units	0.0091	0.068	0.00041	0.00038
Total	**18**	**15**	**6.7**	**2.5**
Significance Threshold	10	10	15	10
Above Threshold?	**Yes**	**Yes**	No	No

NOTE: **Bolded** numerical values are totals during operation. If the total exceeds a threshold, then the exceedance is identified by a **bolded** “Yes” response.

[a] The Maximum Office Scenario reflects the worst case emissions of possible development options because vehicle trip generation would be the greatest under this option. However, ROG emissions reflect the maximum residential development scenario which would result in the greatest area source emissions.

* Note that totals may not match sums of intermediate values presented in this table or Air Quality Appendix tables due to rounding.

SOURCE: Ramboll, Tables, Figures and CalEEMod Output, 2018. See Appendix E.

Mitigation Measure M-AQ-2b: Diesel Backup Generator Specifications (see Impact AQ-2, above)

Mitigation Measure M-AQ-2c: Promote Use of Green Consumer Products (see Impact AQ-2, above)

Mitigation Measure M-AQ-2d: Electrification of Loading Docks (see Impact AQ-2, above)

Mitigation Measure M-TR-5, Implement Measures to Reduce Transit Delay (see Section 4.E, Transportation and Circulation, Impact TR-5)

Mitigation Measure M-AQ-2e: Additional Mobile Source Control Measures (see Impact AQ-2, above)

Mitigation Measure M-AQ-2f: Offset Construction and Operational Emissions (see Impact AQ-2, above)

Significance after Mitigation: Significant and Unavoidable

Impact AQ-4: Construction and operation of the proposed project would generate toxic air contaminants, including DPM, which could expose sensitive receptors to substantial pollutant concentrations. (*Less than Significant with Mitigation*)

Site preparation activities, such as demolition, excavation, grading, foundation construction, and other ground-disturbing construction activity, would affect localized air quality during the construction phases of the proposed project. Short-term emissions from construction equipment during these site preparation activities would include directly emitted PM ($PM_{2.5}$ and PM_{10}) and TACs such as DPM. Additionally, the long-term operational emissions from the project's mobile and stationary sources, as described in Impact AQ-3, would include PM ($PM_{2.5}$) and TACs such as DPM and some compounds or variations of ROGs. The generation of these short- and long-term emissions could expose sensitive receptors to substantial pollutant concentrations of TACs, resulting in a localized health risk. Therefore, a health risk assessment was conducted for the proposed project to determine the health risk of project construction and operations to both offsite and onsite receptors (see Appendix E, Air Quality Supporting Information, for detailed presentation of methodology and assumptions).

Neither the proposed onsite receptors (residences and daycare facilities) nor the nearest offsite receptors are located within an area that currently meets the APEZ criteria (100 in one million excess cancer risk or a $PM_{2.5}$ concentration of 10 μg/m^3).[75] For receptors not located in areas that meet the APEZ criteria, a health risk assessment is conducted to determine whether the proposed project would, in combination with other existing sources in the area, result in a given offsite or onsite receptor meeting the APEZ criteria. If a receptor point meets the APEZ criteria, that otherwise would not without the project, a project would result in a significant health risk impact if the project would contribute to $PM_{2.5}$ concentrations at or above 0.3 μg/m^3 or result in an excess cancer risk at or greater than 10.0 per one million persons exposed.

Excess Cancer Risk from Construction and Operation Emissions at Offsite Receptors

The cancer risk analysis in the health risk assessment for the project is based on DPM concentrations from construction on- and off-road equipment, as well as the operational DPM concentrations from the emergency generators and project generated vehicle emissions. The assessment evaluated excess cancer risk and $PM_{2.5}$ concentrations as a result of exposure to both construction and operational emissions.

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[75] Ramboll previously performed a review of city-wide CRRP modeling data and found that the emissions from the BAE Systems sources were incorrectly located, causing the Pier 70 Mixed-Use District project site to be incorrectly designated as within an Air Pollutant Exposure Zone (APEZ). Ramboll worked with the air district to more accurately locate these emissions within the city-wide model, and revised modeling was conducted to reassess cancer risk and PM2.5 concentrations within the project area and its surroundings. This updated modeling demonstrated that neither the proposed project site nor the Pier 70 Mixed-Use District project site meet the criteria for being within an APEZ at this location, meaning that the existing excess cancer risk is below 100 per one million and PM2.5 concentrations are below 10 μg/m^3.

The maximum estimated excess lifetime cancer risk from all project sources (assuming a receptor was born during construction and exposed to project-related emissions for 30 years) at offsite sensitive receptor locations[76] is presented in **Table 4.G-10, Lifetime Cancer Risk and PM2.5 Concentrations of the Proposed Project at Offsite Receptors**. Offsite receptors considered in the health risk assessment include both existing offsite receptors and planned future offsite receptors at the Pier 70 Mixed-Use District project site directly north of the proposed project. The majority of project-generated excess cancer risk at the *Maximum Exposed Individual Sensitive Receptor* would be attributable to construction emissions. The project's emissions would combine with existing background concentrations and would exceed the APEZ excess cancer risk criteria of an excess cancer risk of 100 per one million persons exposed, with the project contributing cancer risks of up to 388 per million at future Pier 70 Mixed-Use District project sensitive receptor locations. The project would also result in non-Pier 70 offsite sensitive receptor locations that meet the APEZ criteria, with the project contributing an excess cancer risk of up to 47 per million at these offsite residential locations. The project's excess cancer risk contribution would exceed the significance threshold of 10. Therefore, without mitigation, the impact with regard to increased cancer risk would be significant for offsite receptors. However, Table 4.G-10 also shows the cancer risk under the mitigated condition, which includes emission reductions quantified for **Mitigation Measures M-AQ-2a (Construction Emissions Minimization), and M-AQ-2b (Diesel Backup Generator Specifications).** As indicated in Table 4.G-10, construction emissions contribute over 90 percent of the unmitigated project's health risk. Consequently, implementation of Mitigation Measure M-AQ-2a alone would be sufficient to reduce this impact to a less than significant level, and the excess cancer risk impact to offsite receptors would be *less than significant with mitigation*.

Excess Cancer Risk from Construction and Operational Emissions at Onsite Receptors

The proposed project would include development of residential units and daycare facilities, which are considered sensitive land uses for purposes of the air quality evaluation. The proposed project would result in construction-related TAC emissions that would affect the occupants of the first phases of the proposed project and diesel backup generators may also impact these future residents. The estimated excess cancer risk from the emissions at the onsite maximum exposed individual sensitive receptor are presented in **Table 4.G-11, Lifetime Cancer Risk and PM2.5 Concentration at the Maximally Impacted Onsite Receptors**. The project's emissions would combine with existing background concentrations and would exceed the APEZ excess cancer risk criteria of 100 per one million persons exposed, with the project contributing cancer risks up to 349 per million. The project's contribution of an excess cancer risk of 349 per one million person exposed would exceed the significance threshold of 10. Therefore, the impact with regard to increased cancer risk would be significant for onsite receptors.

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[76] For a list of existing offsite sensitive receptors within 900 feet of the project site, refer to Section 4.F, Noise, Table 4.F-4, Sensitive Receptors in the Project Vicinity. The health risk impact analysis also includes receptor locations out to a distance of 3,280 feet (1,000 meters) from the project site, consistent with citywide modeling. In addition to the residential receptors, four schools and a daycare within 1,200 feet of the project site were identified: Dogpatch Alternative School (site 2), Potrero Kids Daycare, La Picola Scuola Italiana, and Friends of Potrero Hill Nursery School.

TABLE 4.G-10
LIFETIME CANCER RISK AND PM2.5 CONCENTRATION OF THE PROPOSED PROJECT AT OFFSITE RECEPTORS

Source	Lifetime Excess Cancer Risk (in one million)		PM2.5 Concentration[c] ($\mu g/m^3$)	
	Unmitigated	**Mitigated**	**Unmitigated**	**Mitigated**
Residential and Daycare Receptors (Pier 70)[a]				
Background	31	31	8.3	8.4
Construction – Off-road Emissions	384	32	0.99	0.10
Construction – Vehicle Traffic	0.0087	0.0057	<0.001	<0.001
Operation – Emergency Generators	4.0	0.38	<0.001	<0.001
Operation – Vehicle Traffic	0.49	0.49	0.018	0.16
Existing plus Project Total	**419**	**63**	**9.3**	**8.7**
APEZ Criteria	100	100	10.0	10.0
Significant?	**Yes**	No	No	No
Residential Receptor (non-Pier 70)				
Background	54	54	8.6	8.5
Construction – Off-road Emissions	42	4.2	0.099	0.010
Construction – Vehicle Traffic	0.025	0.012	0.0016	0.0018
Operation – Emergency Generators	0.57	0.053	0[b]	0[b]
Operation – Vehicle Traffic	4.4	4.4	0.21	0.21
Existing plus Project Total	**100**	**62**	**8.9**	**8.8**
APEZ Criteria	100	100	10.0	10.0
Significant?	Yes	No	No	No
School Receptor				
Background	39	39	8.4	8.4
Construction – Off-road Emissions	8.8	1.0	0.028	0.0029
Construction – Vehicle Traffic	0.0039	0.0022	<0.001	<0.001
Operation – Emergency Generators	0.059	0.0051	0[b]	0[b]
Operation – Vehicle Traffic	1.5	1.5	0.055	0.055
Existing plus Project Total	**49**	**42**	**8.5**	**8.5**
APEZ Criteria	100	100	10.0	10.0
Significant?	No	No	No	No

NOTES:

[a] Assumes Pier 70 resident will move in while construction of the Project is ongoing. The cancer risk resulting from Project emissions to the Pier 70 resident assumes exposure to Project emissions begins in 2024.

[b] The annual $PM_{2.5}$ concentrations from emergency generators for the offsite resident (Non-Pier 70) and the maximum exposed individual sensitive receptors for schools are zero because the maximum annual PM2.5 concentrations would occur in years before the emergency generators would be operational.

[c] The maximum annual PM2.5 concentration would occur in the following years at the corresponding maximum exposed individual sensitive receptors:

Unmitigated: Offsite Resident (Pier 70): 2025; Offsite Resident (Non-Pier 70): 2024; School Receptor: 2024.

Mitigated: Offsite Resident (Pier 70): 2030; Offsite Resident (Non-Pier 70): 2030; School Receptor: 2022.

* Note that totals may not match sums of intermediate values presented in this table or Air Quality Appendix tables due to rounding.

SOURCE: Ramboll, Tables, Figures and CalEEMod Output, 2018. See Appendix E.

TABLE 4.G-11
LIFETIME CANCER RISK AND PM2.5 CONCENTRATION AT THE PROPOSED PROJECT ONSITE RECEPTORS[a]

	Lifetime Excess Cancer Risk (in one million)		PM2.5 Concentration[b] ($\mu g/m^3$)	
Source	**Unmitigated**	**Mitigated[a]**	**Unmitigated**	**Mitigated**
Background	38	38	8.4	8.4
Construction – Off-road Emissions	338	36	0.82	0.11
Construction – Vehicle Traffic	0.031	0.023	0.0022	0.0012
Operation – Emergency Generators	7.9	0.78	0.002	0.0005
Operation – Vehicle Traffic	3.2	3.2	0.12	0.062
Existing plus Project Total	**387**	**77**	**9.3**	**8.6**
APEZ Criteria	100	100	10.0	10.0
Significant?	**Yes**	No	No	No

NOTES:

[a] Onsite receptors include residences and potential daycare centers modeled as residential receptors, which result in a conservative (worst-case) exposure assumption.

[b] The Maximum Annual PM2.5 Concentration occurred in the following years at the corresponding maximum exposed individual sensitive receptors:

Uncontrolled (Unmitigated): 2027. Controlled (Mitigated): 2031-2032.

* Note that totals may not match sums of intermediate values presented in this table or Air Quality Appendix tables due to rounding.

SOURCE: Ramboll, Tables, Figures and CalEEMod Output, 2018. See Appendix E.

However, the mitigated condition assumed in the health risk assessment includes emission reductions quantified for Mitigation Measures M-AQ-2a (Construction Emissions Minimization) and M-AQ-2b (Diesel Backup Generator Specifications). As indicated in Table 4.G-11, construction emissions contribute over 90 percent of the unmitigated project's health risk. Consequently, implementation of Mitigation Measure M-AQ-2a alone would be sufficient to reduce the project's excess cancer risk impact to onsite receptors to a less than significant level, and this impact to onsite receptors would be *less than significant with mitigation*.

PM2.5 Concentrations from Construction and Operation Emissions at Offsite Receptors

The maximum estimated PM2.5 concentrations from all project sources at offsite receptor locations are presented in Table 4.G-10. As shown in the table, unmitigated emissions in combination with background concentrations would result in PM2.5 concentrations of 9.3 $\mu g/m^3$ or less, which would be below the levels for causing a new location to meet the APEZ criteria of 10 $\mu g/m^3$. Therefore, this would be a *less than significant* impact.

PM2.5 Concentrations from Construction and Operation Emissions at Onsite Receptors

The maximum estimated PM2.5 concentrations from all project sources at onsite receptor locations are presented in Table 4.G-11. As shown in the table, unmitigated emissions in combination with background concentrations would result in PM2.5 concentrations of 9.3 $\mu g/m^3$ or less, which would be below the levels for causing a new location to meet the APEZ criteria of 10 $\mu g/m^3$. Therefore, this would be a *less than significant* impact.

In summary, the proposed project would result in a significant health risk impact to both offsite and onsite sensitive receptors with respect to increased cancer risk. This impact would be reduced to less than significant with incorporation of Mitigation Measure M-AQ-2a.

Cancer Risk from Operation of Proposed Land Uses

The proposed project includes a variety of proposed uses that could potentially generate TAC emissions, such as research and development (R&D)/life science uses and production, distribution, and repair (PDR) uses. As indicated in Figure 2-5 in the Project Description, project blocks with potential for R&D uses would include Blocks 2, 3, 4, 10, 11, and/or 12.

Emissions from life sciences laboratories can include TACs. However, emissions of TACs are typically small for life science laboratories as the chemicals used in such labs tend towards aqueous-based solutions. Moreover, the Bay Area Air Quality Management District regulates emissions from laboratories. Laboratories with fewer than 50 fume hoods or less than 25,000 square feet of laboratory space are exempted from permitting as air quality impacts are likely *de minimis* sources of TACs. Laboratories that exceed this fume hood count or the square footage threshold can also be exempt from permitting requirements if it can be demonstrated that emissions of volatile organic compounds (VOCs) do not exceed five tons per year, cancer risk does not exceed 10 in a million, and chronic and acute health indices do not exceed 1.0. While laboratories of the size proposed for this development are not expected to come close to exceeding these emissions and health risk thresholds, it is not possible to reasonably estimate emissions from future laboratory uses at this time, so the potential for future health risk impacts from laboratory emissions is conservatively considered to be significant. However, implementation of **Mitigation Measure AQ-4, Siting of Uses that Emit TACs**, would reduce this impact to *less than significant with mitigation*.

Likewise, exact types of PDR activities have not been specified for the development and may include a wide range of light industrial activities. Oftentimes, these activities may require the use of stationary sources of air emissions such as, but not limited to, boilers, engines, and generators. Emissions may include products of combustion, particulate matter, and TACs. The exact types and quantities of stationary sources cannot be identified at this time as specific PDR activities have not yet been identified. It is expected that the impacts to air quality from these miscellaneous stationary sources would be *de minimis*. In fact, the Bay Area Air Quality Management District has permit exemptions for certain small equipment it deems to have a negligible impact to air quality such as natural gas boilers rated at less than 10 MMBtu/hr. If the level of air emissions from these sources rises to a level of concern, then the air district would require a permit to manage those emissions. Per its Engineering Policy and Procedure Manual,[77] the air district requires implementation of Best Available Control Technology for toxics and would deny an Authority to Construct or a Permit to Operate for any new or modified source of TACs that exceeds a cancer risk of 10 in one million or a chronic or acute hazard index of 1.0. The permitting process under air district Regulation 2, Rule 5 requires a Health Risk Screening Analysis. Therefore, the potential for future health risk impacts from potential laboratory emissions is addressed through implementation of **Mitigation Measure AQ-4, Siting of Uses that**

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[77] Bay Area Air Quality Management District, Engineering Policy and Procedure Manual, 2013, *http://www.baaqmd.gov/~//files/engineering/_and_procedures/engineering-policy-and-procedure-manual.pdf?la=en*, accessed April 19, 2018.

Emit Toxic Air Contaminants, which requires that for any future uses that would be expected to generate TACs as part of everyday operations, the project sponsor shall obtain written verification from the air district that these future uses comply with their permit requirements and the project sponsor shall submit written verification to the Planning Department that increased cancer risk associated with any such uses does not cumulatively exceed five in one million at any onsite receptor. The term cumulative here means the total contribution from all uses that would emit TACs. The performance standard of 10 in one million is based on the APEZ criteria of 100 in one million minus the mitigated cancer risk for the project of 89 in one million under cumulative conditions (see Table 4.G-14, below, under cumulative health risk impacts). With implementation of this measure, this impact would be *less than significant with mitigation*.

> **Mitigation Measure AQ-4: Siting of Uses that Emit Toxic Air Contaminants**
>
> For new development including R&D/life science uses and PDR use or other uses that would be expected to generate toxic air contaminants (TACs) as part of everyday operations, prior to issuance of the certificate of occupancy, the project sponsor shall obtain written verification from the Bay Area Air Quality Management District either that the facility has been issued a permit from the air district, if required by law, or that permit requirements do not apply to the facility. However, since air district could potentially issue multiple separate permits to operate that could cumulatively exceed an increased cancer risk of 10 in one million, the project sponsor shall also submit written verification to the San Francisco Planning Department that increased cancer risk associated with all such uses does not cumulatively exceed 10 in one million at any onsite receptor. This measure shall be applicable, at a minimum, to the following uses and any other potential uses that may emit TACs: gas dispensing facilities; auto body shops; metal plating shops; photographic processing shops; appliance repair shops; mechanical assembly cleaning; printing shops; medical clinics; laboratories, and biotechnology research facilities.

Summary

Impact AQ-4 addresses the potential for construction and operation of the proposed project to generate TACs at levels that would expose either offsite or onsite sensitive receptors to substantial pollutant concentrations. The health risk assessment conducted for this analysis determined that impacts associated with excess cancer risk at both offsite and onsite receptors would exceed significance thresholds without mitigation, but implementation of **Mitigation Measures M-AQ-2a (Construction Emissions Minimization) and M-AQ-2b (Diesel Backup Generator Specifications)** would reduce this impact to less than significant.

The health risk assessment also determined that maximum estimated $PM_{2.5}$ concentrations would be below the significance thresholds at both offsite and onsite receptors, and this impact would be less than significant.

The analysis also examined the cancer risk from operation land uses that may emit TACs, specifically the potential for TACs from life science laboratories and PDR activities. Because the specific uses and associated magnitude and type of future emissions associated with these land uses are unknown, this impact is considered significant, but with implementation of **Mitigation Measure AQ-4, Siting of Uses that Emit Toxic Air Contaminants**, this impact would be reduced to less than significant.

For the reasons stated above, the impact associated with the project's potential to expose sensitive receptors to substantial pollutant concentrations would be ***less than significant with mitigation***.

> **Mitigation Measure M-AQ-2a: Construction Emissions Minimization** (see Impact AQ-2, above)
>
> **Mitigation Measure M-AQ-2b: Diesel Backup Generator Specifications** (see Impact AQ-2, above)
>
> **Mitigation Measure M-AQ-4: Siting of Uses that Emit Toxic Air Contaminants**
>
> **Significance after Mitigation:** Less than Significant

Impact AQ-5: The proposed project could conflict with implementation of the Bay Area 2017 Clean Air Plan. (*Less than Significant with Mitigation*)

The most recently adopted air quality plan for the San Francisco Bay Area Air Basin is the 2017 Clean Air Plan. The 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. It also provides a control strategy to reduce ozone, PM, air toxics, and GHGs. In determining consistency with the Clean Air Plan, this analysis considers whether the project would (1) support the primary goals of the Clean Air Plan, (2) include applicable control measures from the Clean Air Plan, and (3) avoid disrupting or hindering implementation of control measures identified in the Clean Air Plan.

The 2017 Clean Air Plan's primary goals are to protect public health and protect the climate, and it contains 85 measures some of which address the reduction of GHGs. These control strategies are grouped into the following categories:

- Stationary source measures;
- Transportation control measures;
- Energy control measures;
- Building control measures;
- Agricultural control measures;
- Natural and working lands control measures;
- Waste management control measures;
- Water control measures; and
- Super GHG control measures.

The Clean Air Plan recognizes that, to a great extent, community design[78] dictates individual travel modes and that a key long-term control strategy to reduce emissions of criteria pollutants, air toxics, and GHGs from motor vehicles is to channel future Bay Area growth into communities where goods and services are located nearby and people have a range of viable transportation options. To this end, the Clean Air Plan includes 85 control measures aimed at reducing air pollutants and GHGs in the San Francisco Bay Area Air Basin. Many of these measures address stationary sources and will be implemented by the Bay Area Air Quality Management District

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[78] For people who live (and/or work) in low-density, car-oriented developments, the motor vehicle is often the only viable transportation option. In such situations, even the most robust strategy to promote alternative modes of travel can have, at best, only a very modest effect. In contrast, compact communities with a mixture of land uses make it much easier to walk, cycle, or take transit for at least some daily trips.

using its permit authority and therefore are not suited to implementation through local planning efforts or project approval actions. The potentially applicable 24 Clean Air Plan measures are identified in **Table 4.G-12, Project Consistency with Applicable Control Measures of the 2017 Clean Air Plan**. This table identifies each control strategy and correlates it to specific elements of the proposed project or explains why the strategy does or does not apply to the proposed project.

As shown in Table 4.G-12, without certain mitigation measures incorporated into the project, the project would not include applicable control measures from the 2017 Clean Air Plan. Because the proposed project would result in significant an unavoidable criteria air pollutant emissions (see Impact AQ-2 and AQ-3) and because the project would not include all applicable control measures from the 2017 Clean Air Plan, this impact would be significant. However, with implementation of **Mitigation Measure M-AQ-5, Include Spare the Air Telecommuting Information in Transportation Welcome Packets**, plus the other mitigation measures identified in this EIR, as shown in Table 4.G-12, the proposed project would include applicable control strategies contained in the 2017 Clean Air Plan for the basin, and the impact would be ***less than significant with mitigation***. Specifically, in addition to Mitigation Measure M-AQ-5, the implementation of the following measures would reduce this impact to less than significant: **Mitigation Measure M-AQ-2a, Construction Emissions Minimization; Mitigation Measure M-AQ-2b, Diesel Backup Generator Specifications; Mitigation Measure M-AQ-2d, Electrification of Loading Docks; Mitigation Measure M-TR-5: Implement Measures to Reduce Transit Delay; Mitigation Measure M-AQ-2e, Additional Mobile Source Control Measures;** and **Mitigation Measure M-AQ-4, Siting of Uses that Emit Toxic Air Contaminants.**

> **Mitigation Measure AQ-5: Include Spare the Air Telecommuting Information in Transportation Welcome Packets**
>
> The project sponsor shall include dissemination of information on Spare The Air Days within the San Francisco Bay Area Air Basin as part of transportation welcome packets and ongoing transportation marketing campaigns. This information shall encourage employers and employees, as allowed by their workplaces, to telecommute on Spare The Air Days.

The proposed project's impact with respect to GHGs is addressed on the initial study (see Appendix B), which found that the proposed project would be compliant with the San Francisco's Greenhouse Gas Reduction Strategy and thus would not result in any significant impacts associated with an increase in GHGs or conflict with measures adopted for the purpose of reducing such emissions.

In addition to the measures listed in Table 4.G-12, transportation control measures that are identified in the Clean Air Plan are implemented by the *San Francisco General Plan* and the San Francisco Planning Code (e.g., through the City's Transit First Policy, the bicycle parking requirements, and transit impact development fees). Additionally, the project would incorporate a TDM plan as well as additional TDM measures identified in Mitigation Measure M-TR-5. As indicated in Table 4.G-12, implementation of the TDM plan and additional TDM measures under **Mitigation Measure M-TR-5** and **Mitigation Measure M-AQ-2e**, which require additional mobile source control measures through promoting use of clean fuel-efficient and zero emission vehicles, would ensure the project includes relevant transportation control measures specified in the Clean Air Plan, further ensuring consistency with the plan and reducing this impact to less than significant.

TABLE 4.G-12
PROJECT CONSISTENCY WITH APPLICABLE CONTROL MEASURES OF THE 2017 CLEAN AIR PLAN

Control Measure	Measure Description	Existing or Proposed Implementation Mechanism	Consistency of Proposed Project with Measure
TR1 – Clean Air Teleworking Initiative	The primary objective of the TR1 measure is to increase the number of employees who telework in the Bay Area, especially on Spare the Air days, by providing outreach and assistance to employees and employers. It directs MTC to provide support to employers for regional telecommuting programs in partnership with 511 Rideshare and the Bay Area Commuter Benefits Program and the Bay Area Air Quality Management District to include Spare the Air notifications to all Employer Program members that include the promotion of teleworking/telecommuting on Spare the Air Days.	This strategy is directed at MTC and the Bay Area Air Quality Management District to support telecommuting, which is an employer-specific option and not universally implementable for all business types. The TDM Plan does not specifically address telecommuting or the Bay Area Air Quality Management District's Spare the Air Program.	Yes with Mitigation Measure M-AQ-5, which would include notification of Spare the Air days as part of the INFO category of the TDM Plan, consistent with the Bay Area Air Quality Management District Implementation Action.
TR2 – Trip Reduction Programs	TR2 includes a mandatory and voluntary trip reduction program. The regional Commuter Benefits Program, resulting from SB1339, and similar local programs in jurisdictions with ordinances that require employers to offer pre-tax transit benefits to their employees are mandatory programs. Voluntary programs include outreach to employers to encourage them to implement strategies that encourage their employees to use alternatives to driving alone.	All future employers of the proposed project would be required to comply with the Commuter Benefit Ordinance, which requires employers with 20 or more employees to offer pretax transit benefits. In addition, the project sponsor would implement the proposed TDM Plan with a goal of achieving sustainable land use development and reducing vehicle trips generated by the proposed project.	Yes Mitigation Measure M-TR-5 would further reduce vehicle trips.
TR3 – Local and Regional Bus Service	TR3 measure strive to improve existing transit service on the region's core transit systems, and include new bus rapid transit lines in San Francisco.	Transit services within study area include a Muni T-Line light rail stop at Third and 23rd streets, 800 feet from the project site, and a Caltrain stop at 22nd Street, less than 0.5 mile from the project site. Local Muni service in the project vicinity includes the 22 Fillmore and 48 Quintara/24th Street bus routes. Additionally, the project would implement shuttle bus service.	Yes
TR4 – Local and Regional Rail Service	TR4 strives to improve rail service by sustaining and expanding existing services and by providing funds to maintain rail-cars, stations, and other rail capital assets. Specific projects for implementation include BART extensions, Caltrain electrification, and Transbay Transit Center building and rail foundation.	Caltrain is located within 0.8 mile of the project site, and Bay Area Rapid Transit District (BART) interconnection is a 20-minute ride away on the T-Line.	Yes
TR5 – Transit Efficiency and Use	TR5 will 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.	As part of the proposed TDM Plan for the project, the project would provide a shuttle service program to provide access to the 16th Street Bay Area Rapid Transit (BART) station and the 22nd Street Caltrain station.	Yes

TABLE 4.G-12 (CONTINUED)
PROJECT CONSISTENCY WITH APPLICABLE CONTROL MEASURES OF THE 2017 CLEAN AIR PLAN

Control Measure	Measure Description	Existing or Proposed Implementation Mechanism	Consistency of Proposed Project with Measure
TR7 – Safe Routes to Schools and Safe Routes to Transit	TR7 will facilitate safe routes to schools and transit by providing funds and working with transportation agencies, local governments, schools, and communities to implement safe access for pedestrians and cyclists. Likely projects will include implementation of youth outreach and educational programs to encourage walking and cycling, the construction of bicycle facilities and improvements to pedestrian facilities.	The TDM Plan would prioritize pedestrian and bicycle access and implement measures to encourage alternative modes of transportation by building a dense, walkable, mixed-use, transit-oriented development, and prioritizing safety, especially for bicyclists and pedestrians.	Yes
TR8 - Ridesharing	TR8 will promote ridesharing services and incentives through the implementation of the 511 Regional Rideshare Program, as well as local rideshare programs implemented by Congestion Management Agencies. These activities will include marketing rideshare services, operating a rideshare information call center and website, and provide vanpool support services. In addition, this measure includes provisions for encouraging car sharing programs.	The proposed TDM Plan calls for designation of ride-hail waiting areas in building lobbies. The project would also result in a maximum of 38 designated car-share or scooter share spaces.	Yes
TR9 – Bicycle and Pedestrian Access and Facilities	The bicycle component of TR9 strives to expand bicycle facilities serving employment sites, educational and cultural facilities, residential areas, shopping districts, and other activity centers. Typical improvements include bike lanes, routes, paths, and bicycle parking facilities. The bicycle component also includes a bike share pilot project that was developed to assess the feasibility of bicycle sharing as a first- and last-mile transit option. The pedestrian component of this measure is intended to improve pedestrian facilities and encourage walking by funding projects that improve pedestrian access to transit, employment sites, and major activity centers. Improvements may include sidewalks/paths, benches, reduced street width and intersection turning radii, crosswalks with activated signals, curb extensions/bulbs, buffers between sidewalks and traffic lanes, and street trees.	The proposed project would include a pedestrian and bicycle network that includes class I, II, III and IV bicycle facilities. Class I bike lanes are proposed on the Bay Trail multi-use path that would extend through the Waterfront and Potrero Point parks. Class II bike lanes are proposed on Georgia Lane and Maryland Street. Class III facilities (signed routes) are proposed on Humboldt, Georgia, and Delaware streets. The north side of 23rd Street would include a class IV parking-protected bike lane. For the proposed pedestrian network, all proposed streets and open space areas would include pedestrian walkways. These facilities would contribute to the continuous Blue Greenway/Bay Trail to provide continuous waterfront access from the Embarcadero, including Crane Cove Park, Slipways Commons, and Warm Water Cove.	Yes
TR10 – Land Use Strategies	This measure supports land use patterns that reduce VMT and associated emissions and exposure to TACs, especially within infill locations and impacted communities.	The project proposes building a dense, walkable, mixed-use, transit-oriented development, and prioritizing safety, especially for bicyclists and pedestrians consistent with the regional goals and targets expressed in the *Plan Bay Area 2040 Sustainable Communities Strategy.*	Yes with Mitigation Measure M-AQ-2a, M-AQ-2b, M-AQ-2d, and M-AQ-4.

TABLE 4.G-12 (CONTINUED)
PROJECT CONSISTENCY WITH APPLICABLE CONTROL MEASURES OF THE 2017 CLEAN AIR PLAN

Control Measure	Measure Description	Existing or Proposed Implementation Mechanism	Consistency of Proposed Project with Measure
TR10 – Land Use Strategies (cont.)		As discussed in Impact AQ-4, land use changes proposed by the project would not result in significant TAC exposure with implementation of mitigation measures M-AQ-2a, M-AQ-2b, M-AQ-2d, and M-AQ-4.	
TR13 - Parking Policies	This control measure outlines how MTC and the Air District, in cooperation with regional agency partners, will 1) take actions at the regional level to implement parking policies that will benefit air quality, and 2) encourage and support local agency parking policies to reduce motor vehicle travel and promote focused growth.	The project's TDM Plan would unbundle parking costs from all leases and sales and ensure that the users of parking are the ones who ultimately pay for it. The TDM Plan would also establish maximum parking ratios that are lower than the traffic analysis zone (TAZ) average for residential uses.	Yes
TR14 – Cars and Light Trucks	This control measures summarizes actions by the Air District, MTC, local businesses, city and county governments, and state and federal agencies to expand the use of Zero Emission Vehicles and Plug-in Electric passenger vehicles and light-duty trucks within the Bay Area.	San Francisco Green Building Requirements require new large commercial projects, new high-rise residential projects and commercial interior projects to provide designated parking for low-emitting, fuel efficient, and carpool/van pool vehicles and mark 8 percent of parking stalls for such vehicles. Mitigation Measure M-AQ-2e would increase the requirement for the project sponsor to provide preferential parking for alternative-fueled vehicles above that required by the planning code.	Yes
TR15 – Public Outreach and Education	TR15 includes activities to encourage Bay Area residents to make choices that benefit air quality. This measure includes various public outreach campaigns to educate the public about the health effects of air pollution and the air quality benefits of reducing motor-vehicle trips and choosing transportation modes that reduce motor vehicle emissions. The measure includes outreach and education regarding electric vehicles, smart driving, carpooling, vanpooling, taking public transit, biking, walking, and telecommuting.	As part of a broader transportation marketing campaign, the proposed project would provide new residents and employees with a transportation welcome packet upon move-in or upon starting work at the site. These informational packets would be continuously updated as local transportation options change. The site's transportation staff would also engage in ongoing efforts to provide information on and market the use of non-auto modes.	Yes
TR22 – Construction, Freight and Farming Equipment	TR22 directs the Bay Area Air Quality Management District to work to reduce emissions from off-road equipment used in the construction, freight handling and farming industries by pursuing the following strategies: 1) offering financial incentives between 2017 and 2030 to retrofit engines with diesel particulate filters or upgrade to equipment with electric or Tier IV off-road engines; 2) work with the California Air Resources Board, the California Energy Commission and others to develop more fuel-efficient off-road engines and drive trains; and 3) work with local communities to encourage use of renewable electricity and fuels.	Under Mitigation Measure M-AQ -2a above, the project applicant or its contractors would meet final Tier 4 standards for all construction equipment greater than 25 horsepower. It also requires use of renewable diesel in construction equipment and marine vessels engaged in construction. Mitigation Measure M-AQ-2d above requires the electrification of loading docks to reduce DPM associated with transportation refrigeration units.	Yes with Mitigation Measure M-AQ-2a and Mitigation Measure M-AQ-2d

TABLE 4.G-12 (CONTINUED)
PROJECT CONSISTENCY WITH APPLICABLE CONTROL MEASURES OF THE 2017 CLEAN AIR PLAN

Control Measure	Measure Description	Existing or Proposed Implementation Mechanism	Consistency of Proposed Project with Measure
EN1 – Decarbonize Electricity Production	EN1 focuses on lowering carbon emissions by switching the fuel sources used in electricity generation. The measure would promote and expedite a transition away from fossil fuels used in electricity generation (i.e., natural gas) to a greater reliance on renewable energy sources (e.g., wind, solar). In addition, this measure would promote an increase in cogeneration, which results in useful heat in addition to electricity generation from a single fuel source.	2019 Title 24 requires high-rise multi-family buildings with ten habitable stories or fewer to be solar ready. Additionally, CleanPowerSF is San Francisco's Community Choice Aggregation program that enables users in the City to opt into energy programs from 100% renewable resources although this is a voluntary election of the homeowner. Fifteen percent photovoltaic coverage is proposed for buildings on Blocks 2, 3, 5 6, and 8, while buildings on Blocks 1, 4, 7, and 9 through 14would meet the requirements through use of 30 percent living roofs.	Yes
BL1 – Green Buildings	BL1 seeks to increase energy efficiency and the use of onsite renewable energy—as well as decarbonize existing end uses—for all types of existing and future buildings. The measure includes policy assistance, incentives, diffusion of public information, and targeted engagement and facilitation of partnerships in order to increase energy efficiency and onsite renewable energy in the buildings sector	All new non-residential buildings would be LEEDv4 Gold certified. All residential development would meet energy reduction requirements of the City, as listed in the greenhouse gas checklist.	Yes.
BL2 – Decarbonize Buildings	BL2 seeks to reduce greenhouse gas emissions, criteria pollutants and TACs by limiting the installation of space- and water-heating systems and appliances powered by fossil fuels. This measure is to be implemented by developing model policies for local governments that support low- and zero-carbon technologies as well as potentially developing a rule limiting the sale of natural-gas furnaces and water heaters	As discussed in the project description, a thermal energy system may serve the project. However, this EIR does not assume implementation of the thermal energy system for purposes of the air quality analysis. Until the City develops model policies for implementing this measure, development projects are considered consistent with its intent if an effort is made to explore feasibility of implementation.	Yes
BL4 – Urban Heat Island	This control measure aims to reduce the "urban heat island" phenomenon by increasing the application of "cool roofing" and "cool paving" technologies, as well as increasing the prevalence of urban forests and vegetation, through voluntary approaches and educational outreach.	Buildings on Blocks 1, 4, 7, and 9 through 14 would include living roofs on 30 percent of the building roof surface. The project would also result in the planting of new trees along both sides of Humboldt Street, Maryland and Delaware Streets, both sides of 23rd Street, and along Craig Lane, Georgia Lane, and Louisiana Street.	Yes
NW2 – Urban Tree Planting	NW2 promotes the planting of trees in urbanized settings to take advantage of the myriad benefits provided by these trees, including: shading to reduce both the "urban heat island" phenomenon and the need for space cooling, and the absorption of ambient criteria air pollutants as well as carbon dioxide.	The proposed project would comply with Public Works Code section 806(d) by placing new street trees along street frontages, provide sidewalk landscaping, and/or paying in-lieu fees as appropriate given the project's site constraints and objectives. While the specific number of trees to be planted have yet to be specified, the Design for Development indicates that medium to large deciduous or evergreen trees (35-40 feet tall at	Yes

TABLE 4.G-12 (CONTINUED)
PROJECT CONSISTENCY WITH APPLICABLE CONTROL MEASURES OF THE 2017 CLEAN AIR PLAN

Control Measure	Measure Description	Existing or Proposed Implementation Mechanism	Consistency of Proposed Project with Measure
NW2 – Urban Tree Planting (cont.)		maturity) would be planted along both sides of Humboldt Street, medium to large deciduous or evergreen trees (35-40 feet tall at maturity) would be planted along both sides of Maryland and Delaware Streets, medium to large evergreen trees (45-50 feet tall at maturity) would be planted along both sides of 23rd Street, and medium deciduous trees (25-30 feet tall at maturity) would be planted along Craig Lane, Georgia Lane and Louisiana Street, far exceeding the 13 existing trees to be removed along pedestrian walkways.	
WA3 – Green Waste Diversion; and WA4 – Recycling and Waste Reduction	WA3 seeks to reduce the total amount of green waste being disposed in landfills by supporting the diversion of green waste to other uses, while WA4 seeks to reduce greenhouse gas emissions by diverting recyclables and other materials from landfill.	The proposed project would comply with San Francisco's Green Building Requirements by providing for recycling, compost, and solid waste collection and loading that is convenient for all users.	Yes
WR2 – Support Water Conservation	WR2 seeks to promote water conservation, including reduced water consumption and increased onsite water recycling, in residential, commercial and industrial buildings for the purpose of reducing greenhouse gas emissions.	The proposed project would be subject to specific requirements because it includes a new landscape area greater than or equal to 500 sf. This requires that landscape projects be installed, constructed, operated, and maintained in accordance with rules adopted by the SFPUC that establish a water budget for outdoor water consumption. The proposed project would comply with all standards in the Residential Water Conservation Ordinance by meeting at least the minimum standards specified in the ordinance as applicable and/or required. For residential high-rise buildings this is a 30% reduction compared to that of the 2006 Plumbing Code. Although the city does not currently have an available source of recycled water at the project site, the project sponsor would install recycled water systems to provide the project site with non-potable water needs, such as irrigation, cooling, and/or toilet and urinal flushing. Once the city's recycled water system is constructed, the recycled water pipelines would connect to the city's recycled water system.	Yes

SOURCE: Bay Area Air Quality Management District, Clean Air Plan, Spare the Air, Cool the Climate, 2017, Nelson Nygaard, *Potrero Power Station, TDM Plan, Working Draft*, December 2017.

Examples of a project that could cause the disruption or delay of Clean Air Plan control measures are projects that would preclude the extension of a transit line or bike path, or projects that propose excessive parking beyond city parking requirements. The project proposes a development that would be a dense, walkable urban area near a concentration of regional and local transit service, including a Muni light rail stop at Third and 23rd streets, 800 feet from the project site, and a Caltrain stop at 22nd Street, less than 0.5 mile from the project site. The proposed project site is designated as a Priority Development Area pursuant to Plan Bay Area. This designation applies to new development areas that would support the day-to-day needs of residents and workers in a pedestrian-friendly environment served by transit. The proposed project would include bike lanes, bike-safety-oriented street design, and bike-parking facilities to promote bicycling on and around the project site.

The proposed project would not preclude the extension of a transit line or a bike path or any other transit improvement. The project proposes to provide a new bus stop and shuttle service and would extend the Bay Trail.

The City's planning code has minimum parking requirements for the existing Heavy Industrial zoning designation, including a minimum of 1 parking space for each 1,500 square feet of occupied floor space.[79] The planning code permitted parking for the nearby Urban Mixed-Use district is a maximum of 0.75 cars for each dwelling unit and, in some cases is one car per each unit.[80] The project would establish parking maximums of no more than 0.6 parking space per residential dwelling unit and no more than one parking space per 1,500 square feet of gross floor area for the office, commercial, arts, or light industrial uses and three spaces per 1,000 square feet of grocery uses. The proposed project would provide about 2,622 off-street vehicle parking spaces, of which 819 spaces would be located within a centralized parking facility. Even still, as discussed in Section 4.E, Transportation and Circulation, during both the midday and evening periods, the proposed vehicle parking supply would not accommodate the estimated demand. Consequently, the proposed project does not propose excessive parking beyond City parking requirements.

As described above, without mitigation measures identified in this EIR, the proposed project would not support all of the primary goals of the Clean Air Plan, but would not interfere with, disrupt or hinder implementation of the Clean Air Plan. However, with implementation of mitigation measures identified in this EIR and compliance with applicable regulations as described in Table 4.G-12, the project would include applicable control measures from the Clean Air Plan, thereby supporting the primary goals of the Clean Air Plan, and the project would not interfere with, disrupt, or hinder implementation of the Clean Air Plan. Therefore, this impact would be ***less than significant with mitigation***.

> **Mitigation Measure M-AQ-2a: Construction Emissions Minimization** (see Impact AQ-2, above)
>
> **Mitigation Measure M-AQ-2b: Diesel Backup Generator Specifications** (see Impact AQ-2, above)

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[79] San Francisco Planning Code Table 151: Schedule of Required Off-Street Parking Spaces

[80] San Francisco Planning Code Table 151.1: Off Street Parking Permitted as Accessory

Mitigation Measure M-AQ-2d: Electrification of Loading Docks (see Impact AQ-2, above)

Mitigation Measure M-TR-5: Implement Measures to Reduce Transit Delay (see Section 4.E, Transportation and Circulation, Impact TR-5)

Mitigation Measure M-AQ-2e: Additional Mobile Source Control Measures (see Impact AQ-2, above)

Mitigation Measure M-AQ-4: Siting of Uses that Emit Toxic Air Contaminants (see Impact AQ-4, above)

Mitigation Measure AQ-5: Include Spare the Air Telecommuting Information in Transportation Welcome Packets (see above)

Significance after Mitigation: Less than Significant

Impact AQ-6: The proposed project would not create objectionable odors that would affect a substantial number of people. (Less than Significant)

Existing uses on the project site are entirely vacant buildings and facilities and are not an existing odor source. During construction, the various diesel-powered vehicles and equipment in use on site would create localized odors. These odors would be temporary and depend on specific construction activities occurring at certain times and are not likely to be noticeable for extended periods of time beyond the boundaries of the project site. Therefore, the potential for diesel odor impacts is considered less than significant.

Although there may be some potential for small-scale, localized odor issues to emerge around project sources such as solid waste collection, wastewater or stormwater collection/conveyance, food preparation, etc., substantial odor sources and consequent effects on onsite and offsite sensitive receptors would be unlikely. Bay Area Air Quality Management District Regulation 7 places general limitations on odorous substances and specific emission limitations on certain odorous compounds and applies to restaurants that employ more than five persons. Therefore, because the project would be required to implement odor controls as required by applicable regulations, odor impacts would be ***less than significant***.

Mitigation: None required.

Cumulative Impacts

This section discusses the cumulative impacts to air quality that could result from the proposed project in conjunction with past, present, and reasonably foreseeable future projects.

Impact C-AQ-1: The proposed project, in combination with past, present, and reasonably foreseeable future development in the project area, would contribute to cumulative regional air quality impacts. (Significant and Unavoidable with Mitigation)

The contribution of a project's individual air emissions to regional air quality impacts is, by its nature, a cumulative effect. Emissions from past, present, and reasonably foreseeable future projects in the region also have or will contribute to adverse regional air quality impacts on a cumulative basis, resulting in a potentially significant cumulative air quality impact. No single project by itself would be sufficient in size to result in non-attainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulative air quality conditions.[81] As described in the Approach to Analysis section above, the project-level thresholds for criteria air pollutants are based on levels by which new sources are not anticipated to contribute to an air quality violation or result in a considerable net increase in criteria air pollutants. Therefore, because the proposed project's emissions exceed the project-level thresholds as explained in Impacts AQ-2 and AQ-3, the project would result in a considerable contribution to cumulative regional air quality impacts, a significant impact. As discussed above, implementation of **Mitigation Measures M-AQ-2a through M-AQ-2f and M-TR-5** would reduce the severity of this impact, however, due to uncertainties in the implementation of these measures (particularly Mitigation Measure M-AQ-2f, Offset Construction and Operational Emissions), these measures would not reduce the project's contribution to the cumulative impact to a less-than-significant level for the same reasons described in Impacts AQ-2 and AQ-3. Therefore, the project's emissions of criteria air pollutants would be cumulatively considerable, and this cumulative impact would be ***significant and unavoidable with mitigation***.

Mitigation Measure M-AQ-2a: Construction Emissions Minimization (see Impact AQ-2, above)

Mitigation Measure M-AQ-2b: Diesel Backup Generator Specifications (see Impact AQ-2, above)

Mitigation Measure M-AQ-2c: Promote Use of Green Consumer Products (see Impact AQ-2, above)

Mitigation Measure M-AQ-2d: Electrification of Loading Docks (see Impact AQ-2, above)

Mitigation Measure M-TR-5, Implement Measures to Reduce Transit Delay (see Section 4.E, Transportation and Circulation, Impact TR-5)

Mitigation Measure M-AQ-2e: Additional Mobile Source Control Measures (see Impact AQ-2, above)

Mitigation Measure M-AQ-2f: Offset Operational Emissions (see Impact AQ-2, above)

Significance after Mitigation: Significant and Unavoidable

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[81] Bay Area Air Quality Management District, *CEQA Air Quality Guidelines*, May 2017, p. 2-1.

Impact C-AQ-2: The proposed project, in combination with past, present, and reasonably foreseeable future development in the project area, could contribute to cumulative health risk impacts on sensitive receptors. (Less than Significant with Mitigation)

As described in Impact AQ-4, above, the health risk assessment conducted for this EIR takes into account the contribution of existing localized health risks to sensitive receptors from sources included in the citywide modeling plus the proposed project's sources. There are, however, other reasonably foreseeable future projects, whose emissions have not been incorporated into the existing citywide health risk modeling. Additionally, the city has modeled health risks under 2040 conditions that account for anticipated growth in vehicle trips and also take into account the implementation of vehicle emission regulations.

The Bay Area Air Quality Management District has identified a distance of 1,000 feet as an appropriate zone of influence for assessing health risk impacts[82] and specifies that cumulative sources represent the combined total risk values of each individual source within the 1,000-foot evaluation zone.

Cumulative projects that are within 1,000 feet of the project site are identified in Figure 4.A-1, p. 4.A-15, Baseline and Cumulative Projects, in Section 4.A, Impact Overview. Projects within this zone of influence of identified maximally impacted offsite receptors in the project level analysis are identified in **Table 4.G-13**, **Cumulative Projects within 1,000 feet of Maximally Impacted Offsite Receptors**. Each of these projects were reviewed using a combination of GoogleEarth street view and environmental documentation available through the San Francisco Planning Department to determine whether construction activity is complete or, if not, what determinations were made in CEQA-related documentation with respect to construction air quality emissions and health risks. As indicated in Table 4.G-13, there are three projects which either involve no construction or for which construction is complete and therefore construction-related emissions are not a cumulative consideration. Three other of these cumulative projects have undergone environmental reviews that determined that their construction-related emissions and risks were not substantial.

One of the remaining projects is a commercial/office development (1499 Illinois Street, 1401-1443 Illinois Street, and 700 25th Street). The Illinois/25th streets commercial/office development is currently under review by planning department staff and would consist of 2,500 square feet of commercial space and 230,000 square feet of office space. The BAAQMD prepared draft screening tables that provide conservative offset distances above which impacts from cancer risk and $PM_{2.5}$ concentrations are less than significant.[83,84] For the Illinois/25th streets commercial/office development, the offset distance is 656 feet (200 meters) for cancer risk and 492 feet (150 meters) for $PM_{2.5}$ concentration.[85] The closest maximally impacted receptor identified from the project impact is roughly 656 feet (200 meters) for $PM_{2.5}$ and 902 feet (275 meters) for cancer risk, both greater than the offset distances.[86]

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[82] Bay Area Air Quality Management District, *CEQA Air Quality Guidelines*, May 2017, p. 5-2.

[83] BAAQMD. 2010. Screening Tables for Air Toxics Evaluation During Construction. May. Table 2.

[84] Screening distances are based on a project resulting in a 10 in a million for cancer risk and 0.3 $\mu g/m^3$ for $PM_{2.5}$ annual average concentration.

[85] This corresponds to a commercial development of 300,000 square feet.

[86] The closest MEISR for $PM_{2.5}$ is the unmitigated MEISR corresponding to the offsite, non-Pier 70 residential receptor. The closest MEISR for cancer risk is the MEISR corresponding to the offsite, non-Pier 70 residential receptor.

TABLE 4.G-13
CUMULATIVE PROJECTS WITHIN 1,000 FEET OF MAXIMALLY IMPACTED OFFSITE RECEPTORS

Cumulative Project # (from Table 4.A-2)	Project Name (Case File No.)	Status as of NOP	How considered
1	Pier 70 Mixed-Use District (2014-001272ENV)	Planning Entitled	In a Health Risk Assessment
2	SF Port Re-Tenanting of Pier 70 Shipyard (2014.0713E)	Planning Entitled	No Construction
3	20th Street Historic Core at Pier 70 (2016-000346ENV)	Building Permit Approved	Construction Complete
4	2420 Third Street (2013.0673E)	Building Permit Approved	Initial Study determined construction emissions not substantial
5	901 Tennessee Street (2013.0321E)	Under Construction	Construction complete
6	950 Tennessee Street (2014.1434ENV)	Planning Entitled	Initial Study for Eastern Neighborhoods Plan determined construction emissions not substantial
12	600 20th Street	Under Review	Initial Study determined construction emissions not substantial
29	1201–1225 Tennessee Street (2012.0493E)	Under Construction	Construction complete
30	1499 Illinois Street, 1401-1443 Illinois Street, & 700 25th Street (2018-000949ENV)	Under Review	BAAQMD screening Tables

SOURCE: San Francisco Planning Department, Quarter 4, 2017 Pipeline Report. Available *http://sf-planning.org/pipeline-report,* and *http://developmentmap.sfplanning.org/*, accessed May 18, 2018. [The list was cross referenced with the City and County of San Francisco Pier 70 Mixed-Use District EIR, Case No. 2-14=--1272ENV, August 9, 2017, and each project status and description was verified through the San Francisco Planning Department, 2018 San Francisco Property Information Map Version 8.5.7 *http://propertymap.sfplanning.org/*, accessed May 18, 2018.

TAC contributions from transportation increases from these projects are captured with the use of a 2040 health risk model. Therefore, the only project that may combine with impacts of the proposed project not already captured by the 2040 health risk model is the construction-related and operational TAC emissions from the Pier 70 Mixed-Use District project. Cumulative health risks were assessed based on cumulative emissions sources within 1,000 feet of the project site, inclusive of the planned Pier 70 Mixed-Use District project.

Cumulative Excess Cancer Risk at Offsite Receptors

The maximum estimated excess lifetime cancer risk and $PM_{2.5}$ concentrations from all project sources and those of the Pier 70 Mixed-Use District project at offsite locations is presented in **Table 4.G-14, Cumulative Cancer Risk and $PM_{2.5}$ Concentration at Offsite Receptors**.

Similar to Impact AQ-4, the cumulative cancer risk analysis in the health risk assessment for the project is based on DPM concentrations from construction on- and off-road equipment, as well as the operational DPM concentrations from the emergency generators and on-road vehicles. The cumulative health risk assessment evaluated excess cancer risk and $PM_{2.5}$ concentrations as a result of exposure to existing emissions sources and both construction and operational emissions from the proposed project and the planned Pier 70 Mixed-Use District project.

TABLE 4.G-14
CUMULATIVE CANCER RISK AND PM2.5 CONCENTRATIONS AT OFFSITE RECEPTORS

Source	Lifetime Excess Cancer Risk (in one million)		PM2.5 Concentration ($\mu g/m^3$)	
	Unmitigated	**Mitigated**	**Unmitigated**	**Mitigated**
Residential and Daycare Receptors (Pier 70)[a]				
Background 2040	30	30	8.4	8.5 [c]
Pier 70 Construction + Operation, Maximum Office Scenario (Mitigated)[b]	4.7	4.7	0.018	0.019 [c]
Project Construction – Off-road Emissions	384	32	0.99	0.10
Project Construction – Vehicle Traffic	0.0087	0.0057	0.00033	0.00055[c]
Project Operation – Emergency Generators	4.0	0.38	0.00055	0.00018
Project Operation – Vehicle Traffic	0.49	0.49	0.018	0.16
Cumulative Total	**423**	**68**	**9.4**	**8.8**
APEZ Criteria	100	100	10.0	10.0
Significant?	Yes	No	No	No
Residential Receptor (non-Pier 70)[d]				
Background 2040	56	56	8.8	8.6
Pier 70 Construction + Operation, Maximum Office Scenario (Mitigated)[e]	6.9	6.9	0.017	0.034 [c]
Project Construction – Off-road Emissions	42	4.2	0.099	0.010
Project Construction – Vehicle Traffic	0.025	0.012	0.0016	0.0018
Project Operation – Emergency Generators	0.57	0.053	0[g]	0[g]
Project Operation – Vehicle Traffic	4.4	4.4	0.21	0.21
Cumulative Total	**109**	**71**	**9.1**	**8.9**
APEZ Criteria	100	100	10.0	10.0
Significant?	**Yes**	No	No	No
School Receptor[d,f]				
Background 2040	46	46	8.74	8.7
Pier 70 Construction + Operation, Maximum Office Scenario (Mitigated)[e]	1.8	1.8	0.038	0.038
Project Construction – Off-road Emissions	8.8	1.0	0.028	0.0029
Project Construction – Vehicle Traffic	0.0039	0.0022	0.00017	0.00011
Project Operation – Emergency Generators	0.059	0.0051	0[g]	0[g]
Project Operation – Vehicle Traffic	1.5	1.5	0.055	0.055
Cumulative Total	**59**	**51**	**8.8**	**8.7**
APEZ Criteria	100	100	10.0	10.0
Significant?	No	No	No	No

NOTES:

[a] Assumes Pier 70 resident will move in while construction of the proposed project is ongoing. The cancer risk contribution from project emissions for the Pier 70 resident assumes exposure to project emissions begins in 2024.

[b] For the purpose of the cumulative analysis for the Pier 70 resident, the Pier 70 construction schedule was modified to represent a reasonable worst case exposure scenario for potential future Pier 70 receptors. It was assumed Phase 2-5 construction emissions from Pier 70 are mitigated using Tier 4 equipment consistent with the Pier 70 EIR mitigation requirements.

[c] The mitigated PM2.5 concentration is higher than the unmitigated value because, with mitigation, the location of the maximally exposed receptor changes.

[d] The cancer risk associated with project emissions for non-Pier 70 populations assumes exposure to project emissions begins in 2020.

[e] For the purpose of the cumulative analysis for non- Pier 70 populations, the original Pier 70 construction schedule and mitigation scenarios as presented in the Pier 70 Project EIR is used as this resulted in the maximum cancer risks.

[f] This analysis assumes the school receptor MEI is exposed to the project and Pier 70 emissions concurrently.

g The annual $PM_{2.5}$ concentrations from emergency generators for the offsite resident (non-Pier 70) and maximum exposed individual sensitive receptors for schools are zero because the maximum annual PM2.5 concentrations occurred in years before the emergency generators would be operational.

* Note that totals may not match sums of intermediate values presented in this table or Air Quality Appendix tables due to rounding.

SOURCE: Ramboll, Tables, Figures and CalEEMod Output, 2018. See Appendix E.

The majority of project-generated excess cancer risk at the maximum exposed individual sensitive receptor would be attributable to construction emissions. The project's emissions would combine with cumulative 2040 background concentrations and concurrent emissions of the Pier 70 Mixed-Use District project[87] and would exceed the APEZ excess cancer risk criteria of 100 per one million at the planned Pier 70 sensitive receptors and 47 in one million at other sensitive receptors. These excess cancer risk contributions exceed the significance threshold of 10. Therefore, construction and operation of the proposed project when combined with construction and operation of the Pier 70 Mixed-Use District project and background 2040 cancer risk levels would be *significant,* for offsite receptors.

The emissions estimates provided in this analysis reflect a specific set of conservative assumptions, based on a construction scenario wherein a relatively large amount of construction takes place during a relatively intensive and overlapping schedule with the adjacent Pier 70 Mixed-Use District project. The proposed project phasing, as presented in this document, is an estimate, providing the most conservative scenario and actual risks are anticipated to be less than estimated in Table 4.G-14.

The mitigated condition in the health risk assessment for offsite receptors assumes the mitigated emissions from both the Pier 70 Mixed-Use District project and the proposed project and includes emission reductions quantified for Mitigation Measures M-AQ-2a (Construction Emissions Minimization) and M-AQ-2b (Diesel Backup Generator Specifications). As indicated in Table 4.G-14, construction emissions contribute over 90 percent of the unmitigated project's health risk at future residential receptors at the Pier 70 Mixed-Use District project site. Consequently, implementation of Mitigation Measure M-AQ-2a alone would be sufficient to reduce this impact at offsite receptors to a less than significant level. Therefore, the residual excess cancer risk impact would be *less than significant with mitigation* for offsite receptors.

Cumulative Excess Cancer Risk at Onsite Receptors

The proposed project would include onsite residential units and daycare facilities, which are considered sensitive land uses for purposes of this air quality evaluation. The proposed project in combination with the Pier 70 Mixed-Use District project would result in cumulative construction-related and operational TAC emissions that would affect the occupants of the first phases of the proposed project and subsequent phases thereafter and diesel backup generators and operational vehicle traffic emissions may also impact future onsite residents. The estimated excess cancer risk from cumulative emissions at the onsite maximum exposed individual sensitive receptors are presented in **Table 4.G-15**, **Cumulative Cancer Risk and PM2.5 Concentrations at Onsite Receptors**. The project's emissions would combine with those of the Pier 70 Mixed-Use District project and 2040 background concentrations and would exceed the APEZ excess cancer risk criteria of an excess cancer risk of 100 per one million persons exposed, with the project contributing a cancer risk of 349 in a million. Therefore, because the project's contribution to the cumulative impact would exceed an excess cancer risk of 10, the project would make a considerable contribution to cumulative cancer risk impacts at for onsite receptors, and this impact would be *significant*.

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[87] The cumulative analysis takes into account the mitigated excess cancer risk and PM2.5 concentrations resulting from the Pier 70 Mixed-Use District project.

TABLE 4.G-15
CUMULATIVE CANCER RISK AND PM2.5 CONCENTRATIONS AT ONSITE RECEPTORS[a]

	Lifetime Excess Cancer Risk (in one million)		PM2.5 Concentration (µg/m^3)	
Source	**Unmitigated**	**Mitigated**	**Unmitigated**	**Mitigated**
Background (2040)	38	38	8.4	8.5
Pier 70 Construction + Operation, Maximum Office Scenario (Mitigated)[b]	11	11	0.032	0.0059
Construction – Off-road Emissions	338	36	0.82	0.11
Construction – Vehicle Traffic	0.031	0.023	0.0022	0.0012
Operation – Emergency Generators	7.9	0.78	0.0020	0.00049
Operation – Vehicle Traffic	3.2	3.2	0.12	0.062
Total	**398**	**89**	**9.4**	**8.7**
APEZ Criteria	100	100	10.0	10.0
Significant?	**Yes**	No	No	No

NOTES:
[a] Onsite receptors include residences and potential daycare centers.
[b] For the purpose of the cumulative analysis, the original Pier 70 Mixed-Use District project construction schedule and mitigation scenarios as presented in the EIR is used as this resulted in the maximum (worst-case) cancer risks.

* Note that totals may not match sums of intermediate values presented in this table or Air Quality Appendix tables due to rounding.

SOURCE: Ramboll, Tables, Figures and CalEEMod Output, 2018. See Appendix E.

The mitigated condition assumed in the health risk assessment for onsite receptors assumes the mitigated emissions from the Pier 70 Mixed-Use District project and for the proposed project and includes emission reductions quantified for Mitigation Measures M-AQ-2a (Construction Emissions Minimization) and M-AQ-2b (Diesel Backup Generator Specifications). As indicated in Table 4.G-15, construction emissions contribute over 90 percent of the unmitigated project's health risk. Consequently, implementation of Mitigation Measure M-AQ-2a alone would be sufficient to reduce this impact to onsite receptors to a less than significant level. Therefore, the excess cancer risk impact would be *less than significant with mitigation* for onsite receptors.

The analysis of cumulative health risk impacts assumed conservative phasing as discussed above for offsite receptors of both the proposed project and the Pier 70 Mixed-Use District project, given the market-demand flexibility afforded the applicants for each project. Additionally, the pending 2019 update to the California Energy Code (Title 24, Part 6; Building Energy Efficiency Standards) requires MERV 13 filtration for residential uses of four or more stories with mechanical heating (see Section 4.G.3 Regulatory Framework, p. 4.G-16). MERV-13 air filtration devices installed on an HVAC air intake system can remove 80 to 90 percent of indoor particulate matter (greater than 0.3 microns in diameter).[88] This requirement would further reduce indoor exposure to pollutants, lowering the overall excess cancer risk impact.

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[88] Bay Area Air Quality Management District, Planning Healthy Places: A Guidebook for Addressing Local Sources of Air Pollutants in Community Planning Draft, January 2016, p.37, *http://www.baaqmd.gov/~/media/files/planning-and-research/planning-healthy-places/draft_planninghealthyplaces_marchworkshop-pdf.pdf?la=en*, accessed June 21. 2018.

Cumulative $PM_{2.5}$ Concentrations at Offsite Receptors

The maximum estimated $PM_{2.5}$ concentrations under cumulative conditions at offsite locations are presented in Table 4.G-14, above. As shown in the table, unmitigated project emissions[89] in combination with background concentrations would result in $PM_{2.5}$ concentrations of 9.4 µg/m^3 or less, which would be below the APEZ criteria of 10 µg/m^3. Therefore, this would be a *less than significant* cumulative impact.

Cumulative $PM_{2.5}$ Concentrations at Onsite Receptors

The maximum estimated $PM_{2.5}$ concentrations under cumulative conditions at onsite locations are presented in Table 4.G-15, above. As shown in the table, unmitigated project emissions in combination with background concentrations would result in $PM_{2.5}$ concentrations of 9.4 µg/m^3 or less, which would be below the APEZ criteria of 10 µg/m^3. Therefore, the localized $PM_{2.5}$ impact at onsite receptors would be a *less than significant* cumulative impact.

Summary

In summary, the proposed project in combination with nearby cumulative projects and 2040 background conditions could result in a significant health risk impact to offsite and onsite sensitive receptors with respect to increased cancer risk. This impact would be reduced to less than significant with incorporation of Mitigation Measures M-AQ-2a, and this impact would be ***less than significant with mitigation***.

Mitigation Measures M-AQ-2a: Construction Emissions Minimization (see Impact AQ-2, above)

Significance after Mitigation: Less than Significant

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[89] It should be noted that this analysis assumes the mitigated PM2.5 concentrations from the Pier 70 Mixed-Use District project.