SAN FRANCISCO
PLANNING DEPARTMENT

Preliminary Mitigated Negative Declaration

Date:	September 5, 2018
Case No.:	**2012.0893ENV**
Project Title:	**0 The Embarcadero/ Pier 22½ Fire Boat Headquarters**
Zoning:	C-2 (Community Business Use District) 84-X-2 Height and Bulk District
Block/Lot:	9900/022H
Lot Size:	12,175 square feet
Project Sponsor	San Francisco Public Works Boris Deunert – 415-558-4009
Lead Agency:	San Francisco Planning Department
Staff Contact:	Chris Thomas – (415) 575-9036 christopher.thomas@sfgov.org

PROJECT DESCRIPTION:

The proposed fire boat headquarters project involves construction and installation of a new fire boat station to be located on a steel float at Pier 22½ on the northeastern San Francisco waterfront, and adoption of a memorandum of understanding between the Port of San Francisco and the San Francisco Fire Department concerning future maintenance and repair at the Pier 22½ project site. Regarding the new fire boat headquarters, the proposed structure would be constructed in two locations: first at Pier 1, Treasure Island and then at Pier 22½ on The Embarcadero. The Pier 1, Treasure Island construction site is located on the southeastern corner of Treasure Island and consists of an approximately 900-foot-long pier that extends into the shallow waters of San Francisco Bay just west of the Bay Bridge. The Pier 22½ project site consists of a main pier and two finger piers to its north and south. The main pier supports the historic Fire Station 35, a two-level structure originally constructed in 1915 that serves as the current fire boat headquarters for the San Francisco Fire Department. The existing fire station and fire boat berthing facilities at Pier 22½ are inadequate to meet the San Francisco Fire Department's public service and water rescue needs. The proposed project would provide new and upgraded infrastructure and facilities for emergency equipment and personnel, improving the Fire Department's and the Port of San Francisco's capacity to meet future demands for water rescue and emergency-response services.

The new steel float would be manufactured in China and transported by ship to Pier 1, Treasure Island, where it would be remain for approximately six months while the exterior walls and interior framing of the fire boat station shell would be constructed on top of the float. The steel float and fire boat station shell would then be towed to Pier 22½ where the fire boat station's exterior walls and interior facilities would be finished. Construction at Pier 22½ includes demolition and replacement of the two existing finger piers with a new, approximately 173-foot-long by 96-foot-wide steel float which would be occupied by a two-level, approximately 16,000-square-foot fire boat station that would be accessed from the main pier by vehicular and pedestrian ramps. The new fire boat station would provide berthing space for three fireboats and an additional, smaller support craft, and would be secured by four 60-inch-diameter vertical steel

pipe guide piles to allow its rise and fall with the tide. The 36-foot-tall facility to be built on top of the steel float would provide space on the first level to support emergency operations, including storage for equipment and supplies, a repair shop, a night watch room, decontamination/drying rooms, and mechanical equipment for operation of the facility. The second level would include dormitory space with 35 beds, communication, laundry and day rooms, a study, a dining area and kitchen with an outdoor patio at the east end of the building, and lockers, showers and bathrooms. The roof would contain additional mechanical equipment and an emergency generator. The proposed facility would operate 24 hours per day, seven days a week, and would be staffed by both day and nighttime shifts. The proposed fire boat facility would normally have a daily crew of 10 persons, with the capacity for up to 35 in the event of an emergency. In addition to the proposed fire boat station, a new public viewing area would also be provided just south of Fire Station 35. The proposed project would not involve any alterations to the Fire Station 35 building, which is designated as San Francisco Landmark #225 and is also a contributing resource to the Port of San Francisco Embarcadero National Register Historic District.

The proposed memorandum between the Port and the Fire Department would formalize the Fire Department's existing and ongoing responsibility for the maintenance of the historic Firehouse 35. To determine the current and future maintenance needs of the facility the Port and Fire Department would prepare a conditions assessment of the Firehouse 35 substructure and superstructure. The conditions assessment would identify deferred maintenance and code required upgrades necessary to maintain Firehouse 35 in a state of good repair, as well as improvements necessary to allow the facility to meet applicable Port Building Code requirements. The Port would also establish a schedule for making the necessary repairs and/or future inspections.

FINDING:

This project would not have a significant effect on the environment. This finding is based upon the criteria of the Guidelines of the State Secretary for Resources, Sections 15064 (Determining Significant Effect), 15065 (Mandatory Findings of Significance), and 15070 (Decision to prepare a Negative Declaration), and the following reasons as documented in the Initial Evaluation (Initial Study) for the project, which is attached. Mitigation measures are included in this project to avoid potentially significant effects. See Section F, pages 136 - 138.

In the independent judgment of the Planning Department, there is no substantial evidence that the project would have a significant effect on the environment.

Lisa M. Gibson

LISA M. GIBSON
Environmental Review Officer

9/5/18

Date of Adoption of Final Mitigated Negative Declaration

cc: Magdalena Ryor, San Francisco Public Works
Boris Deunert, San Francisco Public Works

SAN FRANCISCO
PLANNING DEPARTMENT

Initial Study

0 The Embarcadero/Pier 22½ Fire Boat Headquarters
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SAN FRANCISCO
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Initial Study

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A. PROJECT DESCRIPTION

PROJECT LOCATION

The proposed project involves the replacement of the existing fire boat facility at Pier 22½ on The Embarcadero with a new fire boat facility on a steel float that would also provide berthing for the City's three fire boats. The prefabricated steel float would be docked temporarily at Pier 1 on Treasure Island, where the fire station shell would be constructed on the float. Pier 1, Treasure Island is an approximately 950-foot-long pier at the southeastern corner of Treasure Island, near the intersection of California and M avenues (Figure 1: Pier 1, Treasure Island Location). (Note that all figures are located in Appendix I at the end of this document). It is owned and operated by the Treasure Island Development Authority.

The Pier 22½ project site, owned by the Port of San Francisco (the Port), is in the northeast quadrant of the City, off The Embarcadero just northwest of its intersection with Harrison Street, about 2,250 feet southeast of the Ferry Building (Figure 2: Pier 22½ Project Location). Pier 22½ is separated from The Embarcadero by Herb Caen Way, a flat, approximately 40 to 80-foot-wide pedestrian promenade. Pier 26 is located about 400 feet to the southeast along The Embarcadero, and extends under the Bay Bridge.

To the northwest of Pier 22½ is a landscaped area that contains two restaurants. The open water of San Francisco Bay is east of the project site. The Pier 22½ vicinity is intensively developed with a variety of medium and high-rise office, residential, commercial and (along the waterfront) port-oriented land uses. The temporary Transbay Terminal and the Transit Center, currently under-construction, are approximately 1,400 and 2,000 feet to the west, respectively.

The majority of project construction would occur at Pier 22½. However, initial docking of the proposed steel float and construction on the float of the shell of the fire boat facility would occur at Pier 1 on Treasure Island, as described in more detail below. If necessary, Pier 26 would be used for materials laydown during construction.

Existing Facilities

Pier 1, Treasure Island Float Dock Work Site

Pier 1 is located near the southeast corner of Treasure Island, near the mouth of Clipper Cove. Treasure Island is accessed from San Francisco and the East Bay via the San Francisco-Oakland Bay Bridge. A wide paved road around the margin of the island provides access to Pier 1 and to large paved areas adjacent to the pier (Figure 3: Existing Pier 1, Treasure Island Project Site). There are no residences or other structures within 1,000 feet of Pier 1. A substantial redevelopment of Treasure Island was approved by the City in May 2015 (see Section B, Project

Setting, below). Construction of the development plan has begun and would occur in eight phases for approximately 15 to 20 years.

Pier 22½, The Embarcadero

Pier 22½ (Figure 4: Existing Pier 22½ Project Site) supports Fire Station 35, a two-level structure that serves as both the fire boat headquarters and as a landside fire station for the San Francisco Fire Department. The station is staffed round the clock by a crew of seven. Fire Station 35 provides garage space for one fire engine and a second-story dormitory for fire crews on duty. Constructed in 1915 and designated as a San Francisco Landmark, the Fire Station 35 building is a contributing resource to the Port of San Francisco Embarcadero National Register Historic District, as discussed in Section E.4, below. A structural strengthening of the main pier beneath the fire station was conducted in 2009.

The 9,600-square-foot Pier 22½ is rectangular in shape with a long edge along the Embarcadero. The fire station building stands near the north end of the pier. The area of Pier 22½ north of the building is used for fire station personnel vehicle parking. The larger area of the pier south of the fire station provides additional fire station vehicle parking and equipment storage space, and accommodates utility lines and boxes connected to service from the Embarcadero.

A narrow, approximately 3,500-sf "north finger pier" extends from the eastern edge of the north end of Pier 22½. The north finger pier provides mooring for two fire boats and supports a one-story, approximately 2,200-sf equipment shed that is used for ancillary storage for the fire station and provides docking space for two fire boats. An approximately 1,750-sf "south finger pier" extends eastward from the southeastern corner of the main pier. This finger pier may be a remnant of the Harrison Street Wharf, which dated to 1896. The Harrison Street Wharf burned in 2004 and partially collapsed. Most of the structure was demolished in 2004. The Pier 22½ south finger pier, apparently a remnant of the Harrison Street Wharf, is now severely deteriorated, and appears to have been disused for docking since about 2011.

The inner edge of the Pier 22½ rests in part on top of a rock dike that forms a small part of the approximately four-mile long seawall originally constructed along The Embarcadero during the late 19th century.[1] The current water depth in San Francisco Bay at Pier 22½ ranges from 10 to 14 feet.

EXISTING OPERATIONS AT THE PROJECT SITE

Pier 1, Treasure Island

There are no fire-related operations at Pier 1. The pier provides temporary docking for barges and small ships and a large open concrete deck work space for maritime-related operations. It includes no permanent structures. The pier is gated and is not open to the public.

1 The "seawall" refers to the foundation upon which the waterfront was constructed and consists of a linear embankment of stone, concrete, and wood. A "bulkhead wharf" (such as that supporting Pier 22½ and Fire Station 35) consists of the pile-supported platform that runs parallel to the seawall between piers and upon which bulkhead buildings, pier entrances and other supporting structures are constructed. Beneath the pier, the seawall is integrated with the bulkhead wharf to form a continuous, unifying structure. Seawall lots are parcels that are landward of the city's historic seawall, west of the Embarcadero.

Pier 22½

A San Francisco Fire Department fire engine is stationed at Firehouse 35, on the main part of Pier 22½, and the pier also provides docking space for two of San Francisco's three fire boats. (A third fire boat currently is docked at adjacent Pier 26 when not in use). Operated jointly by the Port of San Francisco and the San Francisco Fire Department, the fire station is staffed around the clock by a crew of seven persons: four to serve Engine 35, and three dedicated exclusively to the fire boats. All seven are required to man the fire boats in an emergency. Firehouse 35 presently provides eating and sleeping quarters (25 beds) for on-duty staff.[2] Parking for official vehicles is provided in lots on the pier areas north and south of Fire Station 35. The pier does not provide parking for the crew's personal vehicles. As noted above, the shed on the north finger pier is used for equipment and gear storage.

Existing daily operations at Fire Station 35 include fire and medical emergency response; performing inspections, maintenance and repairs of equipment, fire engine and fire boats; housekeeping and light maintenance of facilities; operational training; and community outreach. The fire boats draw firefighting water from the bay, via the manifold intakes of the city's Auxiliary Water Supply System (AWSS), also known as the Flexible Water Supply System (FWSS).

Engine 35 responds to emergency calls with four-member crews, lights and sirens. Fire boats do not use lights or sirens. In 2017, Engine 35 responded to 2,354 calls, and fire boats to 239 calls.

PROPOSED PROJECT

Project Objectives

The existing fire station and fire boat berthing facilities at Pier 22½ are inadequate to meet the San Francisco Fire Department's public service and water rescue service needs. The existing finger piers are deteriorated, and utility infrastructure is outmoded and inadequate. The historic fire station building does not provide adequate space to accommodate more than small-scale emergency operations. The firehouse garage and the size and configuration of the pier and finger piers do not provide adequate turning room for ambulance access necessary to transport casualties and/or fatalities retrieved from bay waters. Sleeping quarters and bathrooms in existing Fire Station 35 are inadequate in size and configuration. Further, the only access to the second-floor dormitory in the fire station is an historic spiral staircase; thus, the existing firehouse does not meet Americans with Disabilities Act (ADA) guidelines.

The goal of the project is to improve the Fire Department's capacity for meeting current and future demands for water-rescue and emergency-response services, including training of staff, and provision of sufficient docking space for all three of the Fire Department's existing fire boats. The proposed project would provide new and upgraded facilities for emergency equipment and personnel and utility infrastructure upgrades, and would provide an earthquake-resilient connection between The Embarcadero and the fire boat dock, which would minimize the potential for future disruption of services by emergencies such as a major earthquake. The project

[2] 12 beds in officers' rooms for three shifts for two officers, a pilot and an engineer; 13 as dormitory beds for three shifts of three firefighters each, one for "swing" crew member, and three beds unassigned to individuals, for use by vacation-relief personnel.

also would improve the Fire Department's and the Port of San Francisco's capacity to meet current and future demands for water rescue and emergency-response services and staff training.

Project Summary

The proposed project would involve demolition of the two finger piers that extend into the bay from Pier 22½, and demolition and replacement of a portion of the main pier south of the fire station.

The principal component of the proposed project is installation of a new steel float, to be permanently anchored in the bay immediately east of Pier 22½ (Figure 5: Pier 22½ Site Plan). As described under "Construction", below, installation of the steel float would be preceded by dredging in the immediate area to facilitate ongoing boat access to the dock. The new dock would be surmounted by a new two-story fire boat facility building. An existing section of wharf south of the main Pier 22½ would be partially demolished and reconstructed to provide earthquake-resilient landward support for a new access ramp from The Embarcadero to the steel float as well as a public viewing area. Firehouse 35 would continue to be used for some Fire Department operations, including the storage of one to two fire trucks, one inside the building and a second truck that would occasionally be parked outdoors on the wharf on the north side of the building.

Steel Float

The approximately 16,600-sf steel float (approximately 173-feet-long by 96-feet-wide) would be permanently anchored in the bay immediately east of Pier 22½, at the approximate location of the existing north finger pier. The steel float would be attached to four 60-inch-diameter steel pipe guide piles (two each at the east and west sides of the dock) that would extend above the deck to allow the dock to rise and fall with the tides.[3] The float would be 10-feet high—that is, about 5 feet below the water line and 5 feet above the water line —and include watertight air-filled ballast compartments for stability. Framing within the float would support the fire boat facility building column loads. In addition to space for the fire boat facility building, the steel float would provide berthing for the City's three fire boats. The float would also be equipped with a small rescue craft; and two free-standing, pedestal mounted, jib-style davit cranes (stationary cranes) for moving heavy equipment and supplies (up to 2 tons) to and from the fire boats.

Fire Boat Facility

The new two-story, approximately 52-foot by 139-foot, 32-foot-tall fire boat facility would provide approximately 16,000 sf of interior space for fire boat operations and support programs, including crew group quarters, a marine emergency operations center, storage for specialty firefighting and rescue gear, a decontamination space, and a drive-through ambulance access ramp. (Figure 6: Level 1 Plan; Figure 7: Level 2 Plan: and Figure 8: Roof Plan.)

The new fire boat house has been designed with a flat roof to provide a low profile and enhance operational flexibility. Tinted, horizontal strip windows would provide natural light and privacy to the living quarters. The exterior of the new fire boat house would be clad in silver corrugated metal panels on the upper exterior walls, above eight feet of steel plate (Figure 9: South Elevation: Figure 10: North Elevation; and Figure 11: East and West Elevations).

3 The height of the piles above the deck would vary with tide level, with a maximum height, at low tide, of approximately 15 feet.

The first floor of the new fire boat facility on the steel float would be used for emergency operations, equipment storage, supply, and repair, and include a night watch room, mechanical, decontamination/drying rooms, equipment lockers, small craft storage, and fuel storage for an emergency diesel-powered generator and fireboat refueling. Roll-up garage-type doors on the north and south elevations of the building would provide access to a large, open, dock-level bay for boat storage and ambulance circulation.

A diesel-fueled emergency generator would be installed on the fire boat facility roof, in a sound-attenuated, weatherproof enclosure that would extend approximately 5 feet above the roof. The generator would supply electrical power for the fire boat facility and fuel pump in the event of a power failure. The generator would be fueled directly from a dual-walled fuel tank with 24-hour fuel capacity, with a backup roof-mounted tank, to provide fuel for a 72-hour minimum capacity. The generator would be registered with the Department of Public Health and equipped with air emissions control technology that complies with the regulations of the Bay Area Air Quality Management District. The fireboat engines also operate on diesel fuel. Diesel for boat refueling would be provided from the same roof tank(s) and an in-float storage tank that supply the emergency generator.

Permanently-fixed double containment fuel piping from the fuel storage tanks to the fuel port would be equipped with leak detection sensors.

As under existing conditions, the fire boat facility would be staffed around the clock. The second floor of the building would include sleeping quarters with 35 beds[4] for a daily crew of 10 persons. The second floor also would include a laundry room, day room, dining area, kitchen with outdoor patio at the east end of the building, and lockers, showers and bathrooms. Two slide poles, two exit stairways, and one elevator would provide access between the first-floor and second-floor areas.

No portion of the new fire boat facility building would directly front a city street, and no tree planting, additional landscaping or new parking is proposed. Parking on the pier would continue to be restricted to the existing fire engine (garaged in Fire Station 35). Equipment and a boat currently warehoused on the Pier 22½ marginal wharf at the south side of south of Fire Station 35 would be relocated to the steel float as needed.

Once the new fire boat facility is complete, most of the operations currently housed in the existing fire station building would accommodated in the new building, as detailed below. Under the proposed project, daily personnel at the fire station would be increased by three dedicated marine unit firefighters.

Marginal Wharf and Access Ramp

A portion of Pier 22½ south of Fire Station 35 would be demolished and replaced at the same location by a smaller (approximately 1,690-sf) earthquake-resilient marginal wharf to provide reliable utility operation and ensure continuous access between the land and the steel float in the event of a major earthquake (Figure 12: Observation Deck and Access Ramp Plan). The access ramp would be supported by steel pilings driven to approximately 110 feet below mean sea level:

4 Twelve beds in officers' rooms, as under existing conditions; and 23 dormitory beds: 13, as under existing conditions; plus 10 additional beds for three shifts of three dedicated marine unit firefighters and one "swing" position.

four 48-inch-diameter and two 24-inch diameter piles that would be driven into the floor of the bay. The marginal wharf would be structurally independent of the historic seawall, which would not be affected during wharf reconstruction and installation of the access ramp supports.

In addition to support for the landward end of the float access ramp, the replacement marginal wharf would provide a fenced area for utility equipment and a 400-sf area dedicated to public access for gathering and viewing the bay. Aesthetically-designed railings on the wharf would define the public access area and separate the secure area of the SFFD operations from the public spaces. Interpretive signage in the public area would emphasize the history and operations of Fire Station 35 and its fire boats, and may include reference to the fire boats' importance in the aftermath of the 1989 Loma Prieta Earthquake.

Table 1. Construction of the New Pier 22½ Fire Boat Facility: Construction Phases, Duration and Equipment

Construction Phase	Duration (Days)	Approximate Start	Approximate Finish	Equipment
Construct fire boat facility warm shell[5] on deck of steel float at Pier 1, Treasure Island	180	June 2019	May 2020	Cranes, barges
Demolish Pier 22½ north and south finger piers	20	June 2019	June 2019	Crane (1), vibratory extractor (1), tug boat (1), barge (1), access boat (1), generator (1), cement/ mortar mixer (1)
Dredge bay bottom for placement of and continuing access to steel float	20	July 2019	July 2019	Clamshell dredge (1), barge (1)
Construct marginal wharf; complete utility installation on land and on new wharf.	105 (includes 10 days of pile driving)	September 2019	December 2019	Impact pile driver (1), crane (1), tug boat (1), barge (1), access boat (1)
Install steel guide piles and connect with steel float	4 to 6	July 2019	August 2019	Vibratory and impact pile driver (1), crane (1), tug boat (1), barge (1), access boat (1)
Tow new steel float with fire boat warm shell to site	2	June 2020	June 2020	Tug boat (1 to 2)
Construct access ramp between marginal pier and steel float; and complete construction of fire boat facility building	310	January 2020	December 2020	Crane (1), tug boat (1), barge (1), bulldozer (1), excavator (1), backhoe (1), generator (1), roller (1), cement mixer (1), paver (1), loader (1), welder (1)
Finishing; additional interior and utility work	60	January 2021	March 2021	Compressor (1), generator (1), various pneumatic tools

5 A warm shell is a commercial or residential building with a minimally finished interior, usually with ceilings, lighting, plumbing, heating and cooling (HVAC), interior walls (painted or unpainted), electrical outlets, elevators, rest rooms, and a concrete floor. A warm shell is considered ready for tenant improvements.

The pier section north of Fire Station 35 and existing spaces on the landward side of the fire station would continue to provide fire station parking for official vehicles. Ancillary equipment storage would be provided in Fire Station 35 and in the new fire boat facility on the steel float.

Construction Activities and Schedule

Table 1, above, provides the anticipated construction schedule and preliminary construction equipment list. Construction is projected to take about two years, starting in early 2019 and ending in early 2021. It is anticipated that work would occur between 7 am to 5 pm daily, Monday through Friday. No weekend or night work is anticipated at this time, although it is possible that occasional weekend work could be needed. Approximately 10 to 30 workers are anticipated for the construction effort, with the number varying with the project phase and specific construction tasks. Construction workers would be encouraged to carpool and, to the extent necessary, would park personal vehicles at existing public parking lots and spaces in the vicinity of both Pier 1, Treasure Island and Pier 22½.

Demolition

Sanitary sewer, water (including the auxiliary water supply system or AWSS piping), and electrical utility lines that serve the north finger pier are presently located on the southern portion of Pier 22½, which is slated for demolition. These lines would be capped and stubbed out prior to the beginning of demolition. The emergency generator presently located on the marginal wharf would be removed. The historic iron AWSS monitor that is located on the pier immediately south of the existing Fire Station 35 building would not be affected by the proposed demolition in this vicinity and would be retained in place.

Demolition would begin with removal of the 2,200-sf shed on the north finger pier, followed by removal of the approximately 3,500-sf north and 1,750-sf south pier decks and extraction of the 75 one-foot-diameter wood piles that support the finger piers.[6,7] Next, an approximately 3,900-sf of the section of Pier 22½ south of the existing fire station would be demolished.[8]

Demolition would be conducted primarily by an excavator and other necessary equipment stationed on a barge. It is anticipated that demolished materials would be taken by barge to Pier 96 on San Francisco's eastern waterfront, off-loaded and transported by truck for recycling or disposal at the Hay Road landfill in Vacaville.

It is anticipated that demolition and piling removal activities would take place in June 2019 and would require approximately 20 working days.

During demolition of existing north and south finger piers and construction of the new fire boat facility at Pier 22½, the 3 fireboats would be moored, operated, and maintained from Pier 26.

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6 The 50 and 25 timber piles supporting the north and south finger piers, respectively, are one foot in diameter, extend about 20 feet into the bay mud, and would be broken at or below the mudline by a barge-mounted excavator.

7 The demolition of the existing finger piers and the guide pile installation would be considered "in water" construction and is subject to applicable environmental requirements (including protection of sensitive aquatic species). This is discussed in the Biological Resources and Noise sections, below

8 The 25 concrete piles that support the section of the marginal wharf south of the firehouse (to be demolished) are also one foot in diameter, extend about 10 feet into the bay bottom, and would be removed by a vibratory hammer extractor stationed on a derrick barge.

Dredging

Demolition would be followed by dredging of approximately 18,600 cubic yards of material to a depth of approximately 10 to 17-feet deep in a 425-foot-long by 222-foot-wide, 94,350-square foot area east of the Pier 22½ main pier to ensure that water depth in this area is sufficient for installation of and ongoing access to the new steel float. Dredging would be performed from water-side barges using a clamshell bucket. Dredged materials would be screened of debris and placed into scows for transfer to the approved disposal site(s). Debris would be transferred to an upland disposal site. Any hazardous materials found to be present in dredged materials would be disposed in compliance with regulatory requirements at an appropriate certified disposal facility.

Dredging would require approval from the Dredged Material Management Office (DMMO).[9] The DMMO is a joint program of the San Francisco Bay Conservation and Development Commission (BCDC), San Francisco Bay Regional Water Quality Control Board (RWQCB), State Lands Commission (SLC), the San Francisco District U.S. Army Corps of Engineers (USACE), and the U.S. Environmental Protection Agency (EPA). The purpose of the DMMO is to cooperatively review sediment quality sampling plans, analyze the results of sediment quality sampling and make suitability determinations for material proposed for disposal in San Francisco Bay.

Best management practices would be detailed in a Dredge Operations Plan (DOP), which would be submitted to the permitting agencies for approval before dredging begins, and implemented during dredging, as detailed in Section E. 15 (Hydrology and Water Quality), below. Dredging would require approximately 20 working days.

Construction

New Steel Float and Fire Boat Facility Warm Shell

The approximately 173-feet-long by 96-feet-wide steel float would be manufactured in Shanghai, China between approximately December 2018 and June 2019 and dry shipped on the deck of a freighter, to be temporarily docked at Pier 1 on Treasure Island in San Francisco. At Pier 1, Treasure Island, a "warm shell"[10] for the new fire station would be built upon the deck of the float between approximately June 2019 and May 2020. Materials for the building construction would be delivered to Treasure Island, off-loaded and staged onto Pier 1 by trucks from multiple sites around the Bay Area, and moved by small crane from the pier onto the float for installation. Simultaneously with float and warm shell assembly at Treasure Island, dredging would be conducted at the float's permanent location east of Pier 22½.

Construction would involve use of a forklift and standard small pieces of electric and manually-powered construction equipment. Utility chases[11] to accommodate mechanical, electric and plumbing infrastructure for the warm shell of the new fire boat facility, and a fuel tank for the

9 https://www.spn.usace.army.mil/Missions/Dredging-Work-Permits/Dredged-Material-Management-Office-DMMO/

10 The warm shell represents the exterior walls and interior structural supports of the proposed fire boat facility, with a minimally finished interior. Finishing would include a heating and cooling (HVAC) system, drop ceilings, plumbing and restrooms, and interior wiring and lighting.

11 A framed enclosed space or channel in a wall, ceiling or floor for duct work, plumbing or wiring to pass through.

emergency generator and boat refueling, would be constructed within the steel float's structural deck, after which the marine deck would be installed over the utility chases.

In approximately June 2020, the float would be towed from Pier 1 to be anchored at its permanent location adjacent to the east side of Pier 22½. Demolition of the finger piers and dredging at the float's permanent location will have been completed before the float is towed into place.

The float and fire station facility warm shell superstructure would be secured, just offshore of Pier 22½, by 60-inch-diameter guide piles driven into the bay bottom (see Figure 5 for location of the steel float piles). A barge-mounted vibratory hammer would drive the piles to vibratory refusal and an impact hammer would then finish driving to the design elevation, approximately 150 feet below mean sea level. The guide piles would extend about twelve feet above the Highest Astronomical Tide[12], such that the steel float would rise and fall with the tides. Each guide pile would be topped by a fiberglass pile cap, to anchor the float. Pile collars would be installed between the guide piles and pile collars to provide damping of the float motions and to minimize or eliminate rattling between the float and guide piles. In addition to coating, a cathodic protection system would be provided for the steel float to slow the rate of corrosion.

Marginal Wharf, Access Ramp, and Public Viewing Area

The replacement portion of the marginal wharf, and the access ramp between the wharf and the steel float, would be constructed between approximately September 2019 and December 2019.

Similar to the steel float, the new access ramp would be constructed off-site at Pier 1, Treasure Island and installed ready-made at the project site. The access ramp would consist of a shallow steel frame and a non-slip steel plate deck, 92 feet long by 17 feet wide with42-inch-high safety railings and an 8-foot-high fence at the entrance. It would be aligned at a diagonal between the northeastern portion of the marginal wharf and the southwestern corner of the steel float (see Figure 12, Observation Deck and Access Ramp Plan). A utility rack hung beneath the access ramp would carry necessary mechanical, electrical and plumbing infrastructure, including AWSS hoses, from the Embarcadero and the marginal wharf to the fire boat facility. Horizontal and vertical hinge connections between the pier and ramp, and rollers between the ramp and float, would accommodate the float's vertical and lateral movements. A vehicle access gate would be installed at the landside end of the access ramp. A separate aluminum gangway would be installed between the float and the eastern edge of Pier 22½ to provide additional pedestrian access to the float for firefighters. Landside excavation on The Embarcadero waterfront would be needed for installation of new electrical vaults, switchboard and panels, new backflow devices and water and natural gas meters, as well as for removal and replacement of the existing Pier 22½ driveway and sidewalk paving. Utility excavations would range from 1 foot to 4 feet deep in an approximately 30 foot x 30 foot area, and would entail disturbance of less than 50 cubic yards of soil.

New Fire Boat Facility and Dormitory

Finish materials (drywall, paint, flooring, etc.) for construction of the new Fire boat facility in the previously-installed warm shell, would be delivered to Pier 22½ via truck along The Embarcadero. After installation of the steel float at Pier 22½ site, electrical conduit, plumbing and mechanical utilities would be placed in the utility chases built within the float, and connected

12 The elevation of the highest predicted astronomical tide expected to occur at a specific tide station over the National Tidal Datum Epoch.

with the fire boat facility building and across the access ramp to utility boxes on the marginal wharf and The Embarcadero, as noted above.

Above-surface utility boxes would be housed in the central portion of the new marginal wharf, just north of the public access area (as described above), as well as on the existing main pier, immediately south of the existing historic fire station building.

Recycled-content material would be used to the maximum extent feasible for construction of the new fire station building, and preference would be given to local manufacturers and industry in accordance with the San Francisco Construction Recycled Content Ordinance. The new building would provide a high-performance continuous insulation system for improved durability in a maritime setting. Non-PVC plastics would be specified for construction in accordance with the San Francisco Resource Conservation Ordinance. The structural system of the new fire station building would be designed to meet or exceed the requirements of the 2016 San Francisco Building Code.

The new fire boat facility would be designed and constructed to the Leadership in Energy and Environmental Design (LEED) gold certification standard.[13] Bathrooms would comply with the requirements of the Commercial Water Conservation Ordinance. The project would also comply with the San Francisco Green Building Requirements for City Buildings related to energy-efficient lighting, energy performance, renewable energy, and commissioning. The project would otherwise obtain energy through existing power grid.

Construction Materials Delivery and Staging

Equipment and materials for construction of the warm shell at Pier 1, Treasure Island would be brought to the site by truck from locations in the East Bay and Peninsula on Interstate 80 and the Bay Bridge and staged on the pier. Demolition of the north and south finger piers and the portion of Pier 22½ to be replaced by the new marginal wharf would be accomplished by barge-mounted equipment, including a vibratory extractor working from a floating barge offshore of Pier 22½. Equipment and materials for construction of the new marginal wharf and the fire boat facility would be staged at Pier 26 (just south of Pier 22½) and brought to the project site as needed by barge.

Project Operations and Maintenance

Fire Boat Facility

The new fire boat facility would generally be staffed by ten Fire Department personnel in 72-hour shifts. This represents a three-person increase in daily fire station staffing from existing conditions. Fire boat operations and crew living quarters would be relocated to the steel float, but operations and maintenance activities generally would continue at the new location in the same manner as at Fire Station 35 under existing conditions. The new fire boat facility would operate 24 hours per day, seven days a week (as does Fire Station 35 under existing conditions). The fire boat presently temporarily located at Pier 26 would be relocated to the new steel float, along with the two fire boats presently located at Pier 22½ and a smaller support craft.

[13] LEED does not certify structures over water; therefore, although the proposed project would be built to the gold certification standard, the sponsor would not submit for certification.

As described above, the new fire boat facility would be used for emergency operations; equipment storage, supply, and repair; and operations support facilities, including fueling facilities for the fire boats, and fuel supply for an emergency diesel-fueled generator. Both the fuel supply tanks and the emergency generator would be relocated from Pier 22½ to the proposed fire boat facility. During operations, the emergency generator would be tested once per week for 30 minutes, as it is under existing conditions.

Refilling of fuel tanks on the float would occur periodically as needed, as occurs under existing conditions. The diesel fuel delivery truck would remain on the landside of the access ramp during fuel tank refilling operations. A refueling hose would be extended from the delivery truck, across the vehicle access ramp, and along the float deck to the provided refueling port. The San Francisco Fire Department would contract with a U.S. Coast Guard & California Department of Fish and Wildlife-certified "over-water" fueling vendor to provide all emergency generator refueling services.

No physical or architectural modifications to the either the exterior or the interior of the existing historic firehouse are proposed.

Future Maintenance

Future sedimentation below the float could require periodic future dredging to maintain water depth for boat access. This would be accomplished under appropriate existing and future permits and environmental approvals, as required.

Divers also would need to periodically inspect the condition of the steel float coating, including checking for corrosion. The coating would require periodic cleaning, per manufacturer's instructions, to prolong its life. The cathodic-protection system would require regular inspection, and components would be periodically replaced as needed to ensure proper functioning for corrosion prevention.

Parking and Loading

The proposed project would include parking spaces for seven to eight vehicles in a lot on the north side of the existing Firehouse 35, the same number as provided by that lot under existing conditions. The existing firehouse includes group housing for seven persons. The proposed project would improve the existing public service facility, and would increase the daily number of crew persons ordinarily housed at the facility to 10. Additional service personnel group housing could occur during emergencies. As the project site is on Port land, it is not subject to the parking and loading requirements contained in the Planning Code. The Port has no parking requirements for the existing Fire Station 35 and none would be required for the proposed fire boat facility.[14]

As discussed under Transportation and Circulation (Section E.5, below), the project area is well-served by public transit and public parking.

[14] Emails from Diane Oshima, Deputy Director, Planning and Environment, Port of San Francisco, and James Hurley, Port of San Francisco, April 12, 2018 and April 13, 2018, respectively, to Chris Thomas, San Francisco Planning Department.

Memorandum of Understanding

Future operations of the fire boat facility and the historic Firehouse 35 would be subject to a memorandum of understanding (MOU) between the Port of San Francisco and the San Francisco Fire Department for the use of the Port property, including the water area to be occupied by the new floating facility, as well as the on-going use of the historic Firehouse 35. The MOU between the Port and the Fire Department has not been approved and its future requirements have not been specified at this time. Under the MOU, Firehouse 35 would continue to be used for some Fire Department operations, including the storage of one to two fire trucks, one inside the building and a second truck that would occasionally be parked outdoors on the wharf located on the north side of the building. The proposed MOU would formalize the Fire Department's existing and ongoing responsibility for the maintenance of Firehouse 35. The Fire Department and Port would conduct periodic conditions assessments to determine the maintenance needs of both the proposed new fire boat facility and the historic Firehouse 35, including its substructure and superstructure. The conditions assessments would determine the work necessary to maintain Firehouse 35 in a state of good repair consistent with applicable Port building code requirements. The MOU would require that all repairs or alterations work to be reviewed and implemented in compliance with Secretary of Interior Standards for the Treatment of Historic Properties (Secretary's Standards).

B. PROJECT SETTING

Pier 1, Treasure Island

Pier 1, Treasure Island is an approximately 950-foot-long finger pier located at the southeast corner of Treasure Island, near the intersection of California Avenue and Avenue M. Vehicular access to Treasure Island is via the San Francisco-Oakland Bay Bridge. This part of Treasure Island is characterized by scattered warehouse, office, open space and storage yard uses. Past, present and reasonably foreseeable cumulative development projects within one-quarter of a mile of Pier 1 relate to those that are a part of the Treasure Island/Yerba Buena Island Redevelopment Project.[15] This comprehensive project will ultimately entail development of up to 8,000 residential units; 40,000 sf of new commercial and retail space; 100,000 sf of new office space; and 500 hotel rooms; adaptive reuse of about 311,000 sf for commercial, retail, and/or flex space uses in the historic buildings on Treasure Island; new and/or upgraded public facilities and public utilities; about 300 acres of parks and public open space; landside and waterside facilities for the existing Treasure Island Sailing Center; renovation and expansion of the existing Clipper Cove Marina and associated landside services; and a new Ferry Terminal and intermodal Transit Hub. Construction and buildout of the proposed plan, approved in 2015, has begun and will be phased to occur over an approximately 15- to 20-year period.

The redevelopment project includes various improvements within one-quarter of a mile of Pier 1, including modifications to nearby streetscapes, development of open space and improvements to Clipper Cove Marina. These streetscape, recreational and open space-related improvements are currently scheduled to be constructed between 2020 and 2027. A portion of the project's new

15 City of San Francisco, *Treasure Island/Yerba Buena Island Redevelopment Project Final Environmental Impact Report*, Case No. 2007.0903E, State Clearinghouse No. 2008012105. Final Certification date April 21, 2011. Available at: *http://sftreasureisland.org/development-project*. Accessed April 5, 2018.

eastside neighborhood within one-quarter of a mile of Pier 1, scheduled to begin construction in 2021, will include residential, commercial and public uses.[16]

Pier 22½, San Francisco

Pier 22½ is located along the southern end of The Embarcadero, a roadway that runs along San Francisco's eastern waterfront. The Pier 22½ project site and immediately adjacent properties are zoned as a community business (C-2) district. A small area of land directly in front of and west of the project site, where The Embarcadero promenade is located, is zoned Public. To the southeast along the waterfront is an extended zone of light industrial (M-1) and heavy industrial (M-2) zoned piers devoted to warehousing and other port-related uses. West of the project site, across The Embarcadero, is the Rincon Hill Downtown Residential (RH DTR) District, which contains a variety of residential, office, retail and commercial land uses. Further towards Market Street, building heights are considerably higher in the Downtown Office (Special Development) (C-3-O [SD]) district. This portion of the South of Market neighborhood provides Citywide and regional destinations that attract substantial numbers of visitors during some evenings and on weekends.

The Embarcadero roadway sits atop an engineered seawall constructed between the 1860s and 1920s. The Embarcadero was historically home to a short-line freight railroad which connected the numerous piers extending off the roadway into the bay. During World War II, nearly all piers along The Embarcadero were used for military activities. The Embarcadero Historic District was listed in the National Register of Historic Places in 2002.

All piers along The Embarcadero are owned by the Port. Piers to the south of the Ferry Building (Pier 1) are sequentially labeled by even numbers (Pier 2, Pier 4, etc.), while piers to the north of the Ferry Building are sequentially labeled by odd numbers (Pier 3, Pier 5, etc.). The portion of The Embarcadero between piers 7 and 35, where the proposed project is located, has historically functioned as a maritime, industrial, and manufacturing area which offered cargo-shipping, ship repair, tug and barge operations, and cruise ship embarkation. However, development over the last 25 years has also introduced new open space, and leased commercial, amusement, and parking uses in this area.

Other Projects in the Vicinity

There is the potential for past, present, and reasonably foreseeable future projects occurring near the proposed project to result in cumulative impacts in combination with the environmental impacts of the proposed project. The cumulative impacts analysis in this document includes projects in the near vicinity of the project site (generally within a 0.25-mile radius), that are either under construction or for which an Environmental Evaluation Application has been filed with the Planning Department, and that are related in scope to the proposed project. These are listed in Table 2 below.

[16] Email from Elizabeth Hirschhorn, Assistant Development Program Manager, Treasure Island Development Authority, to Chris Thomas, San Francisco Planning Department, April 5, 2018.

Table 2. Cumulative Projects: Past, Present and Future

Action Name	Environmental Case Number (if applicable)	Summary
Treasure Island/Yerba Buena Island Redevelopment Project	2007.0903E	Development of up to 8,000 residential units; 40,000 sf of new commercial and retail space; 100,000 sf of new office space; and 500 hotel rooms. Adaptive reuse of about 311,000 sf for commercial, retail, and/or flex space uses in the historic buildings on Treasure Island; about 300 acres of parks and public open space; landside services for an expanded marina; and a new Ferry Terminal and intermodal Transit Hub. Construction and buildout would be phased over an approximately 15- to 20-year period.
Ongoing Maintenance Dredging of Port Piers	N/A	The Port conducts regular maintenance dredging of its piers between Fisherman's Wharf and Pier 96. From 2011 to 2014, maintenance dredging covered the dredging and disposal of more than 900,000 cubic yards of dredged sediment. The Port Commission recently recommended approval of the 2016-2020 dredging contract.
Ongoing Routine Repair and Maintenance of Port Facilities	2016-003866ENV	The Port conducts ongoing repair and maintenance of its facilities as part of its routine maintenance program. These may include substructure and apron repair of its piers, utility upgrades, and roof repairs. Several upcoming and ongoing projects include substructure repairs to Piers 29 and 31½, roof repairs to Pier 19, and utility upgrades at Piers 23, 31, and 33.
Pier 26 Fire Boat Berth	2016-009312ENV	Repairs to a portion of the Pier 24 north apron involving removal of deteriorated fender piles and installation of new fender piles.
Embarcadero Enhancement Project	N/A	The SFMTA, Port of San Francisco, San Francisco Planning Department and San Francisco Public Works Department seek to develop a Complete Streets conceptual design and cost estimate that includes a bikeway, which would be physically separated from moving or parked vehicles and pedestrians, along The Embarcadero from AT&T Park at King Street to the Fisherman's Wharf area.
429 Beale Street and 430 Main Street	2014-002033ENV	Demolish existing buildings and construct a nine-story, 84-foot-tall building containing 144 dwelling units and 73 parking spaces.
75 Howard Street	2011.1122E	Demolish 8-story, 550 space parking garage and construct an approximately 31-story, 432,253-gross-square-foot (gsf) residential building containing 186 units, approximately 5,658 gsf of retail use and 172 parking spaces.

C. COMPATIBILITY WITH EXISTING ZONING AND PLANS

	Applicable	*Not Applicable*
Discuss any variances, special authorizations, or changes proposed to the Planning Code or Zoning Map, if applicable.	☐	☒
Discuss any conflicts with any adopted plans and goals of the City or Region, if applicable.	☒	☐
Discuss any approvals and/or permits from City departments other than the Planning Department or the Department of Building Inspection, or from Regional, State, or Federal Agencies.	☒	☐

This section discusses the compatibility of the proposed project with applicable zoning regulations and land use plans, and approvals and/or permits required from City departments other than the Planning and Building Inspection departments, or from regional, state, or federal agencies. The proposed project would be located entirely on Port property (Pier 22½) and would not require the issuance of a variance, conditional use authorization, or changes to San Francisco's Planning Code or Zoning Map. Therefore, these issues are not discussed further in this document.

City and County of San Francisco and Port of San Francisco Plans and Policies

San Francisco General Plan

The San Francisco General Plan sets forth the comprehensive long-term land use policy for the City and County of San Francisco. The general plan consists of 10 issue-oriented plan elements: air quality; arts; commerce and industry; community facilities; community safety; environmental protection; housing; recreation and open space; transportation; and urban design. All land use documents, such as the Planning Code, area-specific plans, and redevelopment plans, must be consistent with the General Plan. The Planning Commission recommends amendments to the General Plan to the Board of Supervisors for approval. This approval changes the General Plan's status from an advisory to a mandatory document and underscores the importance of establishing consistency with the General Plan before approval actions by the Board of Supervisors.[17] Plan elements relevant to the proposed project include:

1 **Air Quality Element:** Promotes clean air planning through objectives and policies that ensure compliance with air quality regulations.

2 **Urban Design Element:** Concerns the physical character and order of San Francisco, and the relationship between people and their environment, including preservation of landmarks.

3 **Environmental Protection Element:** Addresses the impact of urbanization on the natural environment.

[17] City and County of San Francisco, San Francisco General Plan, as amended through 1996. Available from http://generalplan.sfplanning.org/.

4 **Community Facilities Element:** Broadly addresses the provision of various community facilities and services, including fire facilities and protection services.

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 such conflicts are analyzed in this Initial Study. In general, potential conflicts with the general plan are considered by the decisions-makers (typically the Planning Commission) independent of the environmental review process, 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 proposed project that are analyzed in this Initial Study. Regardless, the proposed project would not obviously or substantially conflict with any goals, policies, or objectives of the General Plan.

Northeastern Waterfront Area Plan

The project site is in the Northeastern Waterfront Area Plan, which encompasses the area from Municipal Pier and Fisherman's Wharf in the north to South Beach and Pier 46B to the south. This plan includes "objectives and policies designed to contribute to the waterfront's environmental quality, enhance the economic vitality of the Port and the City, preserve the unique maritime character, and provide for the maximum feasible visual and physical access to and along the Bay."[18] It calls for maintenance of shipping and related maritime uses for as long as they remain viable. Commercial and recreational maritime operations (e.g., cruise, excursions, ferries, historical ships, recreational boating) as well as fishing industry facilities at Fisherman's Wharf will be maintained and expanded.

The Northeast Waterfront Plan contains objectives and policies that address land use, housing, transportation, urban design, and various planning subareas, including the Ferry Building Subarea. The following policies are most relevant to the proposed project:

5 **Policy NEW.LUS.2.4:** Promote the development of new maritime activities, public open space and public access improvements as part of major new development on piers.

6 **Policy NEW.LUS.5.5:** Encourage Bay-oriented commercial recreation and public assembly uses on piers, which include public access and complementary maritime activities (e.g., cruises, excursions, ferries, historic ships), and maritime support services.

7 **Policy NEW.LUS.7.6:** With new development, create new views between buildings and/or physical access to (1) the Bay, (2) water-dependent maritime activities or (3) open space or other public attractions that invite the public onto pier areas and provide access to the Bay.

8 **Policy NEW.URB.10.13:** Remove exposed surface parking from over water, and along The Embarcadero roadway to improve shoreline appearance and access to the Bay.

[18] San Francisco General Plan, Northeastern Waterfront Plan (adopted by Planning Commission Resolution 11882, February 21, 1990, as amended through 2003).

9 **Policy NEW.URB.10.19:** On non-maritime piers with sheds, provide continuous peripheral pedestrian public access ramps for walking, viewing and fishing. Provide benches and street furniture. Prohibit use of designated public access areas for valet parking, auto drop-off or trash storage, but allow emergency vehicle access and, if no feasible alternatives exist, service vehicle access.

10 **Policy NEW.TEL.17.1:** Retain architecturally interesting and historically significant buildings or buildings which contribute substantially to the overall architectural character of the area. In particular, every effort should be made to preserve the Italian Swiss Colony Building, the Pelican Paper Company Warehouse, the Trinidad Bean and Elevator Company Warehouse, and the Beltline Roundhouse. Historic bulkhead and connector buildings should be retained and reused as set forth in the Waterfront Design & Access policies of the Port of San Francisco's Waterfront Land Use Plan.

The proposed project would not obviously or substantially conflict with any goals, policies, or objectives of the General Plan, including those of the Northeastern Waterfront Area Plan. The compatibility of the proposed project with General Plan goals, policies, and objectives that do not relate to physical environmental issues will be considered by decision-makers as part of their decision whether to approve or disapprove the proposed project. Any potential conflicts identified as part of the process would not alter the assessment of the physical environmental effects of the proposed project under CEQA.

In addition to the General Plan, the Port of San Francisco adopted the Waterfront Plan in 1997 to address how and where existing and new land uses will be located along the waterfront over the next 20 years.[19] The plan outlines general land use policies and objectives for all property under the Port's jurisdiction, specifically regarding maritime uses, open space and public access, residential and commercial uses, and other/interim uses. Unacceptable non-maritime uses are also identified. This plan is consistent with the Port's public trust responsibilities and the City/County's Northeastern Waterfront Area Plan.[20] The Waterfront Plan includes the Waterfront Design and Access Element, which was prepared to provide goals, policies, and qualitative standards for future waterfront improvement projects with specific attention to public access and open space, views, and historical preservation. The plan also provides general architectural criteria for piers, bulkhead sites, and seawall lots, as well as some site specific architectural criteria. The proposed project would not conflict with objectives of the Waterfront Land Use Plan.

City of San Francisco and Port of San Francisco Codes, Guidelines and Regulations

San Francisco Planning Code

The San Francisco Planning Code, which incorporates the City's Zoning Maps, implements the San Francisco General Plan (General Plan), and governs permitted land uses, densities, and configuration of buildings within the City. Permits to construct new buildings (or to alter or

19 Port of San Francisco, Waterfront Land Use Plan, adopted 1997 and republished 2004. Available from http://sfport.com/waterfrontland-use-plan-chapters.

20 City and County of San Francisco, Northeastern Waterfront Area Plan, July 2003. Available from http://generalplan.sfplanning.org/NE_Waterfront.htm.

demolish existing ones) may not be issued unless (1) the proposed project conforms to the Planning Code, (2) allowable exceptions are granted pursuant to provisions of the Planning Code, or (3) amendments to the Planning Code are included as part of the proposed project.

The Fire Station 35 site is within the C-2 use district and the 84-X-2 height and bulk district. As provided by section 210.1 of the planning code, the C-2 district provides convenience goods and services to residential areas of the City, both in outlying sections and in closer-in, more densely built communities. In addition, some C-2 districts provide comparison shopping goods and services on a general or specialized basis to a Citywide or a regional market area, complementing the main area for such types of trade in downtown San Francisco.

Maritime uses are also principally permitted in the C-2 district. Overall, the proposed project would be consistent with the planning code, and the physical impacts of the proposed project are analyzed in this initial study.

Accountable Planning Initiative Priority Policies

In November 1986, the voters of San Francisco approved Proposition M, the Accountable Planning Initiative, which established eight priority policies. These policies, and the subsections of Section E of this initial study that address the environmental issues associated with the policies, are as follows: (1) preservation and enhancement of neighborhood-serving retail uses; and (2) protection of neighborhood character (Section E.1, Land Use and Land Use Planning, questions 1a, 1b, and 1c); (3) preservation and enhancement of affordable housing (Section E.2, Population and Housing, Question 2b, with regard to housing supply and displacement issues); (4) discouragement of commuter automobiles (Section E.4, Transportation and Circulation, Questions 4a, 4b, and 4f); (5) protection of industrial and service land uses from commercial office development and enhancement of resident employment and business ownership (Section E.1, Land Use and Land Use Planning, Question 1c); (6) maximization of earthquake preparedness (Section E.13, Geology and Soils, questions 13a through 13d); (7) landmark and historic building preservation (Section E.3, Cultural Resources, Question 3a); and (8) protection of open space (Section E. 8, Wind and Shadow, questions 8a and 8b; and Section E. 9, Recreation, questions 9a and 9c).

Prior to issuing a permit for any project that requires an initial study under CEQA, to issuing a permit for any demolition, conversion, or change of use, and to taking any action that requires a finding of consistency with the general plan, the City is required to make findings with respect to whether the proposed project or legislation is consistent with the priority policies. As noted above, the consistency of the proposed project with the environmental topics associated with the priority policies is discussed in Section E, Evaluation of Environmental Effects, of this initial study, providing information for use in the case report for the proposed project.

Port of San Francisco Codes, Guidelines, and Regulations

The Port oversees a broad range of maritime, commercial, and public activities that are integral to the local and regional economy, and is responsible for 7.5 linear miles of waterfront and adjacent seawall lots. The Burton Act of 1968 and accompanying Transfer Agreement transferred the administration and control of some of the Port property from the San Francisco Port Authority, a state agency, to the City and County of San Francisco, to be held in trust for the people of California and, administered separately from other City property. Additional property was also acquired, separate from the Transfer Agreement. As a public enterprise, the Port is required to

promote maritime, recreational, industrial, transportation, public access and commercial activities on a self-supporting basis through appropriate management and development of the waterfront for the benefit of the public.

The Port of San Francisco requires compliance with many City of San Francisco codes, as well as specific Port codes and guidelines for all Port projects, including the following:

- 2016 Port Green Building Code[21]
- 2016 Port Existing Building Code
- San Francisco Public Utilities Commission Best Management Practice Handbook[22]
- San Francisco Public Utilities Commission Construction Site Runoff Control Technical Standards and Guidelines
- City of San Francisco 2016 Stormwater Management Requirements and Design Guidelines[23]

Construction and operation of the proposed project would comply with all applicable regulations.

REGIONAL PLANS

The six principal regional planning agencies and their overarching policy and plans to guide planning in the nine-county bay area include the Association of Bay Area Governments' Projections 2009, Bay Area Air Quality Management District's Bay Area 2010 Clean Air Plan, Metropolitan Transportation Commission's Regional Transportation Plan – Transportation 2035, San Francisco Regional Water Quality Control Board's San Francisco Basin Plan, the San Francisco Bay Conservation and Development Commission's San Francisco Bay Plan, and the Public Trust oversight by the California State Lands Commission. Some of these plans and policy documents are advisory, and some include specific goals and provisions that must be adhered to when evaluating a project under CEQA. Due to the small size and nature of the proposed project, no anticipated conflicts with regional plans would occur.

These regional plans are described below.

Bay Area 2017 Clean Air Plan

In accordance with the requirements of the California Clean Air Act, the 2017 Clean Air Plan provides a regional strategy to protect public health and the climate through a wide range of control measures designed to decrease emissions of air pollutants that are most harmful to Bay

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21 Port of San Francisco, Green Building Code, adopted 2016 and revised May 2017. Available from http://sfport.com/sites/default/files/Business/Docs/Permit%20Services/2016%20Port%20Building%20Codes/2016%20Port%20Green %20Building%20Code-Revised%20May%202017-Publish.pdf

22 San Francisco Public Utilities Commission, Construction Best Management Practices Handbook, adopted August 2013. Available from http://sfport.com/sites/default/files/Business/Docs/Permit%20Services/SFPUC%20Construction%20Best%20Management%20Practice%20 Handbook%20Aug%202013.pdf.

23 San Francisco Public Utilities Commission, Stormwater Management Requirements and Design Guidelines, May 2016. Available from http://www.sfwater.org/Modules/ShowDocument.aspx?documentID=9026.

Area residents, such as particulate matter, ozone, and toxic air contaminants. It is administered by the Bay Area Air Quality Management District. The proposed project would not conflict with the Bay Area 2017 Clean Air Plan.

Plan Bay Area

This is a long-range integrated transportation and land use/housing strategy through 2040 for the San Francisco Bay Area to meet the requirements of Senate Bill 375, which calls on each of the state's 18 metropolitan areas to develop a sustainable communities' strategy to accommodate future population growth and reduce greenhouse gas emissions from cars and light trucks. It is administered by the Association of Bay Area Governments and the Metropolitan Transportation Commission. The proposed project would not conflict with the Plan Bay Area.

Water Quality Control Plan for the San Francisco Bay Basin

This is the San Francisco Bay Regional Water Quality Control Board's master water quality control planning document. It designates beneficial uses and water quality objectives for waters of the state, including surface waters and groundwater, and includes programs of implementation to achieve water quality objectives. The proposed project would not conflict with the Water Quality Control Plan for the San Francisco Bay Basin.

San Francisco Bay Plan and San Francisco Waterfront Special Area Plan

The San Francisco Bay Conservation and Development Commission (BCDC) has jurisdiction over all filling, dredging, and changes in use in the San Francisco Bay; regulates new development within 100 feet of the shoreline to ensure that maximum feasible public access to the Bay is provided; and ensures that the limited amount of shoreline suitable for regional high-priority water-orientated uses is reserved for such purposes. BCDC permits would be required for construction activities, placement of fill, dredging, and change of use.

BCDC's jurisdiction over piers that predate its establishment in 1965 differs from its jurisdiction over later piers, depending on the scope of work proposed. Proposed development that does not involve any additional coverage of Bay water and that does not involve any work on piers or pier substructures is treated within the BCDC's shoreline band jurisdiction.[24] The BCDC has jurisdiction over work that involves removal and replacement of all or a substantial portion of a pier deck that would significantly extend the life of the pier or work on the pier that would allow the use of the structure to change. Accordingly, the proposed project, including the proposed new steel float, would be within both the BCDC's Bay and Shoreline Band jurisdiction. In accordance with BCDC's definitions, the new steel float would be considered "new bay fill".

The Bay Plan[25] is the BCDC's policy guide that guides development, recreation, and conservation uses in its jurisdiction around the San Francisco Bay shoreline and various supporting waterways and estuaries in accordance with the McAteer-Petris Act. The San

[24] As defined by the McAteer-Petris Act, the BCDC's jurisdiction includes a 100-foot wide shoreline band immediately landward of the edge of the Bay. The BCDC is tasked with requiring maximum feasible public access within this 100-foot shoreline band.

[25] San Francisco Bay Conservation and Development Commission, San Francisco Bay Plan, adopted 1968 and reprinted 2012. Available from *http://www.bcdc.ca.gov/pdf/bayplan/bayplan.pdf*. Accessed April 3, 2018.

Francisco Bay Plan (Bay Plan), including the jurisdictional boundary of the BCDC, was amended in October 2011 to address anticipated sea level rise and other issues associated with climate change. Under the Bay Plan, priority uses include ports, water-related industry, airports, wildlife refuges, and water-related recreation. As an extension to the Bay Plan,[26] BCDC worked in concert with the City's Planning Department and the Port to create the Waterfront Special Area Plan.[27] Adopted in 1975 and amended through February 2010, this plan identifies site-specific policies pertaining to all Port properties along the shoreline, from east of Hyde Street Pier to just south of India Basin (located in the southeastern part of San Francisco, near Hunter's Point). Additionally, based on the Bay Plan, the design guidelines handbook helps guide design decisions made on future development projects along the bay shoreline.[28] While only advisory and not legally enforceable, the guidelines were adopted by BCDC in 2005 and have influenced past recommendations and formal decisions made by BCDC and its Design Review Board. There are no apparent inconsistencies between the proposed project and the Bay Plan or the Waterfront Special Area Plan.

Public Trust Doctrine

The Public Trust Doctrine[29] administered by the California State Lands Commission governs the use of tidal and submerged lands, including former tidal and submerged lands that have been filled. The project site is subject to the Trust. The purpose of the Public Trust Doctrine is to ensure that land that is covered by the State's waterways 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, such as hotels, restaurants, and specialty retail, are also permitted.

The City and County of San Francisco, through the San Francisco Port Commission was granted sovereign tide and submerged lands in trust in 1968 through legislation referred to as the Burton Act. Title to most of the Port of San Francisco's property was transferred by the State to the City via the 1968 Burton Act. The City, acting through its Port, holds such property in trust for the people of California. Port lands are subject to the terms and conditions of the Burton Act ("Burton Act trust"), the common law public trust for commerce, navigation and fisheries ("public trust"), and state constitutional limitations placed on trust lands. The California State Lands Commission

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26 Ibid.

27 San Francisco Bay Conservation and Development Commission, San Francisco Waterfront Special Area Plan, April 1975, as amended through February 2010. Available at: *http://www.bcdc.ca.gov/sfwsap/SFWSAP_Final_2012.pdf*. Accessed April 3, 2018.

28 San Francisco Bay Conservation and Development Commission, *Shoreline Spaces Public Access Design Guidelines for the San Francisco Bay*, April 2005. Available at: *http://www.bcdc.ca.gov/planning/reports/ShorelineSpacesPublicAccessDesignGuidelinesForSFBay_Apr2005.pdf*. Accessed April 3, 2018.

29 California State Lands Commission, The Public Trust Doctrine. Available online at http://www.slc.ca.gov/About_The_CSLC/Public_Trust/Public_Trust_Policy.pdf. Accessed on October 19, 2016

administers public trust lands not granted to local agencies and oversees the activities of local grantees such as the Port.

Project Approvals

San Francisco Public Works anticipates the proposed project would be authorized through the regulatory permits and resource agency authorizations, as outlined below.

Port of San Francisco

- Demolition and construction permits.

San Francisco Bay Regional Water Quality control Board (RWQCB)

- Clean Water Act Section 401 water quality certification for placement of fill into waters of the United States, for approval of dredging and sediment capping.

United States Army Corps of Engineers (USACE)

- The USACE is the federal lead agency. NEPA documentation for the project, and appropriate supporting documents, would be submitted and/or prepared for the USACE.
- Clean Water Act section 404 and Rivers and Harbors Act Section 10 Individual Permit for placement of fill into waters of the United States, for structures and work in navigable waters, for approval of dredging and sediment capping.
- Clean Water Act section 404(b)(1) Alternatives Analysis, in support of USACE requirements for the project's proposed discharge fill in the form of dredged sediments, and piles, per RWQCB policy.

U.S. Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NMFS), and California Department of Fish and Wildlife (CDFW)

- Approval under the Endangered Species Act and Magnuson-Stevens Fishery Conservation and Management Act.

San Francisco Bay Conservation and Development Commission (BCDC)

- Major Permit and Federal consistency Certification, including BCDC Design Review Board review.

Dredge Material Management Office (DMMO)

- Dredge materials disposal suitability determination and authorization of Dredge Operation Plan.

D. SUMMARY OF ENVIRONMENTAL EFFECTS

The proposed project could potentially affect the environmental factor(s) checked below. The following pages present a more detailed checklist and discussion of each environmental factor.

☐ Land Use/Planning	☒ Air Quality	☒ Biological Resources
☒ Aesthetics	☒ Greenhouse Gas Emissions	☐ Geology/Soils
☐ Population and Housing	☐ Wind and Shadow	☐ Hydrology/Water Quality
☒ Cultural Resources	☐ Recreation	☐ Hazards & Hazardous Materials
☒ Transportation and Circulation	☐ Utilities /Service Systems	☐ Mineral/Energy Resources
☒ Noise	☐ Public Services	☐ Agriculture and Forestry Resources
		☐ Mandatory Findings of Significance

E. EVALUATION OF ENVIRONMENTAL EFFECTS

This initial study examines the proposed project to identify potential effects on the environment. For each item on the initial study checklist, the evaluation has considered the impacts of the proposed project both individually and cumulatively. A full discussion is included for all items checked "Less than Significant with Mitigation Incorporated" and "Less than Significant Impact," and a brief discussion is included for items checked "No Impact" or "Not Applicable." No significant unavoidable environmental impacts were identified. The items checked above in Section D, Summary of Environmental Effects, have been determined to be "Less than Significant with Mitigation Incorporated." Each of these items is discussed under the relevant topic area, below. No items were found to be potentially significant.

Environmental impacts are numbered throughout this Initial Study using the section topic identifier followed by sequentially numbered impacts (for example, LU-1, LU-2, etc.). Mitigation measures are numbered to correspond to the impact numbers (for example, M-LU-1, etc.). Cumulative impacts are discussed at the end of each environmental topic impact discussion and use the letter C to identify them; for example, Impact C-LU addresses cumulative land use impacts.

AUTOMOBILE DELAY AND VEHICLE MILES TRAVELLED ANALYSIS

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, 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 vehicle-miles-traveled (VMT) metric. On March 3, 2016, in anticipation of the future certification of the revised CEQA Guidelines, the San Francisco Planning Commission adopted 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.)

Accordingly, this initial study does not contain a discussion of automobile delay impacts. Instead, a VMT and induced automobile travel impact analysis is provided in Section E.4, Transportation and Circulation. The topic of automobile delay, nonetheless, 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.

Topics:	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*	*Not Applicable*
1. LAND USE AND LAND USE PLANNING. Would the project:					
a) Physically divide an established community?	☐	☐	☐	☒	☐
b) 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?	☐	☐	☒	☐	☐

Impact LU-1: The proposed project would not physically divide an established community. (No Impact)

The project would not involve the construction of a physical barrier to neighborhood access, such as a new freeway, or the removal of a means of access, such as a bridge or a roadway. The project site is located entirely on Port property. Construction and operation of the proposed project would not disrupt or divide the physical arrangement of existing uses adjacent to the project site or impede the passage of persons or vehicles between adjacent areas. Surrounding uses would

not be disrupted by the proposed project. Based on this analysis, the proposed project would not physically divide an established community and there would be no impact.

Impact LU-2: The proposed project would not conflict with any applicable land use plans, policies, or regulations (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)

The proposed project would not substantially conflict with any applicable land use plan, policy, or regulation such that a significant adverse physical change would result (see Section C, Compatibility with Existing Zoning and Plans). Both the existing and the very similar proposed uses are consistent with policies related to use of the waterfront. Furthermore, the proposed project would not conflict with the San Francisco General Plan policies that relate to physical environmental issues or with other adopted environmental plans or policies, including the air quality district 2017 clean air plan, the air district's Strategies to Address Greenhouse Gas Emissions (GHG reduction strategy), and the City's urban forestry ordinance, as discussed in Section E.6, Air Quality; Section E.7, Greenhouse Gas Emissions; and Section E.12, Biological Resources. Therefore, the proposed project would have a less-than-significant impact regarding conflicts with land use plans, policies, or regulations.

Impact C-LU-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 significant cumulative impacts related to land use. (Less than Significant)

Past, present and reasonably foreseeable future projects that potentially could contribute to cumulative environmental impacts in the project vicinity are listed above in Table 2 (pp. 13-14, Cumulative Projects). As discussed above, the proposed project would have less-than-significant effects with respect to conflicts with applicable land use plans, policies, and regulations. Like the proposed project, the identified cumulative projects would be required to comply with applicable land use plans, policies, and regulations. Accordingly, no significant cumulative impact related to conflicts with applicable plans, policies and regulations would result from the cumulative scenario to which the proposed project and other cumulative projects would contribute. The cumulative impact therefore would be less than significant.

Topics:		*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*	*Not Applicable*
2.	**AESTHETICS. Would the project:**					
a)	Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐	☐
b)	Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒	☐
c)	Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☒	☐	☐

Topics:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Not Applicable
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐	☐

An aesthetics or visual quality analysis considers the project design in relation to the surrounding visual character, heights, and building or structure types of surrounding uses, its potential to obstruct scenic views or vistas, and its potential for light and glare. A project would be considered to have a significant adverse environmental effect on visual quality if it would cause a substantial, demonstrable negative change.

Impact AE-1: The proposed project would not have a substantial adverse effect on a scenic vista. (Less than Significant)

A project would have a significant effect on scenic vistas if it would substantially degrade important public views or obstruct scenic views from public areas viewable by a substantial number of people.

The General Plan identifies the importance of protecting major views in the city with attention to views of open space and water. The segment of The Embarcadero passing the project site is identified on the General Plan Street Areas Important to Urban Design and Views map as part of the 49-Mile Scenic Drive.[30]

Street-level scenic vistas in densely developed San Francisco are typically defined, directed and framed along view corridors created by streets and, in the context of the project site, by views from the waterfront out across the Bay. The Embarcadero is at the edge one of the City's most intensively developed areas. The project site provides expansive views of the North Bay, Treasure and Yerba Buena islands, the Bay Bridge, and the Oakland/Alameda waterfront although, from positions on The Embarcadero immediately adjacent to the project site, the existing firehouse blocks certain northeastward views to the bay. The project site itself may be viewed from multiple locations along The Embarcadero and from various vantage points on streets climbing southward on Rincon Hill. Figures 13, 14 and 15 provide views from surrounding perspectives with and without the proposed project. Figure 16 provides simulated views from just south of the proposed project and from the water.

The proposed project would introduce a new building of greater height and bulk than the existing north finger pier, which would partially block views of Yerba Buena Island and the bay from Pier 22½ from certain vantage points. However, near and long-distance views of and across the Bay from The Embarcadero would continue to be available to the public. The proposed new public viewing area would extend out over the bay further than the existing eastern edge of The Embarcadero esplanade, and thus would provide access to new perspectives of the bay and waterfront area, including new views toward the base of the Bay Bridge, and views of the historic firehouse and the fire boats that are not available to the public under existing conditions. The

30 San Francisco To Do. 2012. 49-Mile Scenic Drive Map. Last updated: 2012. Available: *http://www.sftodo.com/maps/49-mile-scenic-drive-san-francisco.pdf*. Accessed: May 6, 2016.

space between the existing fire station and the new fire boat facility also would provide partial views up the Bay to the northeast from the new public access area.

The proposed project would not substantially change views from the bay towards The Embarcadero. Although the new fire boat facility structure would partially block views of the bay side of Firehouse 35 from certain vantage points in the Bay, views from a passing boat toward the city would still include historic Fire Station 35, in addition to the new fire boat facility. Medium and long-distance views from the bay towards the downtown and The Embarcadero waterfront would not be substantially different than existing views from the bay. Therefore, the proposed project would not have a substantial adverse effect on existing scenic vistas. This impact would be less than significant and mitigation measures are not necessary.

Impact AE-2: The proposed project would not substantially damage scenic resources, including but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway. (No impact)

Scenic resources are the visible physical features in a landscape (e.g., land, water, vegetation, animals, structures, or other features) that contribute to a unique and exemplary visual setting.

There are no state designated scenic highways in San Francisco.[31] However, State Route 1 and Interstate 80 have been identified as eligible for designation as scenic highways. Pier 22½ is not visible from State Route 1. It may be visible from vehicles on State Route 80 at the west end of the Bay Bridge, but any such views would be peripheral and fleeting. The project would not result in a noticeable change in this view.

The Embarcadero south of the ferry building, adjacent to the project site, is a portion of the 49-Mile Scenic Drive, a locally designated scenic road created in 1938 by San Francisco's Downtown Association to highlight the city's beauty and to promote it as a tourist destination. As noted above, the project would slightly change views across the project site to the bay, but because the new fireboat station would be offshore of the existing pier and is only marginally taller than the existing fire station, views from the roadway would not change substantially: the project would result in only a minor change in view from the portion of The Embarcadero that is part of this scenic drive. Views of the bay and of the bay bridge would continue to be available and the new building would not represent a noticeable intrusion.[32]

There are no trees, rock outcroppings, vegetation, or other natural features on the Pier 22½ project site; therefore, alterations to the site would not damage such resources. The project would repurpose a portion of the interior of Firehouse 35, which is a designated historical resource, but no alterations to the exterior of the building are proposed. Further, the project would include a public viewing area that would provide improved public access to on-site water viewpoints, which would expand opportunities for the public to view the bay, Bay Bridge, piers and the historic firehouse and fire boats, as discussed above. Therefore, the proposed project would not substantially damage scenic resources, and impacts would be less than significant.

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31 California State Department of Transportation (Caltrans), California Scenic Highway Mapping System, San Francisco County. Available from: http:/www.dot.ca/hq/LandArch/16_livability/scenic_hihgways/index.htm. Accessed April 4, 2018.

32 http://www.sftodo.com/maps/49-mile-scenic-drive-san-francisco.pdf

Impact AE-3: Implementation of the proposed project would not substantially degrade the existing visual character or quality of the project site or its surrounding area. (Less than Significant)

The visual character and quality of the project site and its surrounding area are primarily defined by views of the bay, the Bay Bridge, the surrounding waterfront structures and, to the south and west, the medium- and high-rise office, commercial and residential structures of the Rincon Hill, South of Market and Downtown neighborhoods.

The project site is adjacent to The Embarcadero, a four-lane esplanade that extends along the waterfront for approximately three and one-half miles. Street trees (sycamores and palm trees) extend along nearly the entire length of The Embarcadero and, together with pedestrian amenities such as benches, landscaping and informational signage regarding the waterfront and its history, are intended to create a sense of visual continuity. The Embarcadero is part of the San Francisco Green Connections, a network of streets across the City that are planned for pedestrian improvements to increase non-vehicular access to parks, open spaces, and the waterfront.

The project would result in the demolition of one abandoned finger pier, a large one-story shed and associated finger pier, and a portion of the main Pier 22½ adjacent to The Embarcadero esplanade that presently is used for vehicle parking. The existing firehouse and most of Pier 22½ would remain. The project would add several features to the site, including a 16,600-sf steel float with a new 36-foot-tall building at the bay side of the existing firehouse; a small marginal wharf and public viewing point to the south of the firehouse; and an access ramp between the marginal wharf with the new float. As discussed above, Figures 13 through 15 provide existing and simulated views of the proposed project from various vantage points.

The proposed fire boat facility building would be sheathed in silver corrugated metal panels, to match the color of historic Fire Station 35. As illustrated by the visual simulations, while larger in scale than the existing firehouse, the new structure would not appear to be higher. Its larger mass would to some degree be minimized in views from The Embarcadero by its position behind the bay-ward side of the firehouse. Further, the new viewing platform would provide unique new views of the fire boats, the Bay Bridge and bay.

The proposed project would not result in physical changes to The Embarcadero and the Herb Caen Way public rights-of-way: no landscaping, artwork, street trees or pedestrian amenities would be removed or altered by construction and implementation of the proposed project. The proposed project would not involve any exterior physical changes to Firehouse 35. Furthermore, the site would continue to support maritime activities that are visually consistent with other waterfront uses in the area. For these reasons, the proposed project would not have a substantial adverse effect on scenic resources that contribute to the aesthetic setting. This impact would be less than significant and mitigation measures are not necessary.

Impact AE-4: The proposed project would not create a new source of substantial light or glare which would adversely affect day or nighttime views in the area. (Less than Significant)

The mooring aprons around the new building perimeter on the steel float would have three levels of lighting from fixtures mounted on the fire boat facility building: low-level safety lighting with cut off shields, which would remain on throughout evening and night time hours; manually-activated operational lighting with cut off shields and shut-off timers, which would be operated only during evening and nighttime water craft operations; and flood lights, which would be activated for emergency use only. In addition, low level safety lighting with cut off

shields would be mounted on the guardrails of the vehicular/pedestrian ramp between the float and Embarcadero and would remain on throughout evening and nighttime hours. Lighting from existing pole lighting along the Embarcadero roadway would illuminate the public viewing area on the marginal wharf, and would be augmented as needed for safety by low level lighting with cut off shields, mounted on the guardrails.

Under existing conditions, the Pier 22½ area in general is brightly lit throughout the night by urban lighting on the piers and the prominent street lighting along The Embarcadero. Along The Embarcadero, shielded, downward-directed dual lamp fixtures illuminate the roadway and streetcar tracks. The existing sidewalk light fixtures, which do not employ shields, contribute the greatest amount of light in the vicinity. Interior and exterior lighting typical of intensively developed urban areas also is present in the Rincon Hill and South of Market neighborhoods near the project site. Nearby office buildings are lit during regular business hours and some offices remain lit during the nighttime hours, and residential building areas also may be lit throughout the evening or night. Together, these lights sources contribute to a well-lit night-time urban environment.

In the context of the existing lighting in the project area, the proposed project would not result in a substantial increase in night lighting. Furthermore, the corrugated metal sheathing on the new fire boat facility's outer walls would not produce glare from sunlight. Therefore, the project's impacts with respect to light, glare, and nighttime views would be less than significant.

Impact C-AE-1: The proposed project, in combination with past, present, or reasonably foreseeable future projects, would not result in a significant cumulative aesthetic impact. (Less than Significant)

The geographic context for assessment of cumulative aesthetic impacts includes the cumulative projects listed in Section B, Table 2 (pp 13-14).

The proposed project, when combined with other past, present, and reasonably foreseeable projects, could potentially result in significant cumulative impacts on aesthetic resources if the cumulative projects introduced brightly illuminated or reflective structures along The Embarcadero that disrupted views of the waterfront or surrounding scenic vistas, or substantially impaired the visual character of the site and vicinity. The proposed project would partially block scenic vistas from the some surrounding public viewpoints but, for the reasons discussed above under AE-1, the effects on views would be modest, and this impact would be less-than significant. The project would not introduce substantial amounts of light or glare. None of the projects within one-quarter of a mile of the project site involve construction on The Embarcadero. Thus, none would block scenic vistas from the surrounding public viewpoints or introduce substantial amounts of light or glare in the project vicinity. For these reasons, the proposed project, in combination with past, present, and reasonably foreseeable future projects in the area, would not contribute considerably, to a significant cumulative aesthetics impact.

Topics:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Not Applicable
3. POPULATION AND HOUSING. Would the project:					
a) 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)?	☐	☐	☒	☐	☐
b) Displace substantial numbers of existing housing units, necessitating the construction of replacement housing?	☐	☐	☒	☐	☐
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☒	☐	☐

Impact PH-1: The proposed project would not induce substantial population growth in the area, either directly or indirectly. (*Less than Significant*)

In general, a project would be considered growth-inducing if its implementation would result in substantial population increases and/or new development that might not occur if the project were not approved and implemented. The proposed project would decommission the existing 25-bed crew living quarters in Fire Station 35 and construct a new fire boat facility with living quarters that would provide approximately 35 beds—an increase of 10 crew beds at the project site. Based on staffing and crew living schedules at the project site, as described under Project Description, these beds would support a 3-person increase in daily personnel population at the project site, which represents a 9- to 10-person increase in Fire Department staffing overall at the project site.[33]

The fire-personnel group housing and the new fire boat facility provided by the project and would not represent an alteration of existing development patterns at the project site, in the northeast waterfront neighborhood, or in greater San Francisco. The project's increase in Fire Department employee population would be very small, as a fraction of both local and citywide population. The minimal increase in population associated with the project would not a represent a substantial direct or induced population increase. The impact therefore would be less than significant.

Impact PH-2: The proposed project would not displace substantial numbers of existing housing units or substantial numbers of people necessitating the construction of replacement housing. (Less than significant)

The proposed project would remove 25 beds of group housing in the existing firehouse and replace it with 35 beds of group housing in the new fire boat facility. This housing is and would be available only to Fire Department personnel. The existing group housing beds on the project

[33] Each person on a fire crew works nine 24-hour shifts per 31-day rotation. The 10 new beds supplied by the project would provide sleeping space for three three-person crews, plus one "swing" crew member for vacation or sick leave relief.

site would be retained during construction until they are replaced by the group housing beds provided in the proposed new fire boat facility. While the project would construct Fire Department operations group housing at the site, this would replace the existing housing on the same site, with the same functions, and with a marginally larger daily population. Therefore, the project's impact with respect to displacement of housing units or people and construction of replacement housing would be less than significant.

Impact C-PH-1: The proposed project, in combination with past, present, and reasonably foreseeable future projects in the vicinity, would not have a cumulative impact on population and housing. (Less than Significant)

While the cumulative projects listed in Table 2, above (pp. 13-14), may result in a small increase in population locally and regionally, this increase has been taken into account in regional planning and the cumulative impact of this growth with respect to population growth would be less than significant. None of the cumulative projects would displace significant numbers of people or housing. As discussed under Impacts PH-1 and PH-2, the proposed project would not contribute substantially to cumulative growth because daily staffing levels at the fire boat facility would change by only 3 persons, and Fire Department staffing would increase by no more than 10 persons. The project's contribution to the less-than-significant cumulative impact would therefore not be cumulatively considerable.

Topics:		*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*	*Not Applicable*
4.	**CULTURAL RESOURCES. Would the project:**					
a)	Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5, including those resources listed in Article 10 or Article 11 of the San Francisco *Planning Code*?	☐	☒	☐	☐	☐
b)	Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☐	☒	☐	☐
c)	Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☒	☐	☐
d)	Cause a substantial adverse change in the significance of a tribal cultural resource as defined in Public Resources Code §21074?	☐	☐	☒	☐	☐

Cultural resources are defined as buildings, structures, sites, districts or objects, each of which may have historical, architectural, archeological, cultural, or scientific importance, and tribal cultural resources. Numerous federal, state, and local laws, regulations, and statutes seek to protect and target the management of cultural resources. For the proposed project, applicable laws, regulations, and statutes include the National Historic Preservation Act (NHPA), California

Public Resources Code Sections 5020-5029, and Articles 10 and 11 of the San Francisco Planning Code.[34]

CEQA assessment of cultural resources first considers whether resources within or potentially within the project's area of potential effects are historically or scientifically significant; and then, whether the project would significantly affect any such resources.

As discussed under Project Description above, construction of the fire boat facility warm shell would occur on the steel float while it is moored at Pier 1, Treasure Island. As there would be no ground-disturbing work or alterations to any structure at the Treasure Island work site, there would be no potential for an adverse impact to a historic resource as discussed below. Therefore, the following analysis is focused on the proposed project that would be constructed and operated at Pier 22½.

Assessment of Resource Significance

As detailed below, a cultural resource is considered to be significant if it is listed on or determined to meet the eligibility criteria for the National Register of Historic Places (National Register) or the California Register of Historical Resources (California Register), qualifies as a unique archaeological resource under CEQA criteria; is listed in Article 10 or 11 of the San Francisco Planning Code; or is included in a qualified historic resource survey or otherwise identified as a historic resource by the City and County of San Francisco.

Under the criteria of eligibility to the California Register of Historical Resources ("California Register"), as set forth in CEQA Guidelines 15064.5.(3), a significant cultural resources is one that:

(A) Is associated with events that have made a significant contribution to the broad patters of California's history and cultural heritage;

(B) Is associated with the lives of persons important in our past;

(C) Embodies the distinctive characteristics of a type, period, region or methods of construction, or represents the works of an important creative individual, or possesses high artistic value; or

(D) Has yielded, or may be likely to yield, information important in prehistory or history.

A resource that meets one or more of these criteria is termed a "historical resource", irrespective of whether the resource dates to the historic or the prehistoric period.

The National Register of Historic Places ("National Register") was established under the National Historic Preservation Act (NHPA). The NHPA applies to federal undertakings, defined as actions entailing the use of federal lands or funding, or that require a federal permit. National Register eligibility criteria parallel California Register eligibility criteria. A National Register-eligible

[34] City and County of San Francisco, San Francisco Planning Code Articles 10 and 11. Articles 10 and 11 seek to preserve structures, sites and areas of special character or special historical, architectural or aesthetic interest or value within San Francisco, where feasible. Article 10 applies across the city while Article 11 is focused on the preservation of historically, architecturally, and aesthetically important buildings in the Downtown's C-3 Districts.

resource is termed a "historic property". A resource that has been listed on or determined eligible for listing on the National Register automatically qualifies for listing on the California Register.

For the purposes of this initial study, the term "historic architectural resource" refers to buildings, structures, objects, sites, landscapes, and historic districts that have been assessed to be historically significant. The term is used to distinguish such resources from archeological resources. Archeological resources refer to material remains of past human life or activities that are of archeological interest and are often subsurface deposits.

Under CEQA, an archeological resource is significant if it meets one or more of the California Register eligibility criteria listed above; or if it qualifies as a unique archaeological resource under Public Resources Code 20183.2,(g), as follows:

1) Contains information needed to answer important scientific research questions and there is a demonstrable public interest in that information;

2) Has a special or particular quality such as being the oldest of its type or the best available example of its type;

3) Is associated with a scientifically recognized important prehistoric or historic person.

CEQA also considers potential project effects to Tribal Cultural Resources, as defined in Public Resources Code 21074. These include:

1. Sites, features, places, cultural landscapes, sacred places and objects with cultural value to a California Native American tribe that are either of the following:
    a. Included in or determined to be eligible for inclusion in the California Register;
    b. Included in a local register of historical resources.
2. A resource determined to be significant by a local agency.

Archaeological resources may also be tribal cultural resources.

Consideration of Cultural Resources Impacts under CEQA

CEQA considers impacts to historic architectural properties and archeological resources that meet the criteria of eligibility to the California Register. Properties that do not meet one or more of these criteria are not considered historical resources, and are not addressed under CEQA. Under CEQA, a project that results in a "substantial adverse change in the significance of an historical resource" may have a significant adverse effect on the environment. The California Public Resources Code defines "substantial adverse change" as "demolition, destruction, relocation or alteration," activities that would impair the significance of an historical resource. CEQA Guidelines Section 15064.5(b)(2) defines activities that would impair the significance of a historical resource as follows:

- Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for inclusion in the California Register of Historic Resources; or
- Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historic resources pursuant to section 5020.1(k) of the Public Resources Code or its identification in an historical resources

survey meeting the requirements of section 5024.1 (g) of the Public Resources Code, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or

- Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its eligibility for inclusion in the California Register of Historical Resources as determined by a lead agency for purposes of CEQA.

The impact discussion for historic architectural resources, under CR-1 below, also addresses the Port of San Francisco's Waterfront Design & Access element.[35] This requires, for projects within the Port of San Francisco Embarcadero Historic District, that in addition to assessment of impacts to significant historical resources, assessment must be made of proposed alterations of existing non-contributing resources or associated features that would be located on or attached to substructures that contribute to the historic significance of the historic district. Any such project features are to be reviewed for conformity with the Secretary of the Interior's Standards for the Treatment of Historic Properties[36] to ensure that structural modifications or additions would not diminish the historic integrity of the historic district overall or of any of its contributing elements. In particular, the Port's concern is to ensure that elements that are visually incompatible with the historic setting of the Embarcadero Historic District are not introduced to the district.

The potential for impacts to historic architectural resources that qualify as historical resources is discussed under Impact CR-1, below. The potential for impacts to archeological resources that qualify as historical resources or unique archeological resources are discussed under Impact CR-2.

Impact CR-1: Implementation of the proposed project would not cause a substantial adverse change in the significance of a historic architectural resource. (Less than Significant with Mitigation)

The following discussion, which addresses historic architectural resources as a subclass of architectural resources, is based upon a memorandum prepared by Page & Turnbull in evaluating the seismic upgrade of Fire Station 35,[37] and a historic resource evaluation response prepared by the San Francisco Planning Department evaluating the potential effects of the proposed project upon Fire Station 35, the bulkhead wharf, and the north and south finger piers.[38]

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35 "Port of San Francisco Historic Preservation Review Guidelines for Pier and Bulkhead Wharf Substructures." San Francisco Port Commission, October 26, 2004. Available at: *http://sfport.com/ftp/uploadedfiles/about_us/divisions/planning_development/EmbarcaderoRegisterNominationSecs1-6.pdf*. Accessed July 10, 2018.

36 Secretary of the Interior's Standards for the Treatment of Historic Properties. National Park Service. *https://www.nps.gov/tps/standards/treatment-guidelines-2017.pdf*. Accessed July 10, 2018.

37 Page & Turnbull, *Memorandum Re: Evaluation of Proposed Project (Seismic, Accessibility, & Program Upgrades to Fire Station 35) According to the Secretary of the Interior's Standards for Rehabilitation*, September 18, 2009.

38 San Francisco Planning Department, *Historic Resource Evaluation Response. Pier 22½, aka Fire Station 35*, June 20, 2018. This document (and all other documents cited in this report, unless otherwise noted) is

As discussed in the project description, above, Firehouse 35 is located on a portion of the project site. This fire station, including the immediately underlying portion of Pier 22½, was listed on the National Register in 1977, designated as a San Francisco Historic Landmark in 1999,[39] and determined to be a contributor to the Port of San Francisco Embarcadero Historic District, which was listed on the National Register and California Register in 2006.[40] The National Register assessment determined the firehouse to be significant for its association with important people and events, and also for its architectural characteristics. Both interior and exterior features of the building contribute to its historical significance. The National Register nomination also mentions an iron monitor (nozzle apparatus used to direct water flow from the AWSS system), located on the pier deck at the south side of the firehouse, that dates to the building's original construction and function. This feature therefore also is presumed to be historically significant.

The portion of Pier 22½ bayward of the firehouse, including the north finger pier, is within the boundaries Port of San Francisco Embarcadero Historic District. However, this portion of the pier was constructed in 1980, after the district's period of significance, and does not contribute to the historic district's significance. The south finger pier, which is a remnant of the older Harrison Street wharf, which burned and was largely demolished in 2004, also does not contribute to the historical significance of the historic district due to its extreme deterioration and loss of historical integrity. These determinations are included in the previously-referenced 2006 National Register assessment.

The historic Embarcadero seawall supports the landward edges of Pier 22½ and the associated marginal wharf. The Port of San Francisco Embarcadero Historic District National Register assessment determined that portions of The Embarcadero seawall contribute to the historical significance of the historic district. However, the portion that underlies the project site, Bulkhead Wharf 9B, has been determined to be a non-contributor to the significance of the historic district because most of its original elements have been demolished.

Fire Station 35 and the directly-associated portion of Pier 22½ were further evaluated by an architectural historian in 2008 in conjunction with a proposed seismic retrofit project in order to identify character-defining features.[41] Character-defining features are those features of the property that contribute to its historical significance. The 2008 assessment identified that both interior and exterior elements of Fire Station 35, as well as its setting on The Embarcadero, are character-defining features of the property. Character-defining features of the section of Pier 22½ underlying Fire Station 35 are its connection to the bulkhead wharf and seawall, the wood and concrete pilings, the wood decking, and the substructure support for Fire Station 35.

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available for review at the San Francisco Planning Department, 1650 Mission Street, Suite 400 as part of Case File No. 2012.0893ENV.

39 San Francisco Ordinance 81-99. Designating the Fireboat House, Pier 22 ½, as landmark No. 225. *http://sfplanninggis.org/docs/landmarks_and_districts/LM225.pdf*. Accessed July 10, 2018.

40 San Francisco Embarcadero Historic District Nomination for the National Register of Historic Places, Section 7, "Description". National Park Service, January 2006. *http://sfport.com/ftp/uploadedfiles/about_us/divisions/planning_development/EmbarcaderoRegisterNominationSec7.pdf*. Accessed July 10, 2018.

41 Memorandum Regarding the Historic Status of Fire Station 35 (Pier 22 ½). Prepared by Gabriella Judd Cirelli, Page and Turnbull, for City of San Francisco Department of Public Works, April 8, 20ll.

In summary, Fire Station 35 has been determined to be an individual historical resource, as well as a contributor to a National Register- and California Register-listed historic district, and both its exterior and interior features contribute to its eligibility. The portion of Pier 22½ that underlies the fire station contributes to the significance of the Embarcadero Historic District. The north and south finger piers, the modern portions of Pier 22½, and the portions of the seawall within the current project footprint have previously been determined not to qualify as historical resources either individually or as contributing elements of the Embarcadero Historic District.

As discussed above in the project description, under Memorandum of Understanding, future maintenance of the historic Firehouse 35 building is not included as part of the proposed project. The following discussion is provided for informational purposes only in regards to the Port's requirements for maintenance of its historic resources, including Firehouse 35. The historic status of Firehouse 35 requires all future scopes of work to maintain the facility be evaluated under Article 10 of the Planning Code to determine whether a Certificate of Appropriateness is required from the San Francisco Historic Preservation Commission. Additionally, the National Register status of Firehouse 35 requires that alterations and construction involving the contributing resource must comply with Port Commission Resolution No. 04-89 that specifies all proposed work must be consistent with the Secretary's Standards and the Port's 2006 Historic Preservation Review Guidelines for Pier and Bulkhead Wharf Substructures. In addition, because the existing Firehouse 35 is located on top of the Section 9b of the seawall, which is also a contributing resource within the historic district, future work that would impact the seawall would also be required to meet the Secretary's Standards. Compliance with Resolution 04-89 requires Port staff to review scopes of work and determine their consistency with the Secretary's Standards prior to the issuance of permits for construction in accordance with the Port Building Code.

Impact Assessment

Proposed Fire Boat Facility, Marginal Wharf, Access Ramp and Public Viewing Area

Under the CEQA impact criteria discussed above, the demolition of the finger piers, the shed on the north finger pier, and a portion of the Pier 22½ marginal wharf south of the firehouse would not represent a significant historic architectural resource impact based on the prior determination that none of these is either an individual historical resource, or a contributor to a historic district. As the segment of The Embarcadero seawall within the project footprint also was previously determined not to be historically significant, pile driving or minor excavation in the vicinity of this seawall segment also would not represent a significant impact under CEQA.

Construction of the proposed fire boat facility, marginal wharf, access ramp and new public viewing area would not involve any exterior or interior architectural or structural changes to the historic Firehouse 35 building or to the portion of Pier 22½ that immediately underlies it. The interior features that contribute to the building's historic significance—the iron spiral staircase, working brass fire poles, tongue-and-groove paneling, and built in wooden lockers—would not be altered. The fire engine would continue to be stationed in and operate out of the original garage. The proposed project therefore would not result in any direct impacts to the historical significance of Firehouse 35 or the underlying portion of Pier 22½.

The proposed project would construct new structures—the new steel float and fire boat facility—within the Embarcadero Historic District. Consistent with the Port of San Francisco's Waterfront

Design & Access element[42] requirements, Planning Department Environmental Preservation staff assessed the conformity of these proposed additions with the Secretary of the Interior's Standards for the Treatment of Historic Properties.[43] Staff assessed the size, form and location of the proposed new building, and concluded that the massing and orientation of the new structure would be compatible with other structures in the historic district.[44] Staff further concluded that although the new structure would be 7 feet taller than the existing fire station at high tide, this difference would not be evident because of the offshore location. In addition, modifications were made in proposed exterior cladding materials for the fire boat facility, to improve its visual and material consistency with other structures in the historic district, in conformity with the Secretary of the Interior's Standards. Historic preservation staff concluded the project generally conforms to the Secretary's standards. The Historic Preservation Commission's Architectural Review Committee concurred in this finding.[45] On the basis of these analyses, construction and operation of the proposed fire boat facility, marginal wharf, access ramp and new public viewing area would not result in significant impacts to a historical resource.

Proposed Memorandum of Understanding

As discussed in the Project Description, the proposed project also includes approval of an MOU between the Port and its tenant, the San Francisco Fire Department, for the use of the Port property including the water area to be occupied by the new floating facility, as well as the on-going use of the historic Firehouse 35. As noted, Firehouse 35 would continue to be used for some Fire Department operations, including the storage of two fire trucks: one inside the building and a second truck that would occasionally be parked outdoors on the wharf located on north side of the building.

The full scope of activities and procedures to be covered under the proposed MOU between the Port and the Fire Department are not fully known at this time. However, it is expected that the proposed MOU would formalize the Fire Department's existing and ongoing responsibility for the maintenance and repair of the historic Firehouse 35. Under the MOU, the Port would also establish a schedule for making the necessary repairs and/or future inspections.

As discussed, the historic Firehouse 35 is City Landmark No. 225 and a contributing resource within the Port of San Francisco's Embarcadero Historic District that is listed in the National Register of Historic Places. The historic status of Firehouse 35 requires that all future scopes of work to maintain and repair the facility must be evaluated under Article 10 of the Planning Code

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42 "Port of San Francisco Historic Preservation Review Guidelines for Pier and Bulkhead Wharf Substructures". San Francisco Port Commission, October 26, 2004. Available at: *http://sfport.com/ftp/uploadedfiles/about_us/divisions/planning_development/EmbarcaderoRegisterNominationSecs1-6.pdf*. Accessed July 10, 2018.

43 Secretary of the Interior's Standards for the Treatment of Historic Properties. National Park Service. *https://www.nps.gov/tps/standards/treatment-guidelines-2017.pdf*. Accessed July 10, 2018.

44 Review and Comment for the new Fireboat Station at Pier 22 1/2 , AKA Fire Station 35. Case No. 2012.0893ENV. Memo to Architectural Review Committee, Historic Preservation Commission from Jorgen Cleeman, Preservation Planner, San Francisco Planning Department, June 6, 2018. *http://commissions.sfplanning.org/hpcpackets/2012-0893ENV.pdf*. Accessed July 10, 2018.

45 Meeting Notes from the Review and Comment at the June 6, 2018 ARC Meeting for Pier 22 ½, aka Fire Station 35 Proposed Alterations, Case No, 2012.0893ENV. Memo from Jorgen Cleeman, Preservation Planner, San Francisco Planning Department to Boris Deunert et al., San Francisco Public Works.

to determine whether a Certificate of Appropriateness is required from the San Francisco Historic Preservation Commission.[46] The National Register status of Firehouse 35 requires alterations and construction involving the contributing resource to comply with Port Commission Resolution No. 04-89 that requires all proposed work to be consistent with the Secretary of the Interior's Standard for the Treatment of Historic Properties, and the Port's 2006 Historic Preservation Review Guidelines for Pier and Bulkhead Wharf Substructures. As Firehouse 35 is located on top of the Section 9b of the seawall, which is also a contributing resource within the historic district, future work that would impact the seawall would also be required to meet the Secretary's Standards. Compliance with Resolution 04-89 requires Port staff to review scopes of work and determine their consistency with the Secretary's Standards prior to the issuance of permits for construction in accordance with the Port Building Code.

As the full scope of activities, responsibilities and procedures to be covered under the proposed MOU are not known at this time, it is conservatively assumed that some maintenance and repair activities could have a significant impact upon the historic resource status of Firehouse 35 and the underlying wharf and seawall. In order to avoid or reduce such impacts to a less than significant level, **Mitigation Measure CR-1: Condition Assessment and Review Process Requirements for Maintenance and Repair Work** would require that a condition assessment be undertaken to guide the repair and maintenance work and that the Secretary of the Interior's Standards got the Treatment of Historic Properties review process requirements for maintenance and repair work at the project site be defined.

Mitigation Measure CR-1: Condition Assessment and Review Process Requirements for Maintenance and Repair Work

> The Port and the San Francisco Fire Department (SFFD) will undertake a conditions assessment of the historic Firehouse 35 to identify repair and maintenance needs of the historic facility (superstructure and substructure) to achieve a state of good repair necessary to maintain the Fire Department occupancy, consistent with Port Building Code requirements. Based on the findings of the conditions assessment, future maintenance and repair work identified by the Port and SFFD will be reviewed by San Francisco Planning Department Preservation staff or the San Francisco Historic Preservation Commission (HPC) for consistency with the Secretary of the Interior's Standards the Treatment of Historic Properties (Secretary's Standards) to protect the integrity of Firehouse 35 and Embarcadero Historic District. Additionally, the Port and SFFD will consult with San Francisco Planning Department Preservation staff to determine if the proposed work requires a Certificate of Appropriateness and HPC review. SFFD and the Port will work with the Planning Department to prioritize the repair and maintenance work identified in the Conditions Assessment. Further, all future maintenance and repair work shall be consistent with the conditions assessment and following performance measures:

[46] A Certificate of Appropriateness is required for landmark sites and buildings in local historic districts by Planning Code section 1005 (Article 10). The certificate is the authorization designated City landmarks and historic districts require for alterations requiring a permit. The purpose of requiring a Certificate of Appropriateness is to ensure that designated landmark sites and historic districts are preserved and that alterations, demolitions and new construction are compatible with historic resources. More information regarding the Certificate of Appropriateness process may be found at: *http://forms.sfplanning.org/CoA_InfoPacket.pdf*. Accessed August 30, 2018.

1. The review of maintenance and repair work by Port staff shall include an analysis of the potential impact of the work on the interior and exterior character-defining features of the historic fireboat house as described in the landmark site designation report and the 2006 Nomination for the listing of the Embarcadero Historic District on the National Register of Historic Places. The historic preservation review and analysis shall be prepared in a Historic Resources Evaluation (HRE) that meets the Planning Department's format and content requirements and shall include a Standard's analysis. The HRE shall be submitted to Planning Department Preservation staff for review and approval. In cases where a final determination has been made by Planning Department Preservation staff that the Secretary's Standard are not met, the specific tenant improvement or alteration must be redesigned to meet the Standards.
2. Proposed maintenance and repair shall not alter or obscure primary elevations or character-defining window or door openings of the resource and their ingress and egress functions.
3. The introduction of disabled access on the exterior and interior of historic Firehouse 35 shall be done in a manner that minimizes alteration, construction and interventions, thereby protecting character defining features. For Port properties, accessibility requirements are administered by the Port Chief Harbor Engineer. Determinations about alternate means of compliance through the use of the accessibility requirements of the California Historical Building Code (CHBC) are made on a case-by-case basis and seek to protect significant historic features and materials.
4. The project sponsors shall consult early in the design process with the Port's Historic Preservation staff, Planning Department Preservation staff and the Architectural Review Committee of the HPC as required to obtain a determination that the proposed approach is appropriate and sensitive to the historical integrity of the resource as well as consistent with the Secretary's Standards.
5. Signage, exterior lighting, fencing, interpretive exhibits and landscape improvements shall be presented in a comprehensive program of improvements developed for the resource for review and approval by Planning Department Preservation staff or the HPC.

As future maintenance and repair activities occurring under the MOU would be required to comply with the Secretary's standards, implementation of **Mitigation Measure CR-1** would reduce potential impacts associated with future maintenance and repair activities to less-than-significant.

Vibration Effects

As analyzed in detail in Section E.6 ("Noise"), below, existing Fire Station 35, a historical resource, could be subject to groundborne or waterborne vibration generated by the use of heavy equipment, including a vibratory extractor and pile driver, during demolition and construction of the proposed project. Please refer to that section for detailed analysis of this issue.

As discussed in Section E.6, San Francisco Public Works has adopted standard construction measures to protect historic resources from the effects of vibration resulting from construction

activities such as pile driving. These measures are implemented as standard construction contract specifications in the execution of all Public Works projects where it is determined that a potential impact to a historic resource from construction-generated vibration could occur. Accordingly, to reduce the potential for damage to the historic Firehouse 35, Public Works would implement standard construction measures including (and as described in greater detail in Section E.6) the following:

- Evaluation of Firehouse 35 by a structural engineer or licensed historical architect to determine its present condition, susceptibility to vibration damage, and to identify vibration thresholds at which damage may begin to occur.
- Vibration monitoring conducted by a qualified consultant.
- Halting of pile driving shall if the vibration threshold is exceeded until measures to reduce the vibration and vibration-generated damage are implemented.
- A post-construction inspection to identify and, if necessary, repair any vibration-caused damage consistent with the Secretary of the Interior's Standards for Rehabilitation.

With the implementation of these standard construction measures, the potential impact to Fire Station 35 from construction vibrations would be less than significant.

Conclusions

As demonstrated by the discussion above, the design of the proposed project conforms to the Secretary of the Interior Standards for Historic Preservation, and the demolition of the marginal wharf and finger piers and the introduction of the new steel float and fire boat facility would not result in a substantial adverse physical change to a historical resource. Implementation of Public Works standard construction measures for vibration-generating construction activities would minimize and mitigate the potential for damage to Fire Station 35 from pile driving. The impact of the project with respect to historic architectural resources therefore would be less than significant.

Impact CR-2: The proposed project would not cause a substantial adverse change in the significance of an archeological resource, potentially disturb human remains, including those interred outside of formal cemeteries, or adversely affect Tribal Cultural Resources. (Less than Significant)

Archaeological resources are defined as those that: 1) are significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military or cultural annals of California; 2) meet the criteria for listing on the California Register; or 3) are defined in Public Resources Code as a unique archaeological resource.[47] Determining the potential for encountering archaeological resources includes factors such as the location, depth, and amount of excavation proposed, as well as any recorded information on known resources in the area.

[47] A unique archaeological resource is one for which "without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria: 1) contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information; 2) has a special and particular quality such as being the oldest of its type or the best example of its type; or 3) is directly associated with a scientifically recognized important prehistoric or historic event or person." (California Public Resources Code § 21083.2 [g])

The proposed project would not entail ground disturbance on any historically terrestrial surfaces. Construction of the proposed project would involve the removal of 75 wooden piles that support the existing finger piers and the driving of four 60-inch diameter steel piles to a depth of 150 feet below the floor of the bay to anchor the new steel float, and four 48-inch and two 24-inch diameter steel piles, driven to a depth of 110 feet below the floor of the bay, to support the new portion of the marginal wharf. Two of these piles would be driven inland of the landward edge of the seawall (in fill placed behind the seawall during its construction) to ensure earthquake-resilient emergency access across the marginal wharf between The Embarcadero and the steel float.

A Preliminary Archeological Review prepared by the San Francisco Planning Department[48] indicates that there are no known or suspected archeological resources either onshore or offshore at the project location or in the immediate vicinity. Although there is the potential for the present of maritime resources, such as sunken ships, in the vicinity of the offshore pile driving and dredging locations, none is indicated in any of the available archival records. There also is a slight potential for deeply buried prehistoric archaeological deposits to be present offshore, submerged and buried during the filling of the bay at the close of the last Ice Age. However, no data are available that suggest the presence of such deposits at this location. Further, even were such a deposit present within the project footprint, any project disturbance would be unlikely to be significant because any such resource would lie beneath modern bay sediments and would not be exposed by dredging; and because the areas of disturbance associated with pile driving would be small and dispersed. Onshore utility excavations would not be expected to penetrate early 20th century fill, the archaeological potential of which is very low. There are no known or suspected prehistoric or historic archaeological resources in the vicinity of the location of the onshore pilings, and the potential for significant impacts to undiscovered resources is slight, for the same reasons given for offshore pile driving above. For the same reasons, the potential for a Tribal Cultural Resource to be present at the project site also is slight.[49] Given the small area of project-related ground disturbance and low likelihood of the presence of archeological materials, project construction would not be expected to result in a substantial adverse change in the significance of an archeological resource pursuant to CEQA Guidelines Section 15064 or to affect a tribal cultural resource, pursuant to Public Resources Code §21074. The impact would be less than significant.

Impact C-CR-1: The proposed project, in combination with past, present, and reasonably foreseeable future projects in the vicinity, would not have a significant cumulative impact historical resources, archaeological resources, or tribal cultural resources. (Less than Significant)

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48 Preliminary Archaeological Review form prepared by Environmental Planning archaeologist, January 19, 2018.

49 As defined in CEQA section 21074, tribal cultural resources are sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are listed, or determined to be eligible for listing, on the national, state, or local register of historical resources. On September 9, 2017, the Planning Department contacted Native American individuals and organizations for the San Francisco area, providing a description of the project and requesting comments on the identification, presence, and significance of tribal cultural resources in the project vicinity. During the 30-day comment period, no Native American tribal representatives contacted the Planning Department to request consultation.

As indicated on the list of cumulative projects (Table 2, pp. 13-14), cumulative development in the project vicinity does not include any projects immediately on The Embarcadero. While there have been past projects that have affected historic features within The Embarcadero Historic District, the district has been protected since 2004 from changes inconsistent with the Secretary of the Interior's Standards for Historic Preservation, through implementation of Historic Preservation Commission Guidelines and has retained its historical integrity since at least 2006. The continued application of historic preservation standards would be expected to ensure that substantial adverse changes in historic architectural resources are avoided. Thus, the cumulative effect to historic architectural resources on The Embarcadero is less than significant. In addition and as discussed above, the proposed project would not remove or alter any significant or contributing elements of the historic district and has been determined to be consistent with preservation standards. Its contribution to the less-than-significant cumulative impact therefore would not be cumulatively considerable.

Similarly, no recent cumulative projects have resulted in archaeological effects to resources along The Embarcadero. Each San Francisco project is subject to archaeological analysis, and mitigation measures are applied as appropriate to minimize and mitigate effects to archaeological and traditional cultural properties, such that effects are generally mitigated to less than significant levels. The proposed project was assessed as having low potential for the presence of archaeological or traditional cultural resources. Therefore, the contribution of the project to the less-than-significant cumulative impact would not be cumulatively considerable.

Topics:	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*	*Not Applicable*
5. TRANSPORTATION AND CIRCULATION— Would the project:					
a) 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?	☐	☐	☐	☒	☐
b) 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?	☐	☐	☐	☒	☐
c) 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?	☐	☐	☐	☐	☒

Topics:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Not Applicable
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses?	☐	☐	☐	☒	☐
e) Result in inadequate emergency access?	☐	☐	☒	☐	☐
f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	☐	☐	☒	☐	☐

The project site is not within an airport land use plan area, or in the vicinity of a private airstrip, and would not interfere with air traffic patterns. Therefore, topic E.5(c) is not applicable.

Setting

Pier 1, Treasure Island

As discussed in the Setting above, Pier 1, Treasure Island is located at the southeast corner of Treasure Island, near the intersection of California Avenue and Avenue M, to wide paved roads that run along the margins of the island. Treasure Island is accessed via the San Francisco-Oakland Bay Bridge. Pier 1 is occasionally used to berth larger boats and to load and unload barges.

Pier 22½

The project site at Pier 22½ is located on the eastern (bayward) side of The Embarcadero, bounded by open water of the San Francisco Bay to the south, east and north. Pier 26, beneath the San Francisco Bay Bridge as it enters San Francisco, is about 300 feet to the south. Some project staging could take place at this pier. In the vicinity of the Pier 22½ site, The Embarcadero consists of two north and southbound vehicular travel lanes, streetcar tracks in each direction (in the median), northbound and southbound class II bikes lanes, an approximately 15-foot-wide sidewalk on the southbound side, and a multi-use promenade on the northbound side.

The Pier 22½ site opens onto the multi-use promenade, which runs the length of The Embarcadero from Fisherman's Wharf to the AT&T Ballpark. Pedestrians may access the promenade (Herb Caen Way) directly from the project site. Two pedestrian crossings from the promenade to the southbound side of The Embarcadero are located 30 to 50 feet to the south of the project site at the intersection of Harrison Street with The Embarcadero.

Regional Access

Interstate 80 (I-80) and U.S. Highway 101 (U.S. 101) are the two primary facilities that provide regional access to downtown San Francisco and The Embarcadero waterfront. U.S. 101 serves San Francisco and the Peninsula/South Bay and extends north via the Golden Gate Bridge to the North Bay. Within San Francisco, Lombard Street and Van Ness Avenue are designated as U.S. 101. U.S. 101 is an access-controlled freeway south of South Van Ness and 13th Street. North of the Golden Gate Bridge, U.S. 101 is an eight-lane north-south freeway. Interstate-80 (I-80) connects San Francisco to the East Bay and points further east via the Bay Bridge. U.S. 101 and I-

80 merge south of the project site on an elevated structure. The closest ramps providing access to and from downtown San Francisco are at the intersections of Fourth Street/Harrison Street, First Street/Harrison Street, Essex Street/Harrison Street and Sterling Street/Bryant Street (High Occupancy Vehicle-only between 3:30 p.m. and 7:00 p.m.), and the off-ramps at the intersections of Fremont Street/Harrison Street and Fourth Street/Bryant Street. Interstate 280 (I-280) provides regional access to southern San Francisco, the Peninsula, and South Bay. I-280 has an interchange with U.S. 101 about four miles south of downtown San Francisco and the project area. The closest I-280 on- and off-ramps are located at the intersections of Fifth Street/King Street and Sixth Street/Brannan Street.

Local Access

The Embarcadero is a two-way north-south roadway that runs between King Street (in the South Beach area near AT&T Park) and Taylor Street (near Fisherman's Wharf). In general, The Embarcadero has two or three travel lanes in each direction, with a wide center median for the F-Market & Wharves historic streetcar and the N-Judah and T-Third light rail lines. Near the project site, The Embarcadero has two vehicular travel lanes in each direction, separated by a wide center median containing the Muni light rail lines. The San Francisco General Plan identifies The Embarcadero as a Major Arterial in the Congestion Management Program (CMP) Network, a Metropolitan Transportation System (MTS) Street, a Transit Preferential Street (Transit Important), a Neighborhood Pedestrian Street.

Principal roadways near the project site include Folsom and Harrison streets, which both terminate at The Embarcadero approximately 400 feet and 200 feet north and south of the project site, respectively. Both the Harrison Street and Folsom Street intersections with The Embarcadero are signalized. Folsom Street runs east-west between The Embarcadero and Duboce Avenue and north-south between Duboce Avenue and Alemany Boulevard. It is primarily a four-lane roadway, operating one-way eastbound between Eleventh and Essex Streets and two-way between Essex Street and The Embarcadero. Folsom Street is a primary eastbound connector to the I-80 freeway ramps in the South of Market area. Folsom Street is designated as a Major Arterial (part of the congestion management plan network) from The Embarcadero to 13th Street. Bicycle Route 30 runs from The Embarcadero to 11th Street, as a Class III facility between The Embarcadero and Main Street, and as a Class II facility west of Main Street. On-street parking is generally permitted on both sides of Folsom Street.

Harrison Street runs in the east-west direction between The Embarcadero and 13th/Division Street, operating one-way westbound between Third and Tenth streets, and in the north-south direction between 13th/Division street, ending south of Cesar Chavez Street in Bernal Heights. In the downtown area, Harrison Street is a primary route to the I-80 freeway, with on-ramps at the First Street and Essex Street intersections, and to U.S. 101 southbound, with an on-ramp at Fourth Street. It is a designated Major Arterial (CMP Network) between The Embarcadero and Division Street. Harrison Street is a Transit Preferential Street between Fourth and 11th Streets (Primary Transit between Fourth and Seventh Streets and Secondary Transit between Seventh and 11th Streets). It is a Neighborhood Commercial Pedestrian Street between Fourth and 16th Streets.

Both near the project site and along its three-mile length between AT&T Park and Fisherman's Wharf, The Embarcadero features pedestrian amenities including wide sidewalks, public art, viewing decks, active street and sidewalk activities, open plazas, and the F-Market & Wharves historic streetcar line running down the center (from Market Street to the north). Left turns are

permitted in the northbound direction with separate left-turn channelization and signal phasing at Washington Street, Broadway, Green Street, Chestnut Street, Bay Street, and North Point Street. In the southbound direction, no left turns are permitted into the historic and grand pier buildings fronting The Embarcadero, although some left-turn pockets are provided for drivers wishing to make U-turns or access public parking facilities. No left turns are permitted out of mid-block pier driveways onto The Embarcadero going southbound; exits from those driveways are restricted to right turns only.

The San Francisco General Plan identifies The Embarcadero as a Major Arterial in the Congestion Management Program (CMP) Network, a Metropolitan Transportation System (MTS) Street, a Transit Preferential Street (Transit Important), a Neighborhood Pedestrian Street. Bicycle Route 5 runs along The Embarcadero as a Class II facility between King Street and North Point Street.

In addition, The Embarcadero is designated as part of the Bay, Ridge, and Coast Trail, which comprise a recreational pedestrian/bicycle path connecting destinations and cities around the San Francisco Bay. In 1996, the City of San Francisco gave the name Herb Caen Way to the 25-foot wide pedestrian promenade that runs approximately 3.2 miles along the waterfront next to The Embarcadero from South Beach to Fisherman's Wharf. Herb Caen Way is part of the Bay Trail, which runs along the San Francisco Waterfront (see Section 5.11, Recreation, for further description of the Bay Trail). On-street parking is not permitted on either side of The Embarcadero.

Public Transit

The project site is well-served by both local and regional public transit service. The project site is about 150 feet from the Muni Metro stop at Harrison Street and The Embarcadero, which is served by the KT Ingleside/Third Street, and N Judah Muni Metro lines and the E Embarcadero light rail line. The Muni Metro Embarcadero station, about one-half mile northwest of the project site, provides access to all the Muni Metro lines and to regional transit via BART. Local and regional bus service is available at the temporary Transbay Center, about 1,400 feet to the west, with connections to most local Muni bus lines, three express Muni bus lines and three regional bus lines (Golden Gate Transit, SamTrans and Alameda County Transit) that provide connections to the north, south and east Bay Area, respectively. The San Francisco Ferry Terminal, also about one half mile to the northwest of the project site, provides regional ferry service to and from the Marin, Solano, Contra Costa and Alameda Counties. The Caltrain Station, about one mile south of the project site, provides rail connections to the Peninsula and south Bay Area.

Pedestrian and Bicycle Facilities

Existing pedestrian facilities in the vicinity of the Pier 22½ site include sidewalks, crosswalks, curb ramps, pedestrian signals, and streetscape and landscape features (i.e., trees, planters, and street lighting). The Embarcadero, with a multi-use promenade along the east side that is generally 18 to 25 feet wide and sidewalks on the west side that are generally 15 feet wide, is identified as a key walking street in the City's WalkFirst program.[50] Pedestrians can cross The

[50] Key walking streets are identified in the Planning Department's WalkFirst program which provides a framework to prioritize future streetscape improvements including pedestrian safety and amenity enhancements. Key walking streets such as The Embarcadero are prioritized for streetscape improvements. More about the WalkFirst program may be found here: http://sf-planning.org/walkfirst. Accessed July 16, 2018.

Embarcadero at either Harrison Street, which is approximately 125 feet southeast of the Pier 22½ site, or Folsom Street, which is 450 feet to the west. Active uses and pedestrian circulation in the vicinity of the project site are found on both sides of The Embarcadero.

Existing bicycle facilities are part of the City of San Francisco bicycle network. Bikeways are typically classified into three categories:

- **Class I**: Pathways that provide exclusive right-of-way for use by bicyclists and pedestrians.
- **Class II**: Bicycle lanes striped within the roadway for use by bicyclists, typically between the vehicle travel lane and parking lane or curb.
- **Class III**: Bicycle routes that are signed and sometimes marked with shared lane markings ("sharrows") where bicycles and vehicles share the same travel lane.

The Pier 22½ site is served by several primary bicycle facilities. Bicycle Route 5 runs along The Embarcadero as a Class II facility between King Street and North Point Street, including in front of the site and southbound on the other side of The Embarcadero. The eastern promenade of The Embarcadero is designated as Herb Caen Way, a Class I shared bicycle/pedestrian path. Finally, a Class II facility runs along North Point Street between The Embarcadero and Van Ness Avenue through Fisherman's Wharf. Within one-half mile of the project site, the San Francisco Transportation Information Map identifies Class II bicycle lanes on Beale, Folsom, and Howard Streets and Class III bicycle routes on Fremont, Howard, Market and Mission streets.[51]

No bicycle parking is present on the project site.

Parking Conditions

There are currently small parking areas at Pier 22½, one to the north and the other to the south of Fire Station 35 (approximately 1,250 sf and 2,500 sf, respectively). If triple-parked, six cars can park in the north lot; the south lot can accommodate about 10 cars if tandem parking is used. In addition, there are four striped parking spaces on the parking apron adjacent to the front of the fire station. Vehicles access these parking spaces by turning off the north-bound lane of The Embarcadero at the pedestrian cross-walk ramp at Harrison Street and crossing the pedestrian promenade. There are eight parking spaces on The Embarcadero just west of the project site (in front of the adjacent restaurant). In addition, there are approximately 980 publicly available off-street parking spaces in garages and lots, and approximately 500 on-street metered parking spaces within a quarter-mile of the project site.

Loading

Loading currently occurs on the wide parking apron in front of Firehouse 35, where the station's hinged doors allow access to the interior of the building, or on the two side lots. No significant passenger or commercial freight loading and unloading occur at Fire Station 35 because it does not have a retail or commercial function.

51 The San Francisco Transportation Information Map is available at: http://sftransportationmap.org/. Accessed July 16, 2018.

Emergency Services and Access

Firehouse 35 provides emergency fire and first aid service to the Rincon Hill area. When answering a call, the fire truck based at Fire Station 35 drives out the hinged doors and exits onto The Embarcadero. As an arterial roadway, The Embarcadero allows emergency vehicles to travel at higher speeds and permits other traffic to maneuver out of the path of the emergency vehicle. When heavy congestion occurs on The Embarcadero, emergency vehicles could use the center transit-only lanes used by the F-Market and Wharves and the E-Embarcadero streetcars.

Approach to Analysis

Policy 10.4 of the Transportation Element of the General Plan directs City decision-makers to "consider the transportation system performance measurements in all decisions for projects that affect the transportation system." In order to determine whether the proposed project would conflict with a transportation- or circulation-related plan, ordinance, or policy, this section discusses the potential impacts that the proposed project could have on traffic, transit, pedestrian, bicycle, and emergency vehicle circulation, as well as potential impacts associated with loading activities and construction activities.

Vehicle Miles Traveled in San Francisco and Bay Area

Many factors affect travel behavior. These factors include density, diversity of land uses, design of the transportation network, access to regional destinations, distance to high-quality transit, development scale, demographics, and transportation demand management. Typically, low-density development at great distance from other land uses located in areas with poor access to non-private vehicular modes of travel generate more automobile travel compared to development located in urban areas, where a higher density, mix of land uses, and travel options other than private vehicles are available.

Given these travel behavior factors, San Francisco has a lower vehicle miles traveled (VMT) ratio than the nine-county San Francisco Bay Area region. In addition, some areas of the City have lower VMT ratios than other areas of the City. These areas of the City can be expressed geographically through transportation analysis zones. Transportation analysis zones are used in transportation planning models for transportation analysis and other planning purposes.

The San Francisco County Transportation Authority (Transportation Authority) uses the San Francisco Chained Activity Model Process (SF-CHAMP) to estimate VMT by private automobiles and taxis for different land use types. Travel behavior in SF-CHAMP is calibrated based on observed behavior from the California Household Travel Survey 2010–2012, Census data regarding automobile ownership rates and county-to-county worker flows, and observed vehicle counts and transit boardings.[52,53]

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52 To state another way: a tour-based assessment of VMT at a retail site would consider the VMT for all trips in the tour, for any tour with a stop at the retail site. If a single tour stops at two retail locations, for example, a coffee shop on the way to work and a restaurant on the way back home, both retail locations would be allotted the total tour VMT. A trip-based approach allows us to apportion all retail-related VMT to retail sites without double-counting.

53 San Francisco Planning Department. 2016, Executive Summary: Resolution Modifying Transportation Impact Analysis, Appendix F, Attachment A. March 3, 2016.

Table 3 provides daily VMT data for the Bay Area and the transportation analysis zone (TAZ 763) in which the project site is located.

Table 3: Daily Vehicle Miles Traveled

Land Use	Existing			Cumulative 2040		
	Bay Area Regional Average	Bay Area Regional Average Minus 15%	TAZ 763	Bay Area Regional Average	Bay Area Regional Average Minus 15%	TAZ 763
Employment (Office)	19.2	16.2	8.1	17.1	14.5	6.3

Travel Demand

The current and proposed fire boat facility would be staffed for 24 hours per day, 7 days a week. At present, there are seven Fire Department staff working nine 24-hour shifts, in 31-day rotations.[54] As noted in the project description above, the number of employees per shift would increase by three persons with operation of the proposed new fire boat facility. However, because the personnel population is so small, and because (due to the Fire Department's shift staffing procedures, which entail daily commute trips only every third day), travel demand generated by these persons would be negligible. The change to existing travel demand would be expected to be within the range of daily travel variations in the area, and negligible in comparison with current traffic conditions in the downtown and South of Market Street areas.

Impact TR-1: The proposed project would not cause substantial additional vehicle miles traveled or substantially induce automobile travel. (*No Impact*)

Vehicle Miles Traveled

The number of Fire Department personnel working at the proposed project would increase by three persons over current conditions. This small population would not be expected to result in a detectable increase in VMT; any change as a result of the project would be expected to be within the range of daily variability. For purposes of VMT analysis, office VMT rates are used as a proxy for the proposed project. However, because shift staffing patterns for fire crews do not entail daily commute trips, the fire station project would be expected to occur at less than per capita office rates.

As indicated in Table 3, above, the existing average daily VMT per office employee is 8.1 for TAZ 763. This is about 58 percent below the existing regional average daily VMT per employee of 19.2. Therefore, the proposed project's minor population increase over existing conditions would not result in substantial additional VMT and impacts would be less than significant. Furthermore, the project site meets the Proximity to Transit Stations screening criterion.

The projected 2040 average daily VMT per office employee is 6.3 for TAZ 763. This is 63 percent below the projected 2040 regional average daily VMT per office employee of 17.1. The proposed

54 San Francisco Budget and Legislative Analyst, Performance Audit of the City's Practices to Recruit, Retain and Promote Uniformed fire Staff and the Fire Department's Use of Overtime to Meet Minimum Staffing Requirements, January 13, 2014. Available at: *http://sfbos.org/sites/default/files/FileCenter/Documents/47587-SFFD%20Audit_Final%20Report* 011314.pdf. Accessed April 4, 2018.

project therefore would not result in substantial additional VMT or contribute considerably to any substantial cumulative increase in VMT.

In addition, the proposed project's occupants would also be within a half mile of an existing major transit stop, the proposed project buildings would have a floor area ratio of greater than or equal to 0.75, no vehicle parking would be provided (which is less than or equal to that required or allowed by the Planning Code without conditional use authorization), and the proposed project would be consistent with the applicable Sustainable Communities Strategy. The proposed project thus satisfies OPR's proximity to transit station screening criteria for VMT analysis, indicating a less-than-significant impact with regard to VMT.

The proposed project is not a transportation project and would not modify the local circulation network or induce substantial automobile travel.

Based on the foregoing, the proposed project would result in less-than-significant impacts with regard to VMT and induced automobile travel, and no mitigation measures are necessary.

Impact TR-2: The proposed project would not conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system and would not conflict with an applicable congestion management program. (Less than Significant)

Construction

Construction activities would occur at Pier 1, Treasure Island (construction of the steel float warm shell) and at Pier 22½. As indicated in Table 1 above, construction at Pier 1, Treasure Island is scheduled to start in June, 2019 and be completed in May, 2020. Construction materials and equipment would be transported to Treasure Island by a combination of trucks and/or barges, and off-loaded at Pier 1 on the east side of the island. Construction material would be stored in the parking lot adjacent to Pier 1, on Pier 1 itself, or on the steel barge.

Demolition of the finger piers at Pier 22½ is scheduled to begin in June, 2019, and demolition and construction of the fire boat facility would require approximately 19 months. Construction vehicles would enter the site from The Embarcadero northbound. Staging of construction material would occur on the existing space to the north and south of Firehouse 35 and, on an as-needed basis, at Pier 26. During the construction period, temporary and intermittent transportation impacts would result from truck movements to and from the project site. The most substantial truck traffic to the project site would be ready-mix concrete to be poured for the marginal wharf and the access ramp. However, pedestrian and bicycle use of The Embarcadero promenade would only be temporarily inconvenienced by delivery vehicles entering and exiting the project site.

Prior to construction, the project sponsor and construction contractor(s) would be required to meet with Public Works and San Francisco Metropolitan Transportation Agency staff to develop and review truck routing plans for demolition, materials delivery and storage, and staging for construction vehicles. The construction contractor would be required to comply with the City of San Francisco's Regulations for Working in San Francisco Streets (the Blue Book), including those regarding sidewalk and lane closures, and would meet with San Francisco Metropolitan Transportation Agency staff to determine whether any special traffic permits would be required. The contractor would be responsible for complying with all city, state and federal codes, rules, and regulations.

Construction-related activities would generally occur Monday through Friday. Construction is not anticipated to occur on Saturdays, Sundays, or major legal holidays, but may occur as needed and if approved by the Port's Building Permit Group (a part of the Engineering Division). The hours of construction would be stipulated by the Building Permit Group, and the contractor would be required to comply with the San Francisco Noise Ordinance and the Blue Book, including requirements to avoid peak hour construction activities on adjacent streets.

Vehicle Circulation, Loading, and Parking

The proposed project would generate a negligible number of new vehicle trips (by three persons), and trips would occur during commute hours every third day. The project would not modify the existing local circulation network and no impact is anticipated to local vehicle circulation.

Loading would occur on the parking apron in front of Firehouse 35 (as it does at present) or on the barge itself (accessed via the proposed ramp). As an emergency facility devoted to water-related fire and other emergencies, the proposed project would not involve substantial daily deliveries such as might be expected with a retail or commercial use. Project operations would entail deliveries of food, incidental equipment and other supplies no more than a few times per week.

In regards to 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. The proposed project would result in the loss of approximately ten parking spaces. These are not fully used under existing conditions as some of the spaces in the south lot are presently used for equipment storage. City cars driven by fire crews, which are spread out between the two existing parking lots and the parking strip in front of the station under existing conditions, could be accommodated in the remaining north lot through the use of tandem parking after construction of the proposed project. The effect on local parking capacity of the small increase in daily population at the project site (three persons) would be negligible. Therefore, the proposed project would not result in a hazardous condition with respect to parking.

In summary, the project would not result in a significant conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, or with an applicable congestion management program.

Impact TR-3: The proposed project would not substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses. (No Impact)

The proposed project would not include any design features that would substantially increase traffic hazards (e.g., a new sharp curve or dangerous intersections) at the project site, and would not introduce any incompatible uses, as uses would be similar to current conditions. The proposed project would not add new driveways or curb cuts along the project frontages. Therefore, the proposed project would have no impact related to transportation hazards due to a design feature or resulting from incompatible uses.

Impact TR-4: The proposed project would not result in inadequate emergency access. (Less than Significant)

The street network currently provides access to the project site for emergency vehicles. The proposed project is designed to improve centralized fire boat operations and the movement of

emergency vehicles and personnel between the city and the fire boat facility. To the extent emergency vehicle access to the fire boat facility may be necessary, the proposed ramp and the ambulance turnaround on the float would improve vehicular access. Fire engine access to the and from the firehouse would be maintained during construction. The three fire boats would be temporarily docked at Pier 26 during construction. Emergency access to and from Firehouse 35 would be unchanged by the project. Access to the fire boats would be improved by the project, as the new construction would ensure the reliability of access across the marginal wharf to the boat dock even in the event of seawall failure (as in a major earthquake). The proposed project's impact to emergency vehicle access would therefore be less than significant.

Impact TR-5: The proposed project would not conflict with adopted policies, plans or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities. (No Impact)

As discussed above under Travel Demand, the proposed project constitutes an upgrade to the currently inadequate fire boat facility that would not involve a substantial difference in operations. The proposed project would result in negligible changes to the number of trips generated by the existing facility, which would be within the range of normal daily variation, and would not affect the capacity utilization of public transit serving the project vicinity. The project would not alter circulation in the vicinity of the project site; thus pedestrian and bicycle conditions would not change and no impacts related to crowding or safety would occur. Additionally, the new ramp would improve access to the fire boat facility. This would allow the occasional support vehicles to make deliveries and pick-ups directly at the barge, and thus would reduce potential conflict with pedestrians and bicyclists on The Embarcadero. The proposed project would therefore have no impact with regard to conflicts with adopted policies, plans or programs regarding public transit, bicycle, or pedestrian facilities.

Impact C-TR-1: The proposed project, in combination with past, present, and reasonably foreseeable future projects, would not result in substantial cumulative transportation impacts. (Less than Significant)

The geographic context for construction of the warm shell at Treasure Island would be the Pier 1 vicinity at the southeastern corner of the island, just outside of Clipper Cove. The geographic context for the analysis of construction and operational cumulative traffic impacts at Pier 22½ is the local roadways and transit system within a quarter mile of the project site. Cumulative projects within one-quarter of a mile of the project site are listed in Table 2, pp 13-14. Three of the projects relate to improvements at port facilities; one involves improvements to the cycling and pedestrian facilities along The Embarcadero, and two are small-site mixed-use residential developments south of the project site.

Construction

Treasure Island. Construction of the fire boat facility warm shell is scheduled to occur between June 2019 and March 2020. The eastside open space amenities (sailing center pad, eastern shoreline park, Clipper Cove Promenade) associated with ongoing Treasure Island Development are anticipated to be constructed between 2022 and 2027. Therefore, there would be no overlap between construction of the two projects.[55] Regardless, construction of the warm shell would be

55 Email from Elizabeth Hirschhorn, P.E., Assistant Development Program Manager, Treasure Island Development Authority, to Chris Thomas, San Francisco Planning Department, April 5, 2018.

a relatively minor project that would not involve a large amount of materials or equipment. Construction and worker vehicles would access Pier 1 via California Avenue and construction itself would be confined to the steel barge while docked at Pier 1. Therefore, the proposed project, in combination with past, present and reasonably foreseeable future projects in the project vicinity, would not result in substantial cumulative transportation impacts on Treasure Island.

Pier 22½. Work at the Pier 22½ site is expected to take a total of 21 months. A substantial amount of the on-site construction at Pier 22½ site would be carried out by crews and equipment stationed on off-shore barges; only construction of the pier and ramps would involve equipment that would have to access the project site via The Embarcadero. Construction of the proposed project therefore would not result in substantial interference with bicycle, pedestrian, or vehicle circulation, or to accessibility to adjoining areas and would not cause potentially hazardous conditions. The only future projects anticipated to potentially result in nearby construction activity at Pier 22½ are the Embarcadero Enhancement Project (which does not yet have a construction schedule or plan available to the public) and ongoing dredging operations conducted by the port. The project sponsor would be required to coordinate its construction efforts and regular operational practices with the City when the time comes to create a construction plan and timeline for The Embarcadero Enhancement Project. Cumulative construction impacts are anticipated to be less than significant because construction of the two projects will be coordinated through SFMTA and San Francisco Public Works traffic plan and permitting requirements.

Operations

As discussed above, the proposed project does not propose design features that would present traffic safety hazards or create new sources of substantial conflict with existing plus planned traffic circulation. Likewise, none of the anticipated cumulative land use and transportation network changes would involve design features that would present traffic safety hazards or create new sources of substantial conflict with existing and projected traffic circulation in the immediate vicinity of the Pier 22½ project site. Similarly, as discussed above, the proposed project would have no impacts or less-than-significant impacts with respect to transit, motor vehicle, bicycle or pedestrian traffic volumes or circulation, or emergency access in the project vicinity.

In summary, the project, in conjunction with the past, present and reasonably foreseeable future projects identified in Table 2 (pp. 13-14) is not expected to result in significant cumulative impacts with respect to traffic circulation, transit demand, capacity of the circulation network, or emergency access in the project vicinity or regionally. The project's contribution to use of the transportation network would be small, and it would not impair emergency access; its contribution to the less-than-significant cumulative impact therefore would not be cumulatively considerable.

Topics:		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Not Applicable
6.	**NOISE- Would the project result in:**					
a)	Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐	☐
b)	Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐	☐
c)	A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐	☐
d)	A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐	☐
e)	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?	☐	☐	☐	☐	☒
f)	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 located within an airport land use plan area or in the vicinity of a private airstrip. Therefore, topics 6e and 6f are not applicable to the proposed project.

A noise and vibration study was prepared for this analysis that determined existing noise levels in the project vicinity, identified surrounding land uses, and determined expected noise levels with construction and operation of the proposed project.[56]

Regulatory Setting and Assessment Methods

Construction Noise

San Francisco Noise Ordinance (Article 29 of the Police Code).

Construction noise is regulated by the Police Code section 2907 of the San Francisco Noise Ordinance, which requires that noise levels from individual pieces of construction equipment, other than impact tools (e.g., jackhammers, hoe rams, impact wrenches), not exceed 80 dBA at a

56 California Department of Transportation. 2013. Transportation and Construction Vibration Guidance Manual, Table 19. September. Available at: *http://www.dot.ca.gov/hq/env/noise/pub/TCVGM_Sep13_FINAL.pdf*. Accessed August 14, 2017.

56 Wilson Ihrig, *Pier 22½ Fire Station 35 Project Noise and Vibration Technical Memo*, March 2018.

distance of 100 feet from the source, or an equivalent sound level at some other convenient distance. Impact tools must have manufacturer-recommended and City-approved mufflers for both intake and exhaust. Police Code section 2907(b) of the San Francisco Noise Ordinance exempts typical impact-driven pile installation methods – with appropriate permissions from the San Francisco Department of Building Inspection – from this noise level limitation.

Police Code section 2908 of the San Francisco Noise Ordinance prohibits construction work between 8:00 p.m. and 7:00 a.m., if noise would exceed the ambient noise level by 5 dBA at the project property line, unless a special permit is authorized by the Director of Public Works or the Director of Building Inspection. No night construction is proposed under this project.

Federal Transit Administration

As noted, impact equipment is conditionally exempted from section 2907 of the Noise Ordinance**.** In order to analyze potential impacts resulting from the use of impact equipment such as pile drivers and jack hammers, the Planning Department uses the Federal Transit Administration general assessment criteria, summarized in Table 4 below.

Table 4: Federal Transit Administration Criteria for Construction Noise

	One-Hour Leq (dBA)	
Land Use	Day	Night
Residential	90	80
Commercial	100	100
Industrial	100	100

To address the issue of combined noise levels (including noise from impact equipment), a reasonable worst-case scenario combining noise levels from the two loudest pieces of equipment operating simultaneously at the same location are evaluated.[57]

In addition, the Federal Transit Administration construction noise standards includes an assessment of whether or not an increase in the ambient noise level greater than 10 dBA would occur with operation of the combined noise from the two noisiest pieces of equipment. A 10 dBA increase in the ambient noise level would represent a doubling of noise.

Vibration

Vibration is an oscillatory motion through a solid medium in which the motion's amplitude can be described in terms of displacement, velocity, or acceleration. Construction-related vibration primarily results from the use of impact equipment such as pile drivers (both impact and vibratory), hoe rams, vibratory compactors and jack hammers, although heavily loaded vehicles may also result in significant ground-borne vibration. Vibration may be measured by peak particle velocity (PPV), defined as the maximum instantaneous peak of the vibration signal in inches per second (in/sec). PPV is the metric typically used to describe vibration that may result in structural stresses in buildings.

Groundborne vibration generated by man-made activities generally attenuates rapidly with distance from the source of the vibration. This attenuation is a complex function of how energy is imparted into the ground as well as the subsurface soil and/or rock conditions through which the vibration is traveling. Variations in geology can result in different vibration levels, with denser

soils generally resulting in more rapid attenuation over a given distance. The effects of groundborne vibration on buildings include movement of building floors, rattling of windows, shaking of items on shelves or hanging on walls, and rumbling sounds. The rumbling sound caused by the vibration of room surfaces is called groundborne noise, which can occur because of the low-frequency components from a specific source of vibration, such as a rail line. The effects of ground-borne noise are generally considered an annoyance by the receiver, unless it results in loss of sleep. Annoyance to sensitive receptors[58] is generally not considered a potential impact of construction vibration because construction activities that generate vibration are generally of limited duration. For the proposed project, construction is not proposed during nighttime hours.

The California Department of Transportation (Caltrans) provides various guidelines regarding the vibration associated with construction and operation of transportation infrastructure. Table 5 below provides Federal Transit Administration's vibration guidelines for potential damage to different types of structures[59].

Table 5: Federal Transit Administration Vibration Thresholds for Potential Damage to Structures

Structure Type and Condition	Maximum Peak Particle Velocity (PPV, in/sec)	
	Transient sources	Continuous/Frequent Intermittent sources
Extremely fragile historic buildings	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

Note: Transient sources create a single, isolated vibration event (e.g., blasting or drop balls). Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.
Source: California Department of Transportation. 2013. Transportation and Construction Vibration Guidance Manual, Table 19. September. Available: http://www.dot.ca.gov/hq/env/noise/pub/TCVGM_Sep13_FINAL.pdf. Accessed August 14, 2017.

58 Sensitive receptors are those land uses and their associated users that are more sensitive to noise and vibration levels than others due to the types of activities typically involved with the land use and the amount of noise exposure (relative to the frequency, duration and strength of the noise). In general, occupants of residences, schools, daycare centers, hospitals, places of worship, and nursing homes are sensitive receptors (i.e., persons who are sensitive to noise based on their specific activities, age, health, etc.)

59 California Department of Transportation. 2013. Transportation and Construction Vibration Guidance Manual, Table 19. September. Available: *http://www.dot.ca.gov/hq/env/noise/pub/TCVGM_Sep13_FINAL.pdf*. Accessed: August 14, 2017.

59 FHWA Noise Analysis and Abatement Guidelines *https://www.fhwa.dot.gov/Environment/noise/* regulations_and_guidance/analysis_and_abatement_guidance/polguide01.cfm

Vibration can result in effects ranging from annoying people to damaging structures. Variations in geology and distance result in different vibration levels comprising different frequencies and displacements. In all cases, vibration amplitudes will decrease with increasing distance from the vibration source. In general, older buildings with wood-frame construction and plaster finishes are more susceptible to damage from vibration than more recently constructed buildings that have been designed to modern seismic codes.

Operational Noise

San Francisco Noise Ordinance (Article 29 of the Police Code)

Regarding operational noise, Article 29 of the San Francisco Police Code, Section 2909(b), states that no person shall produce or allow to be produced by any machine or device, or any combination of the same, a noise level more than 8 dBA above the local ambient sound level at any point outside the property plane.[60] In order to prevent sleep disturbance, protect public health, and prevent the acoustical environment from progressive deterioration, Section 2909(d) states that "no fixed noise source may cause the noise level measure inside any sleeping or living room in any dwelling unit located on residential property to exceed 45 dBA between the hours of 10 pm to 7 am or 55 dBA between the hours of 7 am to 10 pm with windows open except where building ventilation is achieved through mechanical systems that allow windows to remain closed."

San Francisco General Plan

The Environmental Protection Element of the San Francisco General Plan contains Land Use Compatibility Guidelines for Community Noise.[61] These guidelines, which are similar to state guidelines promulgated by the Governor's Office of Planning and Research, indicate maximum acceptable noise levels for various newly developed land uses. The proposed project, an emergency services facility with fire boats, corresponds to the "Commercial" land use category that includes industrial/manufacturing, transportation, communications and utilities uses. For the commercial land use category, the maximum "satisfactory, with no special insulation requirements" exterior noise levels are approximately 77 dBA (Ldn [average day/night equivalent sound level]).

The following thresholds are applied to determine the significance of project-related operational noise increases: 1) An increase of more than 5 dBA is considered a significant noise increase, and 2) 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, any noise increase greater than 3 dBA is considered a significant noise increase. A 5 dBA increase over ambient noise levels in any noise environment

60 Section 2909(c) of the noise ordinance does provide a limit to noise levels on a public property of no more than 10 dBA above the ambient noise level at a distance of 25 feet or more. Although the proposed fire boat facility would be public property (owned by the Port of San Francisco), section 2901 defines "public property" as property leased or owned by a government entity, to which the public or a substantial group of persons has access. The proposed fire boat facility would typically not be open to the public. Therefore, the section 2909(b) commercial and industrial limit of 8 dBA above the ambient noise level at any point outside the property plane is appropriate for the proposed fire boat facility.

would be considered a substantial permanent increase in the ambient noise levels in the project vicinity because it would be clearly noticeable. A 3 dBA increase over ambient noise levels where the existing or resulting noise environment is "conditionally acceptable," "conditionally unacceptable," or "unacceptable," would be considered a substantial permanent increase in the ambient noise levels in the project vicinity because, although barely perceptible, it would add to an existing or resulting noise level that exceeds satisfactory standards for the applicable land use per the Land Use Compatibility Chart. As noted, noise levels for commercial areas related to transportation uses are acceptable to about 77 dBA.

Traffic Noise

Although the City does not have quantitative criteria for project-generated traffic noise, the following criteria are applied by the Planning Department. In general, traffic noise increases of less than 3 dBA (Ldn) are barely perceptible to people, while a 5 dBA (Ldn) increase is readily noticeable. Therefore, permanent increases in ambient noise levels of more than 5 dBA (Ldn) are considered to be 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, any noise increase greater than 3 dBA (Ldn) at sensitive noise receptors is considered a significant noise impact.

Noise and Vibration Receptors in the Project Vicinity

As noted in the noise and vibration report, the immediate area around the project site primarily consists of commercial, retail and light manufacturing land uses, with some medium and high-rise residential buildings on Harrison and Folsom streets. The following seven residential properties are within 1,000 feet of the project site:

- Fire Station 35, which includes personnel group housing, is the closest sensitive receptor for construction vibrations at 35 feet from the site.
- 75 Folsom Street (Hills Bros Coffee) is zoned for mixed use with lower level retail and office and 10 stories of residential above providing 67 condominium units. The closest unit would be about 200 feet from the project site; this is the closest off-site noise-sensitive receptor.
- The Infinity Residential development includes four towers that provide 650 residential condominium units. All four towers are within 1,000 feet, of the project site, ranging from 540 feet to the nearest high-rise (338 Spear Street) to about 760 feet distance to the farthest high rise (301 Main Street). The other two mid-rise buildings are located at 318 Spear Street and 333 Main Street. The upper levels of the high-rise buildings have line of sight to the project site.
- The Lumina Residential development consists of four buildings located at 201 Folsom Street and contains 655 condominium units in two mid-rise towers with ground floor retail about 920 feet from the project site.
- The Baycrest Towers at 201 Harrison includes condominium units, some of which would have line of sight to the project about 900 feet to the north.

- 400 Spear Street contains 46 converted live/work lofts, some of which would have a line of sight to the project site about 540 feet to the north.
- The Portside at 403 Main Street contains 62 condominiums, some of which have line of sight to the project site about 710 feet to the north.

Impact NO-1: The proposed project would not result in the exposure of persons to or generation of noise levels in excess of established standards, nor would the proposed project result in a substantial temporary or permanent increase in ambient noise levels. (Less than Significant)

Noise from Project Construction

Construction noise is evaluated according to the following three criteria, taking into account the frequency, duration, equipment noise level, and proximity of sensitive receptors:

1. Comparing the maximum noise-generating potential for each individual piece of equipment proposed for use with the noise ordinance limit of 80 dBA at 100 feet (or equivalent sound level at some other convenient distance);
2. Comparing the combined noise level resulting from simultaneous operation of the two loudest pieces of equipment with the Federal Transit Administration's general construction assessment criterion of 90 dBA 1-hour L_{eq} at the nearest residential receptor; and
3. Determining if the combined noise level resulting from simultaneous operation of the two loudest pieces of equipment would be greater than 10 dBA above the background noise level.

At Pier 1, Treasure Island, no impact equipment (generally the noisiest construction equipment) would be used in the construction of the fire boat facility warm shell on top of the steel float. The tools and equipment needed for the construction of the warm shell at Pier 1 would be expected to include fork lifts, a generator, and various hand-held power and manual tools. All are expected comply with the section 2907(a) limit of 80 dBA at 100 feet from the noise source. In addition, there are no sensitive receptors within 1,000 feet of where work would occur at Pier 1.

At Pier 22½, construction-related noise would result from demolition of the existing equipment shed and finger piers, installation of four guide piles for the barge, construction of the marginal wharf (including installation of five additional piles), and construction of the new fire boat facility. Equipment used for water-borne activities would include a crane, vibratory extractor and impact pile driver mounted on a work barge for demolition of the shed and finger piers, extraction of existing wooden piles, and installation of the new barge guide piles and the six piles necessary for the marginal wharf. For construction of the marginal wharf, a jackhammer, excavator, dump truck, and concrete mixer would be needed. Construction of the fire boat facility would largely involve interior work (the warm shell having been constructed at Pier 1, Treasure Island) and require various pneumatic and electrically powered tools. Laydown areas for construction materials would be on Treasure Island, Pier 1 and, as needed at Pier 26 on The Embarcadero; those materials would be transported to the project site by boat or truck. A generator and compressor would be used to power some of the equipment at Pier 22½ throughout construction there.

Table 6, below, provides noise levels for the construction equipment anticipated to be used at Pier 1, Treasure Island and Pier 22½, The Embarcadero.

Table 6. Construction Equipment Noise Emission Levels

Equipment	Typical Lmax Noise Level* (dBA) at		
	50 feet	**100 feet**	**200 feet (75 Folsom Street)**
Air Compressor	78	72	66
Backhoe	80	74	68
Compactor	83	77	71
Concrete Mixer	79	73	67
Concrete Pump	81	75	69
Crane	81	75	69
Dump Truck	76	70	64
Generator	81	75	69
Jack Hammer	**88**	**82**	75
Paver	77	71	64
Pile-driver (Impact)	**101**	**95**	89
Pile-driver (Vibratory)	**95**	**89**	83
Pneumatic Tools	85	79	73
Roller	80	74	68
Source: Federal Highway Administration, *Construction Noise Handbook,* Table 9.1. 6. * Noise is assumed to attenuate at a by 6 dB for every doubling of distance. Bold figures for impact equipment indicate an exceedance of noise ordinance section 2907(a).			

As indicated in Table 6, the impact and vibratory pile drivers would be the loudest equipment used during construction at Pier 22½. As discussed, vibratory pile driving would be used to drive the piles for most of their depth; impact pile driving would only be used when vibratory pile driving reaches a point of refusal and greater impact force is required to drive the pile to its final depth. Impact pile driving is the louder of the two techniques; vibratory pile driving (or extracting) works by inducing particle motion to the substrate immediately below and around the pile, causing liquefaction of the immediately adjacent sediment. Liquefaction makes it possible both to drive the pile downward and extract it upward.

The closest off-site noise-sensitive land uses for noise caused by the construction of the proposed project are the residences at 75 Folsom Street, located approximately 200 feet to the west of the project site. As indicated in Table 6, demolition, excavation, and building construction would cause a temporary increase in noise levels within the project vicinity, including a maximum value of about 95 dBA 100 feet from the use of an impact pile-driver. However given attenuation of noise with distance, the values provided in right-hand column of Table 6 would be about 6 dB lower at 75 Folsom Street.

As shown in Table 6, noise generated by the planned non-impact construction equipment would not exceed 80 dBA at a distance of 100 feet from the source, the permissible noise limit under Police Code section 2907 of the San Francisco Noise Ordinance. Accordingly, noise impacts with respect to the noise ordinance are considered less than significant and no mitigation is required.

As discussed, impact equipment is conditionally exempted the Police Code section 2907(b) limit of the San Francisco Noise Ordinance, provided such tools are fitted with manufacturer-

recommended and City-approved mufflers for both intake and exhaust. For purposes of this impact analysis, an impact would occur if noise from the use of impact tools would exceed a daytime noise level of 90 dBA at the nearest residential receptor or if it would result in a greater than 10 dBA increase in the ambient noise level. Table 6 provides estimated noise levels from the use of vibratory and impact pile drivers at 75 Folsom Street.

Table 7. Estimated Hourly L_{eq} Construction Noise Levels

Construction Activity	Noise Levels (dBA) at	
	75 Folsom	400 Spear
Demolition	71	63
Building Construction	67	58
Vibratory Pile Driving	72	72
Impact Pile Driving	82	82
Average/Typical All Construction Phases	73	64
Source: Wilson Ihrig, 2017, Table 6.		

Impact pile driving would be the loudest construction activity, but as indicated in Table 7, above, it would be below 90 dBA at the nearest residential (sensitive) receptors. Therefore, noise from impact equipment would not result in a significant impact at the nearest residential receptor under FTA standards. Note also that extraction of the existing piles by vibratory extractor and pile driving for the barge guides and the marginal wharf would be of limited duration: together, these tasks would be expected to require a total of about 30 days. Further pile extraction and driving would not occur constantly; rather noise would be intermittent as much of the work time would involve the positioning of the barge-mounted vibratory extractor and pile driver for each of the piles to be removed and installed. Finally, the quieter vibratory technique would be used to drive the pile to a point of refusal (most of the duration of pile installation), after which a shorter period of impact driving would be needed to drive the pile to its final depth.

Section 2908 of the Noise Ordinance prohibits construction work between 8:00 p.m. and 7:00 a.m., if noise would exceed the ambient noise level by 5 dBA at the project property line, unless a special permit is authorized by the Director Public Works or the Director of Building Inspection. Construction work for the proposed project is not anticipated to occur during these hours.

Noise from Project Operations

Stationary Equipment Noise

The new fire boat facility would include a heating, ventilation and air conditioning (HVAC) unit and an emergency generator. The proposed project is on public property and subject Police Code section 2909(b) of the noise ordinance, which limits operational noise to no more than 8 dBA above the local ambient at the property plane.

As noted above, the noise and vibration study prepared for the proposed project determined that the daytime ambient noise level near the project site is 70 dBA. Therefore, noise from mechanical equipment located at the proposed fire boat facility would not exceed 78 dBA at the project site property plane. The specific HVAC and emergency generator units are not known at this time. As a conservative approach to evaluation of future mechanical equipment for the proposed fire

boat facility, the noise and vibration study considered the maximum noise levels for rooftop exhaust fans and air conditioning units, and a 10 kW emergency generator shown in Table 8.

Table 8. Noise from Potential Outdoor Noise-Generating Equipment

Equipment Type	Number	Maximum Sound Power level (dBA)
Rooftop Exhaust Fans	2	88
Rooftop Air Conditioning Units (Heat Pump)	2	78
Emergency Generator (10 kW)	1	90
Source: Wilson Ihrig, Noise and Vibration Report, Table 9		

Operation of the rooftop exhaust fans and the emergency generator[62] could exceed the Police Code section 2909(b) limit for commercial properties of 8 dBA above ambient at the property plane.[63] This would be considered a substantial permanent increase in the ambient noise level and therefore a potential impact. However, the noise and vibration study estimated that unshielded noise from the stationary equipment noted in Table 8 would attenuate with distance to about 45 dBA at the exterior of 75 Folsom Street (the nearest sensitive receptor to the proposed project), which would not exceed the section 2909(d) nighttime interior noise limit for residences of 45 dBA. Therefore, the proposed project would have a less than significant impact with regard to stationary equipment noise.

Although the proposed project's stationary equipment noise would not have a significant impact upon a sensitive receptor, it could exceed the section 2909(b) commercial and industrial property limit of 8 dB above the ambient noise level at the property plane. This exceedance would not be considered a significant impact because it would not affect any sensitive receptors. Noise from stationary equipment may be reduced by selection of the least noisy equipment models and the use of various noise-attenuating screening on all four sides of the equipment. Accordingly, the project sponsor has agreed to implement **Improvement Measure I-NO-1, Stationary Equipment Noise Controls**, to further reduce less-than-significant operational noise so that it meets the section 2909(b) limit of 8 dB at the property plane. **Improvement Measure I-NO-1, Stationary Equipment Noise Controls**, would achieve compliance with the Police Code section 2909(b) limit through acoustical treatments to attenuate noise from stationary sources (e.g., installing enclosures or barriers around equipment, using less noisy models of equipment, and incorporating mufflers or silencers on exhaust fans, etc.) such that exterior noise would not exceed 8 dBA above ambient at the project site property plane.

Improvement Measure I-NO-1, Stationary Equipment Noise Controls. Noise attenuation measures shall be incorporated into all stationary equipment (including HVAC equipment and emergency generators) installed on all buildings that include such stationary equipment as

62 The emergency generator would operate during emergencies (at which time noise ordinance limits would not apply) and during routine testing. As discussed in the Air Quality section of this document, the Bay Area Air Quality Management District limits testing of emergency generators to 50 hours per year.

63 The noise and vibration study estimated that unshielded noise from the stationary equipment noted in Table 8 would attenuate with distance to about 45 dBA at 75 Folsom Street, the nearest sensitive receptor to the proposed project. Thus, even without the shielding required by M-NO-1, the propose project would not exceed the 45 dBA interior noise limit at the nearest residence to the project site.

necessary to meet noise limits specified in Section 2909 of the Police Code. Interior noise limits shall be met under both existing and future noise conditions, accounting for foreseeable changes in noise conditions in the future (i.e., changes in onsite building configurations). Noise attenuation measures could include provision of sound enclosures/barriers, addition of roof parapets to block noise, increasing setback distances from sensitive receptors, provision of louvered vent openings, location of vent openings away from nearby residential uses, and restriction of generator testing to the daytime hours.

Project Traffic Noise

As discussed in the Transportation and Circulation section, the proposed project, which would add three crew persons to the project site, and thus potentially in a small increase in project-related traffic. As discussed above, a 3 dB increase in traffic-related noise, which represents a doubling of traffic noise sources, is necessary for the change in noise to be noticeable to most people. This small population increase at the site could result in a small increase in trip generation, but not in a doubling of traffic at the site. Therefore, the project would not result in a substantial permanent increase in the ambient noise level due to project-related traffic.

Impact NO-2: The proposed project could result in exposure of persons or structures to or generation of excessive groundborne vibration or groundborne noise levels. (Less than Significant)

The operation of heavy construction equipment, particularly pile-drivers and other heavy-duty impact devices (such as pavement breakers), creates seismic waves that radiate along the surface of the ground and downward. These surface waves can be felt as ground vibration and can result in effects that range from annoyance for people to damage to structures. Groundborne vibration generated by man-made activities generally attenuates rapidly with distance from the source of the vibration. This attenuation is a complex function of how energy is imparted into the ground as well as the subsurface soil and/or rock conditions through which the vibration is traveling. Variations in geology can result in different vibration levels, with denser soils generally resulting in more rapid attenuation over a given distance.

Annoyance to sensitive receptors is generally not considered a potential impact of construction vibration because construction activities that generate vibration are generally of limited duration. Nighttime construction is not proposed for the project and vibration-generating activities would not disturb sleep. Therefore, the proposed project would have a less than significant impact with regards to annoyance resulting from construction-related groundborne vibration or noise.

Regarding vibration impacts to buildings during construction, the Federal Transit Administration suggests a peak particle velocity level of 0.12 inches per second or lower be maintained at buildings extremely susceptible to vibration damage (i.e., historic buildings such as Fire Station 35).[64] The typical vibration levels for the heavy equipment to be used in the construction of the proposed project are provided in Table 9, below. As indicated by the table, the maximum level of construction vibration would result from use of an impact pile driver, with substantially lesser vibration levels from a vibratory pile driver. As previously noted, it is anticipated that piles to secure the steel float and support the marginal wharf would be driven into the bay mud to refusal with a vibratory pile driver, with an impact pile driver (which produces higher vibration levels) likely necessary for driving the pile to completion.

64 Federal Transit Administration, Transit Noise and Vibration Impact Assessment, September 2013.

Table 9. Typical Vibration Levels of Proposed Construction Equipment

Equipment	Vibration Level (peak particle velocity, inches/second)[1]			
	At 10 feet	At 25 feet	At 50 feet	At 100 feet
Backhoe[2]	0.352	0.089	0.031	0.011
Jackhammer	0.138	0.035	0.012	0.004
Loaded Trucks	0.300	0.076	0.027	0.010
Vibratory Pile Driver	0.672	0.170	0.060	0.021
Impact Pile Driver	2.546	0.644	0.228	0.081

[1] The typical vibration levels (peak particle velocity [PPV]) of construction equipment at 25 feet are based on data provided in Table 12-2 of the Federal Transit Administration's 2006 *Transit Noise and Vibration Impact Assessment*. Per Federal Transit Administration guidance, the vibration levels of proposed construction equipment at other distances (i.e., 10, 50, and 100 feet) were calculated using the following equation: PPV at Distance D = PPV (at 25 feet) x $([25/D]^{1.5})$.

[2] The *Transit Noise and Vibration Impact Assessment* does not provide PPV values for a backhoe. The PPV for a backhoe is assumed equivalent to that of a large bulldozer.

Source: Federal Transit Administration, *Transit Noise and Vibration Impact Assessment*, September 2013

Based on the peak particle velocity levels of the proposed construction equipment, construction vibrations would not be expected to exceed Federal Transit Administration threshold (Table 5, above) for even the most fragile of buildings so long as these buildings are 80 feet or more from the vibration source or site's outer boundary.

The closest buildings to the proposed pile driving are Fire Station 35, constructed in 1915 and the Water Bar, a restaurant in a building constructed in 2000. As noted in the project description, Pier 22½ was partially retrofitted in 2009 to improve its seismic stability. These are approximately 35 feet and 150 feet, respectively, from the proposed location of the marginal wharf, where the project's nearest demolition activity and pile driving would occur. Fire Station 35 is a wood-frame building with a plaster finish, for which the vibration impact threshold of 0.10 PPV is appropriate due to the building's age, plaster exterior, listing on the National and California historical registers, and designation by the City as a landmark. The impact standard for the Water Bar, a modern structure built in 2000, is 0.5 PPV. Maximum construction vibrations from an impact pile driver operating 35 feet from the Firehouse are calculated with the following formula:

PPV at Distance D = PPV (at 25 feet) x $([25/D]^{1.5}$

As stated in Table 9, the PPV at 25 feet for impact pile driving equals 0.644.

Therefore, Impact $PPV_{35\ feet} = 0.644 \times (25/35)^{1.5} = 0.388$ inches per second.

The peak particle velocity for vibratory pile driving at Fire Station 35 would be: $PPV_{35\ feet} = 0.170 \times (25/35)^{1.5} = 0.103$ inches per second.

The PPV from impact driving at the Water Bar restaurant would be: $PPV_{150\ feet}$ = PPV (at 25 feet) x $([25/D]^{1.5} = 0.644 \times (25/150)^{1.5} = 0.0438$ inches per second.

The peak particle velocity at the historic Firehouse 35 for impact pile driving (0.388 inches per second) and vibratory pile driving (0.103 inches per second), would both exceed the transit administration's limit for fragile structures of 0.12 inches per second (as detailed in Table 5, above). Therefore, both impact and vibratory pile driving for the proposed project could result in a significant impact to Fire Station 35 without mitigation. The peak particle velocity of 0.0438 inches per second at the Water Bar would not exceed any of the transit administration's vibration

limits for modern structures, and pile driving vibrations therefore would no result in an impact to the Water Bar building.

San Francisco Public Works has adopted standard construction measures to protect historic resources from the effects of vibration resulting from construction activities such as pile driving.[65] These measures are implemented as standard construction-contract specifications in the execution of all Public Works projects where is determined that a potential impact to a historic resource from construction-generated vibration could occur. To reduce the potential for damage to the historic Firehouse 35, the following standard construction measures shall be implemented by San Francisco Public Works in their role as manager of the Pier 22½ – Fire Boat Headquarters project:

- The project sponsor shall retain a qualified acoustical consultant or engineering firm to implement the vibration monitoring plan at Firehouse 35 and conduct regular periodic inspections for cosmetic damage. The monitoring plan will identify how often monitoring will occur, who will undertake the monitoring, reporting requirements on vibration levels, reporting requirements on damage to Fire Station 35 (if any) during construction, reporting procedures to follow if such damage occurs, and the scope of the preconstruction survey and post-construction conditions assessment. The monitoring plan shall be submitted to and approved by the Planning Department prior to the beginning of construction and implemented during construction.
- The project sponsor shall retain a structural engineer and a licensed historical architect (hereafter referred to as the building evaluation team) who, prior to the beginning of construction shall:
  - Evaluate Firehouse 35 to determine its structural and architectural susceptibility to vibration damage.
  - Identify the vibration thresholds at which structural damage or cosmetic damage may begin to occur.
  - Inventory and document existing cracks in paint, plaster, concrete, and other Fire Station 35 building elements.
  - Develop a ground-borne vibration construction monitoring plan for detection of vibrations at Fire Station 35 at or in excess of established thresholds at Fire Station 35.
- Should vibration levels be observed in excess of the cosmetic damage threshold or cosmetic damage be observed below that level, the driving of piles within 100 feet of Firehouse 35 shall be halted until measures are implemented to reduce vibrations to acceptable levels to the extent feasible (e.g. use of smaller, lighter equipment; maximizing use of vibratory hammers in place of impact hammers; using pile cushioning; or equipping the impact hammer with wooden cushion blocks.
- Should vibration levels reach the threshold for material damage to historic features despite implementation of these measures, pile-driving within impact distances of the Fire Station 35 building shall be halted, and a structural bracing program or other appropriate protective measures designed by the building evaluation team shall be implemented by the project sponsor.

[65] San Francisco Public Works, Standard Construction Measures for Public Works Projects, June 26, 2017.

- The project sponsor shall conduct a post-construction inspection of Fire Station 35 to inventory changes in existing cracks and new cracks or damage. If new damage is found, the project sponsor shall promptly arrange to have the damage repaired in accordance with recommendations made by the building evaluation team, consistent with the Secretary of the Interior's Standards for Rehabilitation.

With implementation of these standard construction measures, vibration impacts would be considered less than significant.

Impact C-NO-1: The proposed project, in combination with past, present, and reasonably foreseeable future projects, would not result in a cumulatively considerable contribution to cumulative impacts related to noise and vibration. (Less than Significant).

The geographic scope of potential cumulative noise impacts encompasses properties within 0.25 miles of the project site.

Projects listed in Table 2 could overlap, to some extent, with construction of the proposed project, resulting in a cumulative increase in noise in the Pier 22½ vicinity. Of the projects listed in Table 2 in the vicinity of Pier 22½, Port maintenance dredging, and ongoing routine repair and maintenance of Port facilities projects could pose cumulative noise impacts on residences if construction of these projects were to occur at the same time. Construction activities associated with other projects in the vicinity of the project site would occur on a temporary and intermittent basis, similar to construction of the proposed project. Like the proposed project, all projects would be required to comply with the San Francisco Noise Ordinance (Police Code section 2909) requirements as described above. Project construction noise and vibration would be temporary, intermittent and localized, and limited to a few hundred feet from the project site. Construction noise would attenuate due to distance and the presence of barriers, such as buildings and structures. Given the intermittent nature of Port projects in the area and their focus on maintenance of the piers, a cumulative impact is not expected. Similarly, a cumulative impact within 0.25 miles of the project site is not expected with respect to stationary equipment and traffic noise in the project vicinity. For these reasons, cumulative development in the project vicinity would not result in a significant cumulative noise impact.

As indicated in the analysis above, with implementation of San Francisco Public Works Standard Construction Measures related to potential vibration impacts to Fire Station 35, the proposed project would result in less-than-significant impacts with respect to operational noise and construction vibration. Therefore, the proposed project's contribution to the less-than significant cumulative noise and vibration impact would not be cumulatively considerable.

Topics:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Not Applicable
7. AIR QUALITY. Would the project:					
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐	☐
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☒	☐	☐
c) 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)?	☐	☐	☒	☐	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☒	☐	☐	☐
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐	☐

Regulatory Setting

The Bay Area Air Quality Management District (air 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. The air district is responsible for attaining and maintaining federal and state air quality standards in the air basin, as established by the federal Clean Air Act and the California Clean Air Act, respectively. Specifically, the air district has the responsibility to monitor ambient air pollutant levels throughout the air basin and to develop and implement strategies to attain the applicable federal and state standards. The federal and state clean air acts require plans to be developed for areas that do not meet air quality standards, generally. The most recent air quality plan, the 2017 Clean Air Plan, was adopted by the air district on April 19, 2017. The 2017 Clean Air Plan updates the most recent Bay Area ozone plan, the 2010 Clean Air Plan, in accordance with the requirements of the state Clean Air Act to implement all feasible measures to reduce ozone; provide a control strategy to reduce particulate matter, air toxics, and greenhouse gases in a single, integrated plan; and establish emission control measures to be adopted or implemented. The 2017 Clean Air Plan contains the following primary goals:

- Protect air quality and health at the regional and local scale: Attain all state and national air quality standards, and eliminate disparities among Bay Area communities in cancer health risk from toxic air contaminants; and

- Protect the climate: Reduce Bay Area greenhouse gas emissions to 40 percent below 1990 levels by 2030 and 80 percent below 1990 levels by 2050.

The 2017 Clean Air Plan is the most current applicable air quality plan for the air basin. Consistency with this plan is the basis for determining whether the proposed project would conflict with or obstruct implementation of an air quality plan.

Criteria Air Pollutants

In accordance with the state and federal clean air acts, air pollutant standards are identified for the following six criteria air pollutants: ozone, carbon monoxide (CO), particulate matter (PM), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), and lead. These air pollutants are termed criteria air pollutants because they are regulated by developing specific public health- and welfare-based criteria as the basis for setting permissible levels. In general, the air basin experiences low concentrations of most pollutants when compared to federal or state standards. The air basin is designated as either in attainment[66] or unclassified for most criteria air pollutants with the exception of ozone, $PM_{2.5}$, and PM_{10}. These pollutants are designated as non-attainment for both state and federal standards. By its very nature, regional air pollution is largely a cumulative impact in that no single project is sufficient in size to, by itself, result in non-attainment of air quality standards. Instead, a project's individual emissions contribute to existing cumulative air quality impacts. If a project's contribution to cumulative air quality impacts is considerable, then the project's impact on air quality would be considered significant.[67]

Table 10. Criteria Air Pollutant Significance Thresholds

	Construction Thresholds	Operational Thresholds	
Pollutant	Average Daily Emissions (pounds/day)	Average Daily Emissions (pounds/day)	Maximum Annual Emissions (tons/year)
ROG	54	54	10
NOx	54	54	10
PM_{10}	82 (exhaust)	82	15
$PM_{2.5}$	54 (exhaust)	54	10
Fugitive dust	Construction Dust Ordinance	Not Applicable	

NOx: oxides of nitrogen
PM: particulate matter
ROG: reactive organic gases
Source: Bay Area Air Quality Management District, California Environmental Quality Act Guidelines, May 2017, p. 2-1.

Land use projects may contribute to regional criteria air pollutants during the construction and operational phases of a project. Table 10, above, identifies air quality significance thresholds, followed by a discussion of each threshold. Projects that would result in criteria air pollutant emissions below these significance thresholds would not violate an air quality standard,

66 "Attainment" status refers to those regions that are meeting federal and/or state standards for a specified criteria pollutant. "Nonattainment" refers to regions that do not meet federal and/or state standards for a specified criteria pollutant. "Unclassified" refers to regions where there is not enough data to determine the region's attainment status for a specified criteria air pollutant.

67 Bay Area Air Quality Management District, California Environmental Quality Act Air Quality Guidelines, May 2017, p. 2-1.

contribute substantially to an air quality violation, or result in a cumulatively considerable net increase in criteria air pollutants within the air basin.

Ozone Precursors: As discussed previously, the air basin is currently designated as non-attainment for ozone and particulate matter. Ozone is a secondary air pollutant produced in the atmosphere through a complex series of photochemical reactions involving reactive organic gases (ROG) and oxides of nitrogen (NOx). The potential for a project to result in a cumulatively considerable net increase in criteria air pollutants, which may contribute to an existing or projected air quality violation, is 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, air 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 average of 10 tons per year (or 54 pounds per day).[68] 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.

Although this regulation applies to new or modified stationary sources, land use development projects result in ROG and NOX emissions as a result of increases in vehicle trips, architectural coating, and construction activities. Therefore, the above thresholds can be applied to the construction and operational phases of land use projects, and those projects that 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 ROG and NOx emissions. Due to the temporary nature of construction activities, only the average daily thresholds are applicable to construction phase emissions.

Particulate Matter (PM_{10} and $PM_{2.5}$).[69] The air district has not established an offset limit for $PM_{2.5}$. However, the emissions limit in the federal New Source Review for stationary sources in nonattainment areas is an appropriate significance threshold. For PM_{10} and $PM_{2.5}$, the emissions limit under New Source Review is 15 tons per year (82 pounds per day) and 10 tons per year (54 pounds per day), respectively. These emissions limits represent levels below which a source is not expected to have an impact on air quality.[70] Similar to ozone precursor thresholds identified above, land use development projects typically result in particulate matter emissions as a result of increases in vehicle trips, space heating and natural gas combustion, landscape maintenance, and construction activities. Therefore, the above thresholds can be applied to the construction and operational phases of a land use project. Again, because construction activities are temporary in nature, only the average daily thresholds are applicable to construction-phase emissions.

Other Criteria Air Pollutants. Regional concentrations of CO in the Bay Area have not exceeded the state standards in the past 11 years, and SO_2 concentrations have never exceeded the standards. The primary source of CO emissions from development projects is vehicle traffic.

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68 Bay Area Air Quality Management District, Revised Draft Options and Justification Report, California Environmental Quality Act Thresholds of Significance, October 2009, p. 17.

69 PM_{10} is often termed "coarse" particulate matter and is made of particulates that are 10 microns in diameter or smaller. $PM_{2.5}$, termed "fine" particulate matter, is composed of particles that are 2.5 microns or less in diameter.

70 Bay Area Air Quality Management District, Revised Draft Options and Justification Report, California Environmental Quality Act Thresholds of Significance, October 2009, p. 16.

Construction-related SO_2 emissions represent a negligible portion of the total basin-wide emissions, and construction-related CO emissions represent less than five percent of the Bay Area total basin-wide CO emissions. As discussed previously, the Bay Area is in attainment for both CO and SO_2. Furthermore, the air district has demonstrated, based on modeling, that to exceed the California ambient air quality standard of 9.0 ppm (parts per million) (8-hour average) or 20.0 ppm (1-hour average) for CO, project traffic in addition to existing traffic would need to exceed 44,000 vehicles per hour at affected intersections (or 24,000 vehicles per hour where vertical and/or horizontal mixing is limited). Therefore, given the Bay Area's attainment status and the limited CO and SO_2 emissions, development projects would not result in a cumulatively considerable net increase in CO or SO_2 emissions and their quantitative analysis is not required.

Local Health Risks and Hazards

In addition to criteria air pollutants, individual projects may emit toxic air contaminants. Toxic air contaminants collectively refer to a diverse group of air pollutants that are capable of causing chronic (i.e., of long-duration) and acute (i.e., severe but short-term) adverse effects to human health, including carcinogenic effects. Human health effects of toxic air contaminants include birth defects, neurological damage, cancer, and mortality. There are hundreds of different types of toxic air contaminants with varying degrees of toxicity. Individual toxic air contaminants vary greatly in the health risk they present; at a given level of exposure, one toxic air contaminant may pose a hazard that is many times greater than another.

Unlike criteria air pollutants, toxic air contaminants do not have ambient air quality standards but are regulated by the air district using a risk-based approach to determine which sources and pollutants to control as well as the degree of control. A health risk assessment is an analysis in which human health exposure to toxic substances is estimated and considered together with information regarding the toxic potency of the substances, to provide quantitative estimates of health risks.[71]

Air pollution does not affect every individual in the population in the same way, and some groups are more sensitive to adverse health effects than others. Land uses such as residences, schools, children's day care centers, hospitals, and nursing and convalescent homes are considered to be the most sensitive to poor air quality because the population groups associated with these uses have increased susceptibility to respiratory distress or, as in the case of residential receptors, their exposure time is greater than that for other land uses. Therefore, these groups are referred to as sensitive receptors. Exposure assessment guidance typically assumes that residences would be exposed to air pollution 24 hours per day, seven days a week, for 30 years.[72] Therefore, assessments of air pollutant exposure to residents typically result in the greatest adverse health outcomes of all population groups. As discussed in the Noise section, the closest sensitive (residential) receptors are located at 75 Folsom Street (approximately 200 feet to the west of the project site).

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71 In general, a health risk assessment is required if the air district concludes that projected emissions of a specific air toxic compound from a proposed new or modified source suggest a potential public health risk. The applicant 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 toxic air contaminants.

72 California Office of Environmental Health Hazard Assessment, *Air Toxics Hot Spot Program Risk Assessment Guidelines*, February 2015, pp. 4-44, 8-6.

Exposure to fine particulate matter ($PM_{2.5}$) are strongly associated with mortality, respiratory diseases, and lung development in children, and other endpoints such as hospitalization for cardiopulmonary disease.[73] In addition to $PM_{2.5}$, diesel particulate matter is also of concern. The California Air Resources Board identified diesel particulate matter as a toxic air contaminant in 1998, primarily based on evidence demonstrating cancer effects in humans.[74] The estimated cancer risk from exposure to diesel exhaust is much higher than the risk associated with any other toxic air contaminant routinely measured in the region.

In an effort to identify areas of San Francisco most adversely affected by sources of toxic air contaminants, San Francisco partnered with the air district to conduct a citywide health risk assessment based on an inventory and assessment of air pollution and exposures from mobile, stationary, and area sources within San Francisco. Areas with poor air quality, termed the "Air Pollutant Exposure Zone," were identified based on health-protective criteria that consider estimated cancer risk, exposures to fine particulate matter, proximity to freeways, and locations with particularly vulnerable populations. A portion of the project site, Pier 22½, is located within the Air Pollutant Exposure Zone.

Excess Cancer Risk. The Air Pollution Exposure Zone includes areas where modeled cancer risk exceeds 100 incidents per million persons exposed. This criterion is based on U.S. Environmental Protection Agency guidance for conducting air toxic analyses and making risk management decisions at the facility and community-scale level.[75] As described by the air district, the U.S. Environmental Protection Agency considers a cancer risk of 100 per million to be within the "acceptable" range of cancer risk. Furthermore, in the 1989 preamble to the benzene National Emissions Standards for Hazardous Air Pollutants rulemaking,[76] the U.S. Environmental Protection Agency 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.[77] A review of the Planning Department's air quality model shows that the project site is in an area where the cancer risk exceeds 100 per million, with values within 1,000 feet ranging from 45 to 555 per million and from 109 to 183 per million within 100 feet.

Fine Particulate Matter. U.S. Environmental Protection Agency staff's 2011 review of the federal $PM_{2.5}$ standard concluded that the then current federal annual $PM_{2.5}$ standard of 15 $\mu g/m^3$ (micrograms per cubic meter) should be revised to a level within the range of 13 to 11 $\mu g/m^3$,

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73 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.

74 California Air Resources Board, Fact Sheet: "The Toxic Air Contaminant Identification Process: Toxic Air Contaminant Emissions from Diesel-fueled Engines," October 1998.

75 Bay Area Air Quality Management District, Revised Draft Options and Justification Report, California Environmental Quality Act Thresholds of Significance, October 2009, p. 67.

76 54 Federal Register 38044, September 14, 1989.

77 Bay Area Air Quality Management District, *Clean Air Plan*, May 2017, p. D-43.

with evidence strongly supporting a standard within the range of 12 to 11 μg/m^3.[78] The Air Pollutant Exposure Zone for San Francisco is based on the health protective $PM_{2.5}$ standard of 11 μg/m^3, as supported by the U.S. Environmental Protection Agency's assessment, although lowered to 10 μg/m^3 to account for uncertainty in accurately predicting air pollutant concentrations using emissions modeling programs. A review of the Planning Department's Air Quality Model shows that the project site is in an area where the concentration of fine particulate matter exceeds 10 μg/m^3, with values within 1,000 feet ranging from 8.5 to 10.4 μg/m^3 and from 8.8 to 9.7 μg/m^3 within 100 feet.

Proximity to Freeways. According to the California Air Resources Board, studies have shown an association between the proximity of sensitive land uses to freeways and a variety of respiratory symptoms, asthma exacerbations, and decreases in lung function in children. Siting sensitive uses in close proximity to freeways increases both exposure to air pollution and the potential for adverse health effects. As evidence shows that sensitive uses in an area within a 500-foot buffer of any freeway are at an increased health risk from air pollution,[79] parcels that are within 500 feet of freeways are included in the Air Pollutant Exposure Zone. The project site is within 500 feet of Interstate 80 as it crosses The Embarcadero on the Bay Bridge.

Health Vulnerable Locations. Based on the air district's evaluation of health vulnerability in the Bay Area, those zip codes (94102, 94103, 94105, 94124, and 94130) in the worst quintile of Bay Area health vulnerability scores as a result of air pollution-related causes were afforded additional protection by lowering the standards for identifying parcels in the Air Pollutant Exposure Zone to: 1) an excess cancer risk greater than 90 per one million persons exposed; and/or 2) $PM_{2.5}$ concentrations in excess of 9 μg/m^3.[80] The project site is within zip code 94105 and is therefore in a health vulnerable location.

The above citywide health risk modeling was also used as the basis in approving amendments to the San Francisco Building and Health codes, referred to as the Enhanced Ventilation Required for Urban Infill Sensitive Use Developments or Health Code, article 38 (ordinance 224-14, effective December 8, 2014). The purpose of article 38 is to protect the public health and welfare by establishing an Air Pollutant Exposure Zone and imposing an enhanced ventilation requirement for all urban infill sensitive use development within the Air Pollutant Exposure Zone. In addition, projects within the Air Pollutant Exposure Zone require special consideration to determine whether the project's activities would add a substantial amount of emissions to areas already adversely affected by poor air quality.

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78 U.S. Environmental Protection Agency, *Policy Assessment for the Review of the Particulate Matter National Ambient Air Quality Standards*. "Particulate Matter Policy Assessment." April 2011. Available from *https://www3.epa.gov/ttn/naaqs/standards/pm/data/20110419pmpafinal.pdf*. Accessed July 16, 2018.

79 California Air Resources Board, Air Quality and Land Use Handbook: A Community Health Perspective, April 2005. Available from *http://www.arb.ca.gov/ch/landuse.htm*. Accessed July 10, 2018.

80 San Francisco Planning Department and San Francisco Department of Public Health, 2014 Air Pollutant Exposure Zone Map (Memo and Map), April 9, 2014. These documents are part of San Francisco Board of Supervisors File No. 14806, Ordinance No. 224-14; Amendment to Health Code article 38.

Impact Discussion

Project-related air quality impacts fall into two categories: short-term impacts from construction and long-term impacts from project operation. The following addresses air quality impacts related to the construction and operation of the proposed project.

Construction Air Quality Impacts

The following addresses construction-related air quality impacts resulting from the proposed project. As indicated by the construction schedule provided in Table 1, above, the proposed project (excluding construction of the barge in China) would require construction activities for approximately 21 months. For the purposes of the environmental analysis, it is assumed the project construction would take place starting at the beginning of June 2019 and be completed by March 2021 (approximately 500 workdays). Approximately 180 days of that period would include construction of the warm shell on the barge deck at Pier 1, Treasure Island (approximately 2.5 miles from Pier 22½).

Impact AQ-1. The proposed project's construction activities would generate fugitive dust and criteria air pollutants, but would not 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. (Less than Significant)

Construction activities (short-term) typically result in emissions of ozone precursors and PM in the form of dust (fugitive dust) and exhaust (e.g., vehicle and equipment tailpipe emissions). Emissions of ozone precursors and PM are primarily a result of the combustion of fuel from on-road and off-road vehicles and equipment. However, ROGs are also emitted from activities that involve painting, other types of architectural coatings, or asphalt paving.

The proposed project would include in-water construction at Pier 1, Treasure Island, and both in-water and land-based construction at Pier 22½. At Treasure Island, construction would begin in June 2019 and end in March 2020, with active construction occurring over a period of 10 months. At Pier 22½, construction would begin in June 2019 and end in March 2021, with active construction occurring over a period of about 21 months. During the proposed project's construction period, construction activities would have the potential to result in emissions of fugitive dust and criteria air pollutants, discussed as follows.

Fugitive Dust

Project-related demolition, excavation, grading, and other construction activities may cause wind-blown dust that could contribute particulate matter into the local atmosphere. Depending on exposure, adverse health effects can occur due to this particulate matter in general and also due to specific contaminants, such as lead or asbestos, that may be constituents of soil. Although there are federal standards for air pollutants and implementation of state and regional air quality control plans, air pollutants continue to have impacts on human health throughout the country. California has found that particulate matter exposure can cause health effects at lower levels than national standards. The current health burden of particulate matter demands that, where possible, public agencies take feasible actions to reduce sources of particulate matter exposure. According to the California Air Resources Board, reducing $PM_{2.5}$ concentrations to state and

federal standards of 12 μg/m3 in the San Francisco Bay Area would prevent between 200 and 1,300 premature deaths.[81]

In response to California Air Resources Board guidance, the San Francisco Board of Supervisors approved the Construction Dust Control Ordinance (ordinance 176-08, effective July 30, 2008) with the intent of reducing the quantity of dust generated during site preparation, demolition, and construction work in order to protect the health of the general public and of on-site workers, minimize public nuisance complaints, and to avoid orders to stop work by the Port's Building Permit Group.

The Construction Dust Control 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 Port. The Director of the Port's Building Permit Group may waive this requirement for activities on sites less than 0.5 acre that are unlikely to result in any visible wind-blown dust.

Construction at Pier 1, Treasure Island and potential laydown activity at Pier 26 would not generate fugitive dust, as work at these locations would not entail demolition or sil disturbance. Construction at Pier 22½ has the potential to generate low levels of fugitive dust during construction of the marginal wharf and installation of utilities that would serve the fire boat facility. (Additional finishing work on the fire boat facility itself would take place inside the structure and would not result in fugitive dust.) The closest sensitive receptor is at 75 Folsom Street, about 200 feet south of the project site. In compliance with the Construction Dust Control Ordinance, the project sponsor and the contractor responsible for construction activities at the project site would be required to control construction dust on the site. Dust suppression activities may include watering all active construction areas sufficiently to prevent dust from becoming airborne, with increased watering frequency potentially required whenever wind speeds exceed 15 miles per hour. During demolition activities, contractors would be required to wet sweep or vacuum the streets, sidewalks, paths, and intersections where work is in progress at the end of the workday. Inactive stockpiles (where no disturbance occurs for more than seven days) greater than 10 cubic yards or 500 square feet of excavated material, backfill material, import material, gravel, sand, road base, and soil would be covered with a 10 mil (0.01 inch) polyethylene plastic (or equivalent) tarp, braced down, or use other equivalent soil stabilization techniques. San Francisco ordinance 175-91 restricts the use of potable water for soil compaction and dust control activities undertaken in conjunction with any construction or demolition project occurring within the boundaries of San Francisco, unless permission is obtained from the San Francisco Public Utilities Commission. Non-potable water must be used for soil compaction and dust control activities during project construction and demolition. The San Francisco Public Utilities Commission operates a recycled water truck-fill station at the Southeast Water Pollution Control Plant that provides recycled water for these activities at no charge.

81 California Air Resources Board, Methodology for Estimating Premature Deaths Associated with Long-term Exposure to Fine Airborne Particulate Matter in California, Staff Report, Table 4c, October 24, 2008.

Criteria Air Pollutants

As discussed above, construction activities would result in emissions of criteria air pollutants from the use of off- and on-road vehicles and equipment. To assist lead agencies in determining whether short-term construction-related air pollutant emissions require further analysis as to whether the project may exceed the criteria air pollutant significance thresholds shown in Table 10, above, the air district, in its CEQA Air Quality Guidelines (May 2017), developed screening criteria. If a proposed project meets the screening criteria, then construction of the project would result in less-than-significant criteria air pollutant impacts. A project that exceeds the screening criteria may require a detailed air quality assessment to determine whether criteria air pollutant emissions would exceed significance thresholds. The CEQA Air Quality Guidelines note that the screening levels are generally representative of new development on greenfield[82] sites without any form of mitigation measures taken into consideration. In addition, the screening criteria do not account for project design features, attributes, or local development requirements that could also result in lower emissions.

As stated in the project description, the proposed project involves finishing of the barge warm shell at Pier 1, Treasure Island, demolition of the north and south finger piers (including the shed on the north finger pier), construction of the marginal wharf and access ramp, towing the barge from Treasure Island to the Pier 22½ project site, and the finishing of the fire boat facility structure on the barge. The air quality guidelines screening criteria do not include a use such as the proposed fire boat facility, so there are no specifically-applicable screening criteria. However, at 16,000-sf, the proposed fire boat facility is considerably smaller in size than the general office building (277,000 sf), a government office building (277,000 sf), and a general light industry complex (259,000 sf) for which construction screening criteria are provided. Therefore, it can be assumed that the construction and operation of the proposed project would not exceed the air district's screening criteria for criteria air pollutant emissions, and quantification of construction-related criteria air pollutant emissions is not required. The proposed project's construction activities therefore would result in a less-than-significant criteria air pollutant impact.

Impact AQ-2: The proposed project's construction activities would generate toxic air contaminants, including diesel particulate matter, but would not expose sensitive receptors to substantial pollutant concentrations. (Less than Significant)

With regard to construction emissions, off-road equipment (which includes construction-related equipment) is a large contributor to diesel particulate matter emissions in California, although since 2007, the California air board has found the emissions to be substantially lower than previously expected.[83]

Newer and more refined emission inventories have substantially lowered the estimates of diesel particulate matter (DPM) emissions from off-road equipment such that off-road equipment is

82 A greenfield site refers to agricultural or forest land or an undeveloped site earmarked for commercial, residential, or industrial projects.

83 ARB, Staff Report: Initial Statement of Reasons for Proposed Rulemaking, Proposed Amendments to the Regulation for In-Use Off-Road Diesel-Fueled Fleets and the Off-Road Large Spark-Ignition Fleet Requirements, p.1 and p. 13 (Figure 4), October 2010.

now considered the sixth largest source of diesel particulate matter emissions in California.[84] For example, revised PM emission estimates for the year 2010, which diesel particulate matter is a major component of total PM, have decreased by 83 percent from previous 2010 emissions estimates for the air basin.[85] Approximately half of the reduction in emissions can be attributed to the economic recession and half to updated methodologies used to better assess construction emissions.[86]

Additionally, a number of federal and state regulations are requiring cleaner off-road equipment. Specifically, both the USEPA and California air board have set emissions standards for new off-road equipment engines, ranging from Tier 1 to Tier 4. Tier 1 emission standards were phased in between 1996 and 2000 and Tier 4 Interim and Final emission standards for all new engines were phased in between 2008 and 2015. To meet the Tier 4 emission standards, engine manufacturers will be required to produce new engines with advanced emission-control technologies. Although the full benefits of these regulations will not be realized for several years, the EPA estimates that by implementing the federal Tier 4 standards, NO_x and PM emissions will be reduced by more than 90 percent.[87]

In addition, construction activities do not lend themselves to analysis of long-term health risks because of their temporary and variable nature. As explained in the air district's CEQA Air Quality Guidelines:

> "Due to the variable nature of construction activity, the generation of TAC emissions in most cases would be temporary, especially considering the short amount of time such equipment is typically within an influential distance that would result in the exposure of sensitive receptors to substantial concentrations. Concentrations of mobile-source diesel PM emissions are typically reduced by 70 percent at a distance of approximately 500 feet (California Air Resources Board 2005). In addition, current models and methodologies for conducting health risk assessments are associated with longer-term exposure periods of 9, 40, and 70 years, which do not correlate well with the temporary and highly variable nature of construction activities. This results in difficulties with producing accurate estimates of health risk."[88]

Therefore, project-level analyses of construction activities tend to overestimate long-term health risks. However, within the Air Pollutant Exposure Zone, as discussed above, additional construction activity may adversely affect populations that are already at a higher risk for adverse long-term health risks from existing sources of air pollution.

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84 ARB, Staff Report: Initial Statement of Reasons for Proposed Rulemaking, Proposed Amendments to the Regulation for In-Use Off-Road Diesel-Fueled Fleets and the Off-Road Large Spark-Ignition Fleet Requirements, October 2010.

85 ARB, "In-Use Off-Road Equipment, 2011 Inventory Model," Query accessed online, April 2, 2012, http://www.arb.ca.gov/msei/categories.htm#inuse_or_category.

86 ARB, Staff Report: Initial Statement of Reasons for Proposed Rulemaking, Proposed Amendments to the Regulation for In-Use Off-Road Diesel-Fueled Fleets and the Off-Road Large Spark-Ignition Fleet Requirements, October 2010.

87 USEPA, "Clean Air Nonroad Diesel Rule: Fact Sheet," May 2004.

88 Bay Area Air Quality Management District, *CEQA Air Quality Guidelines*, pp. 6-8, May 2011.

Treasure Island is not within the Air Pollutant Exposure Zone described above. Construction of the warm shell, as described in the project description, would not involve heavy equipment besides a single crane. Furthermore, there are no sensitive receptors within 1,000 feet of the Pier 1 site. Therefore, construction at Pier 1 on Treasure Island would not be expected to expose sensitive receptors to substantial amounts of toxic air contaminants.

As discussed above, the Pier 22½ project site is in an Air Pollution Exposure Zone. The closest sensitive land uses near Pier 22½ are the residences at 75 Folsom Street, about 200 feet to the south. The proposed project would require construction activities at Pier 22½ for approximately 11 months. Certain project construction activities, such as pile driving, would result in short-term emissions of diesel particulate matter and other toxic air contaminants. The proposed project is subject to the Clean Construction Ordinance, which requires the use of Tier 2 or higher engines with the most effective Verified Diesel Emission Control Strategy (VDECS), prohibits portable diesel engines in most cases, restricts equipment idling to two minutes, and requires contractors to properly maintain and tune their equipment in accordance with manufacturer specifications. The ordinance also requires the preparation of a Construction Emissions Minimization Plan and the monitoring of construction emissions from the start of construction. While emission reductions from limiting idling, educating workers and the public and properly maintaining equipment are difficult to quantify, other measures in the Clean Construction Ordinance, specifically the requirement for equipment with Tier 2 engines and Level 3 VDECS can reduce construction emissions by 89 to 94 percent compared to equipment with engines meeting no emission standards and without a VDECS. Emissions reductions from the combination of Tier 2 equipment with level 3 VDECS is almost equivalent to requiring only equipment with Tier 4 Final engines. Therefore, with compliance with the Clean Construction Ordinance construction emissions impacts on nearby sensitive receptors would be less than significant and no mitigation would be required.

Operational Air Quality Impacts

Impact AQ-3: During project operations, the proposed project would result in emissions of criteria air pollutants, but not 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. (Less than Significant)

Operation of the proposed project would generate criteria pollutant emissions associated with fire boat operations, on-site area sources (i.e., natural gas combustion for cooking, space and water heating), energy usage, and testing of a backup diesel generator. However, none of these operational activities and their criteria air pollutant emissions are expected change substantially from those of existing operations. As noted in the project description, two fire boats are currently berthed at Pier 22½, with the third berthed about 600 feet to the east at Pier 26. Fire boat operations, including testing, crew training, and non-emergency use, would not change with the proposed facility. The proposed project would be built to LEED standards, and the use of natural gas for cooking, space and water heating is expected to be more fuel-efficient than those current uses in Firehouse 35. Similarly, the use of the emergency generator would not change with operation of the proposed project. The air district limit to testing of emergency generators would remain the same as the current 50 hours per year.

As discussed above in Impact AQ-1, the air district, in its CEQA Air Quality Guidelines (May 2017), has developed screening criteria to determine whether a project requires an analysis of

project-generated criteria air pollutants. If all the screening criteria are met by a proposed project, then the lead agency or applicant does not need to perform a detailed air quality assessment. The proposed 16,000-sf fire boat facility is considerably smaller than the operational screening criteria for a general office building (346,000 sf), a government office building (61,000 sf), and a general light industry complex (541,000 sf). Therefore, a detailed air quality assessment is not required. For these reasons, the proposed project's operation would result in a less-than-significant impact related to criteria air pollutants.

Impact AQ-4: During project operations, the proposed project would generate toxic air contaminants, including diesel particulate matter, but would not expose sensitive receptors to substantial air pollutant concentrations. (Less than Significant with Mitigation)

The Pier 22½ site is located within the Air Pollutant Exposure Zone. Sensitive (residential) receptors are located about 200 feet to the south at 75 Folsom Street. Health effects of project operational emissions were assessed qualitatively based on projected emissions, locations of sensitive receptors, and meteorological conditions in the project vicinity.[89] The proposed project's operational emissions would not change substantially from current operations. Further, operational emissions would occur over water, about 200 feet from the nearest sensitive (residential) receptor. A negligible increase in vehicle trips would be expected with the proposed project.[90]

The proposed project would also include a backup emergency generator at Pier 22½. Emergency generators are regulated by the air district through their New Source Review (Regulation 2, Rule 5) permitting process. The project sponsor would be required to obtain applicable permits to operate an emergency generator from the air district. Although emergency generators are intended only to be used in periods of power outages, monthly testing of the generator would be required. Air district limits testing to no more than 50 hours per year. Additionally, as part of the permitting process, the air district limits the excess cancer risk from any facility to no more than ten per one million population and requires any source that would result in an excess cancer risk greater than one per one million population to install Best Available Control Technology for Toxics. However, because the project site is located in an area that already experiences poor air quality, the proposed emergency back-up generator has the potential to expose sensitive receptors to substantial concentrations of diesel emissions, a known toxic air contaminant, which could result in a significant air quality impact. Mitigation Measure M-AQ-4, Best Available Control Technology for Diesel Generators at Pier 22½, would be implemented to reduce the project's impacts to a less-than-significant level.

> **Mitigation Measure M-AQ-4: Best Available Control Technology for Diesel Generators at Pier 22½**
>
> The project sponsor shall ensure that the backup diesel generator meets or exceeds one of the following emission standards for particulate matter: 1) Tier 4-certified engine; or 2) Tier 2- or Tier 3-certified engine that is equipped with a California Air Resources Board Level 3 Verified Diesel Emissions Control Strategy. A non-verified diesel emission

89 Baseline Environmental Consulting, Air Quality Technical Report Fire Station 35 Project, San Francisco California, December 13, 2017.

90 The air district considers roads with less than 10,000 vehicles per day to be "minor, low-impact" sources that do not pose a significant health impact even in combination with other nearby sources and recommends that those sources be excluded from the environmental analysis.

> control strategy may be used if the filter has the same particulate matter reduction as the identical California Air Resources Board-verified model and if the Bay Area Air Quality Management District approves of its use. The project sponsor shall submit documentation of compliance with the Bay Area Air Quality Management District New Source Review permitting process (Regulation 2, Rule 2, and Regulation 2, Rule 5) and the emission standard requirement of this mitigation measure to the Planning Department for review and approval prior to issuance of a permit for a backup diesel generator from any City agency.

Implementation of this measure would reduce emissions by 89 to 94 percent compared to equipment with engines that do not meet any emission standards and without a Verified Diesel Emissions Control Strategy. Therefore, although the proposed project would add a new source of toxic air contaminants within an area that already experiences poor air quality, implementation of **Mitigation Measure M-AQ-4, Best Available Control Technology for Diesel Generators at Pier 22½**, would reduce this impact to a less-than-significant level.

Impact AQ-5: The proposed project would not conflict with, or obstruct implementation of, the 2017 Clean Air Plan. (Less than Significant)

The most recently adopted air quality plan for the air basin is the 2017 Clean Air Plan, which provides a road map that demonstrates how the San Francisco Bay Area will achieve compliance with the state ozone standards as expeditiously as practicable and how the region will reduce the transport of ozone and ozone precursors to neighboring air basins. In determining consistency with the plan, this analysis considers whether the project would: 1) support the primary goals of the plan; 2) include applicable control measures from the plan; and 3) avoid disrupting or hindering implementation of control measures identified in the plan.

The primary goals of the plan are to: 1) protect air quality and health at the regional and local scale; 2) eliminate disparities among Bay Area communities in cancer health risk from toxic air contaminants; and 3) protect the climate by reducing greenhouse gas emissions. To meet the primary goals, the plan recommends specific control measures and actions. These control measures are grouped into various categories and include stationary and area source measures, mobile source measures, transportation control measures, land use measures, and energy and climate measures. The plan recognizes that to a great extent, community design dictates individual travel mode, and that a key long-term control strategy to reduce emissions of criteria pollutants, air toxics, and greenhouse gases from motor vehicles is to channel future Bay Area growth into vibrant urban communities where goods and services are close at hand, and people have a range of viable transportation options. To this end, the plan includes 85 control measures aimed at reducing air pollution in the air basin.

The measures most applicable to the proposed project are transportation control measures and energy and climate control measures. The proposed project would not result in an increase in vehicle trips. The proposed project's impact with respect to greenhouse gases are discussed in Section E.8, Greenhouse Gas Emissions, which demonstrates that the proposed project would comply with the applicable provisions of the City's Greenhouse Gas Reduction Strategy.

Examples of a project that could cause the disruption or delay of 2017 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 parking requirements. The proposed project involves the replacement of an inadequate fire boat facility with a new, floating fire boat facility. Mechanical,

electrical and plumbing systems would all be updated according to current applicable codes. It would not preclude the extension of a transit line or a bike path or any other transit improvement, and thus would not disrupt or hinder implementation of control measures identified in the 2017 Clean Air Plan. Therefore, the proposed project would include applicable control measures identified in the 2017 Clean Air Plan to meet the 2017 Clean Air Plan's primary goals.

For these reasons, the proposed project would not interfere with implementation of the 2017 Clean Air Plan, and because the proposed project would be consistent with the applicable air quality plan that demonstrates how the region will improve ambient air quality and achieve the state and federal ambient air quality standards, this impact would be 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)

Typical odor sources of concern include wastewater treatment plants, sanitary landfills, transfer stations, composting facilities, petroleum refineries, asphalt batch plants, chemical manufacturing facilities, fiberglass manufacturing facilities, auto body shops, rendering plants, and coffee roasting facilities. Odors in the vicinity of both Pier 22½ and Pier 1, Treasure Island are typical of the San Francisco waterfront: a marine odor that varies somewhat with the tides. In general, odors dissipate along the waterfront because of the prevailing westerly winds frequently present there. During construction, diesel exhaust from construction equipment would generate some odors. However, construction-related odors would be temporary and would not persist upon project completion. During operation, odors would mainly come from diesel powered fire boat engines. However, these odors would not be substantially different from current conditions as no changes are proposed to their operation. Therefore, odor impacts would be less than significant and no mitigation measures are required.

Cumulative Air Quality Impacts

Impact C-AQ: The proposed project, in combination with past, present, and reasonably foreseeable future development in the project area would contribute to cumulative air quality impacts. (Less than Significant with Mitigation)

Regional air pollution is by its nature largely a cumulative impact. Emissions from past, present, and future projects contribute to the region's adverse air quality on a cumulative basis. No single project by itself would be sufficient in size to result in regional nonattainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulative adverse air quality impacts.[91] The project-level thresholds for criteria air pollutants are based on levels 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. Therefore, because the proposed project's construction (Impact AQ-1) and operational (Impact AQ-3) emissions would not exceed the project-level thresholds for criteria air pollutants, the proposed project would not result in a cumulatively considerable contribution to regional air quality impacts.

The project site is located in an area that already experiences poor air quality. The proposed project would add temporary emissions of diesel particulate matter during construction and would add new ferry trips, vehicle trips, and an emergency generator within an area already

[91] Bay Area Air Quality Management District, *CEQA Air Quality Guidelines*, p. 2-1, May 2011

adversely affected by air quality which has the potential to contribute to cumulative air quality impacts. However, the proposed project would be subject to the Clean Construction Ordinance, whereby emissions reductions from the combination of Tier 2 equipment with level 3 VDECS would be almost equivalent to requiring only equipment with Tier 4 final engines, thereby reducing construction period emissions by up to 90 percent. In addition, **Mitigation Measure M-AQ-4, Best Available Control Technology for Diesel Generators at Pier 22½**, which requires best available control technology to limit emissions from the project's emergency back-up generator, would ensure that the proposed project would not expose sensitive receptors to substantial pollutant concentrations during operations. Therefore, the proposed project would not contribute considerably to cumulative air quality impacts.

Topics:	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*	*Not Applicable*
8. GREENHOUSE GAS EMISSIONS. Would the project:					
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐	☐
b) Conflict with any applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐	☐

Greenhouse gas emissions and global climate change represent cumulative impacts. Greenhouse gas emissions cumulatively contribute to the significant adverse environmental impacts of global climate change. No single project could generate enough greenhouse gas emissions to noticeably change the global average temperature; instead, the combination of greenhouse gas emissions from past, present, and future projects have contributed and will continue to contribute to global climate change and its associated environmental impacts. The Bay Area Air Quality Management District has prepared guidelines and methodologies for analyzing greenhouse gases. These guidelines are consistent with CEQA Guidelines Sections 15064.4 and 15183.5, which address the analysis and determination of significant impacts from a proposed project's greenhouse gas emissions. CEQA Guidelines Section 15064.4 allows lead agencies to rely on a qualitative analysis to describe greenhouse gas emissions resulting from a project. CEQA Guidelines Section 15183.5 allows for public agencies to analyze and mitigate greenhouse gas emissions as part of a larger plan for the reduction of greenhouse gases and describes the required contents of such a plan. Accordingly, in compliance with the CEQA guidelines San Francisco has prepared Strategies to Address Greenhouse Gas Emissions in San Francisco,[92] a comprehensive assessment of policies, programs, and ordinances that collectively represent San Francisco's qualified greenhouse gas reduction strategy. These greenhouse gas reduction actions have resulted in a 28 percent

92 San Francisco Planning Department, Strategies to Address Greenhouse Gas Emissions in San Francisco, 2017. Available from http://sfplanning.org/strategies-address-greenhouse-gas-emissions.

reduction in greenhouse gas emissions in 2015 compared to 1990 levels,[93] exceeding the year 2020 reduction goals outlined in the air district's 2017 Clean Air Plan, Executive Order S-3-05, and Assembly Bill 32 (also known as the Global Warming Solutions Act).[94]

The Port of San Francisco prepared a Climate Action Plan[95] for fiscal year 2012-2013. The plan focuses on reducing greenhouse gas emissions from internal port operations and does not include prescriptive tenant measures. However, the Port's Green Building Standards Code[96] includes green building practices designed to reduce the greenhouse gas emissions in the City and County of San Francisco to a level 25 percent below 1990 levels by the year 2017, as stated in Board of Supervisors Resolution No. 158-02 and San Francisco Environment Code Chapter 9.

The City has met the state and region's 2020 greenhouse gas reduction targets and San Francisco's greenhouse gas reduction goals are consistent with, or more aggressive than, the long-term goals established under order S-3-05[97,98], order B-30-15,[99,100,101] and Senate Bill 32,[102,103] and the 2017 Clean Air Plan. Therefore, proposed projects that are consistent with the City's

93 San Francisco Department of the Environment, San Francisco's Carbon Footprint. Available from https://sfenvironment.org/carbonfootprint, accessed July 19, 2017.

94 Executive Order S-3-05, Assembly Bill 32, and the air district's 2017 Clean Air Plan (continuing the trajectory set in the 2010 Clean Air Plan) set a target of reducing greenhouse gas emissions to below 1990 levels by year 2020.

95 Port of San Francisco, Climate Action Plan Fiscal Year 2012-2013. Available from http://sfport.com/sites/default/files/Planning/Docs/Port%202014_DepCAP_FINAL_0.pdf.

96 Port of San Francisco, Green Building Standards Code, approved 2016, updated 2017. Available from http://sfport.com/sites/default/files/Business/Docs/Permit%20Services/2016%20Port%20Building%20Codes/2016%20Port%20Green%20Building%20Code-Revised%20May%202017-Publish.pdf.

97 Office of the Governor, Executive Order S-3-05, June 1, 2005, accessed March 16, 2016. Available from *http://www.pcl.org/projects/2008symposium/proceedings/Coatsworth12.pdf*. accessed March 16, 2016.

98 Executive Order S-3-05 sets forth a series of target dates by which statewide emissions of greenhouse gases need to be progressively reduced, as follows: by 2010, reduce greenhouse gas emissions to 2000 levels (approximately 457 million metric tons of carbon dioxide equivalents [MTCO2E]); by 2020, reduce emissions to 1990 levels (approximately 427 million MTCO2E); and by 2050 reduce emissions to 80 percent below 1990 levels (approximately 85 million MTCO2E). Because of the differential heat absorption potential of various greenhouse gases, greenhouse gas emissions are frequently measured in "carbon dioxide-equivalents," which present a weighted average based on each gas's heat absorption (or "global warming") potential.

99 Office of the Governor, Executive Order B-30-15, April 29, 2015, accessed March 3, 2016. Available from https://www.gov.ca.gov/news.php?id=18938.

100 Executive Order B-30-15, issued on April 29, 2015, sets forth a target of reducing greenhouse gas emissions to 40 percent below 1990 levels by 2030 (estimated at 2.9 million MTCO2E).

101 San Francisco's greenhouse gas reduction goals are codified in Section 902 of the Environment Code and include: i) by 2008, determine City greenhouse gas emissions for year 1990; ii) by 2017, reduce greenhouse gas emissions by 25 percent below 1990 levels; iii) by 2025, reduce greenhouse gas emissions by 40 percent below 1990 levels; and iv) by 2050, reduce greenhouse gas emissions by 80 percent below 1990 levels.

102 Senate Bill 32 amends California Health and Safety Code Division 25.5 (also known as the California Global Warming Solutions Act of 2006) by adding Section 38566, which directs that statewide greenhouse gas emissions to be reduced by 40 percent below 1990 levels by 2030.

103 Senate Bill 32 was paired with Assembly Bill 197, which would modify the structure of the State Air Resources Board; institute requirements for the disclosure of greenhouse gas emissions, criteria

greenhouse gas reduction strategy would be consistent with the aforementioned greenhouse gas reduction goals, would not conflict with these plans or result in significant greenhouse gas emissions, and would therefore not exceed San Francisco's applicable greenhouse gas threshold of significance.

The following analysis of the proposed project's impact on climate change focuses on the proposed project's contribution to cumulatively significant greenhouse gas emissions. Because no individual project could emit greenhouse gases at a level that could result in a significant impact on the global climate, this analysis is in a cumulative context, and this section does not include an individual project-specific impact statement.

Impact C-GG-1: The proposed project would generate greenhouse gas emissions, but not at levels that would result in a significant impact on the environment or conflict with any policy, plan, or regulation adopted for the purpose of reducing greenhouse gas emissions. (Less than Significant)

Individual projects contribute to the cumulative effects of climate change by directly or indirectly emitting greenhouse gases during construction and operational phases. Direct operational emissions include greenhouse gas emissions from new vehicle trips and area sources (natural gas combustion). Indirect emissions include emissions from electricity providers; energy required to pump, treat, and convey water; and emissions associated with waste removal, disposal, and landfill operations.

Construction activities would result in temporary increases in greenhouse gas emissions. However, the proposed project would not intensify the use of the site. As discussed in the Project Description, the new fire boat facility would operate under the same procedures and schedules as the existing fire boat facility, with a minor increase in the number of Fire Department personnel. Training regimes that require use of the fire boats would not change. As noted in the Air Quality section, area sources such as air and water heating that emit greenhouse gases would be upgraded with the proposed facility and more efficient than the existing systems in Fire Station 35. As such, these utilities would emit fewer greenhouse gases than at present.

The proposed project would be subject to regulations adopted to reduce greenhouse gas emissions as identified in the greenhouse gas reduction strategy. As discussed below, compliance with the applicable regulations would reduce the project's greenhouse gas emissions related to transportation, energy use, waste disposal, wood burning, and use of refrigerants. Compliance with the City's Commuter Benefits Program, Emergency Ride Home Program, transportation management programs, and bicycle parking requirements would reduce the proposed project's transportation-related emissions. These regulations reduce greenhouse gas emissions from single-occupancy vehicles by promoting the use of alternative transportation modes with zero or lower greenhouse gas emissions on a per capita basis.

The proposed project would be required to comply with the energy efficiency requirements of the Port's Green Building Code and the City's Environment Code, Stormwater Management Ordinance, Water Conservation and Irrigation ordinances, which would promote energy and water efficiency, thereby reducing the proposed project's energy-related greenhouse gas

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pollutants, and toxic air contaminants; and establish requirements for the review and adoption of rules, regulations, and measures for the reduction of greenhouse gas emissions.

emissions.[104] Additionally, the proposed project would be required to meet the renewable energy criteria of the Green Building Code, further reducing its energy-related greenhouse gas emissions.

The proposed project's waste-related emissions would be reduced through compliance with the City's Recycling and Composting Ordinance, Construction and Demolition Debris Recovery Ordinance, and Green Building Code requirements. These regulations reduce the amount of materials sent to a landfill, reducing greenhouse gases emitted by landfill operations. These regulations also promote reuse of materials, conserving their embodied energy[105] and reducing the energy required to produce new materials. Thus, the proposed project components at Pier 22½ were determined to be consistent with San Francisco's greenhouse gas reduction strategy.[106]

The project sponsor is required to comply with these regulations, which have proven effective, as San Francisco's greenhouse gas emissions have measurably decreased when compared to 1990 emissions levels, demonstrating that the City has met and exceeded Executive Order S-3-05, Assembly Bill 32, and the 2017 Clean Air Plan greenhouse gas reduction goals for the year 2020. Furthermore, the City has met its 2017 goal of reducing greenhouse gas emissions to 25 percent below 1990 levels by 2017. Other existing regulations, such as those implemented through Assembly Bill 32, will continue to reduce projects' contribution to climate change. In addition, San Francisco's local greenhouse gas reduction targets are consistent with the long-term greenhouse gas reduction goals of Executive Order S-3-05, Executive Order B-30-15, Assembly Bill 32, Senate Bill 32 and the 2017 Clean Air Plan. Therefore, because the proposed project elements in San Francisco are consistent with the City's greenhouse gas reduction strategy, it is also consistent with the greenhouse gas reduction goals of Executive Order S-3-05, Executive Order B-30-15, Assembly Bill 32, Senate Bill 32 and the 2017 Clean Air Plan, would not conflict with these plans, and would therefore not exceed San Francisco's applicable greenhouse gas threshold of significance.

As such, the proposed project would result in less-than-significant impacts with respect to greenhouse gas emissions. No mitigation measures are necessary.

Topics:		*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*	*Not Applicable*
9.	**WIND AND SHADOW. Would the project:**					
a)	Alter wind in a manner that substantially affects public areas?	☐	☐	☒	☐	☐
b)	Create new shadow in a manner that substantially affects outdoor recreation facilities or other public areas?	☐	☐	☒	☐	☐

104 Compliance with water conservation measures reduces the energy (and greenhouse gas emissions) required to convey, pump, and treat water required for the proposed project.

105 Embodied energy is the total energy required for the extraction, processing, manufacture, and delivery of building materials to the building site.

106 San Francisco Planning Department, Greenhouse Gas Analysis: Compliance Checklist for Fire Station 35 Project, January 2, 2018.

Impact WS-1: The proposed project would not alter wind in a manner that substantially affects public areas. (Less than Significant)

The proposed project would install a new float in the bay, immediately offshore of the existing Pier 22½, to support a new two-story (36-foot-tall) fire boat facility structure. The landward end of the new float would be positioned about 45 feet from the bayward end of Pier 22½, and the float would extend eastward into the bay from this point for a distance of approximately 180 feet. The new fire boat house structure would be approximately the same height as existing Fire Station 35, which is adjacent to the west of the new building site.

Because of its relatively low height, and its offshore location—with the landward end of the structure more than 110 feet from the closest public areas along The Embarcadero—the new structure would be expected to have little or no effect on wind patterns in the vicinity of the site. Other project elements, such as the construction of the marginal wharf to replace the existing south parking lot, and the installation of access ramps and informational signs, would not be expected to affect wind patterns due to their low height. For these reasons, impacts from altering wind in a manner that substantially affects public areas would be less than significant.

Impact WS-2: The proposed project would not create new shadow in a manner that substantially affects outdoor recreation facilities or other public areas. (Less than Significant)

As noted above, the proposed project would include construction of a new 36-foot-tall building. Due to its offshore location, and the fact that the equally tall Fire Station 35 is located between the new structure's location and the public areas along the shore, the project would not create new shadow that would negatively affect the use and enjoyment of the outdoor public areas along The Embarcadero.[107] Although the new structure would cast new shadow on the adjacent bay waters, which are used by the boating public, private boaters would not be permitted to dock at Pier 22½, and their use of the adjacent waters would be transitory at most. For these reasons, project impacts in relation to creation of new shadows in a manner that substantially affects public areas would be less than significant.

Impact C-WS: The proposed project, in combination with other past, present, and reasonably foreseeable projects, would not result in cumulatively considerable impacts related to wind and shadow. (Less than Significant)

Wind and shadow effects are localized. The geographic scope of potential cumulative wind and shadow impacts of a project on public areas is limited to public areas in the vicinity of the project site. Projects that do not include building construction would have no potential to contribute to cumulative wind or shadow impacts. Of the identified cumulative projects (Table 2, above) that could contribute to cumulative environmental effects of the proposed project, the closest do not propose construction of buildings. The cumulative projects that would include building construction are too distant from the project site to affect wind patterns or cast shadows in the public areas along The Embarcadero, the only public areas in proximity to the project site. Therefore, the proposed project, in combination with other reasonably foreseeable projects, would not result in significant cumulative wind and shadow impacts.

107 Preliminary shadow fan generated by Environmental Planning staff, March 23, 2018. On file at Environmental Planning, case no. 2012.0893ENV

Topics:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Not Applicable
10. RECREATION.					
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facilities would occur or be accelerated?	☐	☐	☐	☒	☐
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	☐	☐	☒	☐	☐

Impact RE-1: The proposed project would not result in a substantial increase in the use of existing parks and recreational facilities such that the substantial physical deterioration of such facilities would occur. (Less than Significant)

The proposed project would increase the workday population at the project site by three persons. These persons, like the rest of the fire crew, would be on-duty while at the project site, but potentially could use local recreational facilities during their breaks. Any such use of local recreational facilities by fire crews would represent a small increment of the overall use of such facilities, and would not be expected to result in their deterioration. Therefore, the impact of the proposed project with respect to increased use of existing parks and recreational facilities and consequential deterioration of such facilities would be less than significant.

Impact RE-2: The proposed project includes new recreational facilities but would not require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment. (Less than Significant)

A 1,600-sf portion of the marginal wharf would be designed for passive use as a new overlook and public access deck. This public facility use would entail a small amount of construction and expansion of recreational facilities along The Embarcadero pedestrian esplanade. The impact of this small amount of construction, which is incidental to the project overall, would be less than significant.

Impact C-RE: The proposed project, in combination with other past, present, or reasonably foreseeable projects, would result in less-than-significant impacts to recreational resources. (Less than Significant)

Cumulative development in the project vicinity would result in some intensification of land uses and a small increase in the demand for recreational facilities. As discussed above, the proposed project would not substantially increase use of local park and recreational facilities. It is expected that existing recreational facilities in the area would be able to accommodate the increase in demand for recreational resources generated by nearby cumulative development projects. The proposed project would include a 1,600-sf public viewing platform, which would provide a small

increase to the larger open space resources provided by Herb Caen Way and The Embarcadero's multi-use promenade. For these reasons, the proposed project would not combine with past, present, and reasonably foreseeable future projects in the project vicinity to create a significant cumulative impact on recreational facilities or resources, and the impact of the project would not be cumulatively considerable.

Topics:	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*	*Not Applicable*
11. UTILITIES AND SERVICE SYSTEMS. Would the project:					
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☒	☐	☐
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒	☐
c) 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?	☐	☐	☐	☐	☒
d) Have sufficient water supply available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☐	☐	☒
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☒	☐	☐
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☐	☐	☒
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☐	☐	☒

Impact UT-1: The proposed project would not exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board and would not result in a determination by the wastewater treatment provider that serves the project site that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments. (Less than Significant)

The City of San Francisco operates a combined wastewater system, which collects and treats both sewage and graywater, and stormwater runoff (collectively, "wastewater"). Under existing site operations, wastewater generated by Fire Station 35, is collected and piped to the San Francisco

Public Utilities Commission (SFPUC) combined sewer system. Stormwater runoff from impervious exterior surfaces at Pier 22½ drains by overland flow to The Embarcadero, where it is captured in storm drains on the street, or to the bay.

Wastewater in the combined sewer system in the west side of the city (where Pier 22½ is located) is conveyed to wastewater treatment facilities—the Southeast Plant, and/or the North Point Wet Weather facility. The Southeast plant operates continuously, while the North Point Facility operates only during wet weather, when the volume of wastewater increases due to stormwater input. Treated effluent from the Southeast Plant and the North Point facility is discharged into the bay via outfalls along the waterfront. Treated solids from the Southeast Plant become biosolids, which are hauled offsite for land application. During prolonged storm events resulting in combined wastewater volumes that exceed the system's storage and secondary treatment capacity, wastewater in excess of storage capacity is discharged to the bay after more-limited primary treatment.

Existing wastewater facilities at Pier 22½ serve group housing at Fire Station 35, and maintenance and boat operational facilities on the north finger pier. The proposed project would relocate the group housing facilities to the new fire boat facility on the float and would increase the daily population at the site by three persons. Sewage and graywater would be generated at the new fire boat facility at a similar rate to existing generation associated with Fire Station 35, while sewage and wastewater generation at Fire Station 35 would be reduced by the relocation of group housing and other operational facilities to the new fire boat facility. Wastewater hookups that are provided to the fire boats docked at Pier 22½ would continue to be provided at the steel float in the same manner under the proposed project. The project would result in an increase in sewage and gray water but, based on the project's very small population increase, this increase also would be negligible.

Under existing conditions, stormwater from the impervious surfaces on the pier drains overland to storm drains on The Embarcadero. Stormwater from Pier 22½ and the marginal wharf would continue to drain in this manner under the proposed project. Stormwater runoff from impervious surfaces on the steel float would receive primary treatment through filters on the dock and then would drain to the bay, rather than to the City's waste water treatment system.

The project thus would be expected to result in a negligible increase in wastewater volumes generated at the project site due to the small increase in gray water and sewage, but would not contribute additional stormwater to the wastewater flow. The increased wastewater generation thus would be negligible. The proposed project therefore would not result in exceedance of the wastewater treatment requirements of the Regional Water Quality Control Board, and the project would not affect the wastewater treatment provider's ability to accommodate wastewater demands in combination with existing commitments. The project's impact with respect to wastewater treatment capacity and requirements would be less than significant.

Impact UT-2: The proposed project would not require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects (No Impact)

The SFPUC's treatment facilities have adequate capacity to serve the growth anticipated in the general plan. The project would increase daily population at the project site by three persons. Given the presence of adequate existing water and wastewater treatment infrastructure, and the proposed project's negligible effect on water demand or wastewater generation, the proposed

project would not require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, and no impact would occur.

Impact UT-3: 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. (No Impact)

The proposed project would result in a decrease in the impervious surface area of Pier 22½, due to the decreased size of the marginal wharf. The new float would not be connected to the pier and would be equipped with a separate stormwater collection and treatment system, as described under HY-4, p. 113, below, such that it would not generate stormwater runoff to the city's wastewater system.

For these reasons, the proposed project would have no impact related to construction of new storm water drainage facilities or expansion of existing facilities.

Impact UT-4: The proposed project would have sufficient water supply available to serve the project from existing entitlements and resources. (Less than Significant)

The SFPUC provides water to the Pier 22½ site and throughout San Francisco. In May 2013, the public utility commission updated citywide water supply and demand projections with the 2013 Water Availability Study for the City and County of San Francisco.[108] Water demand estimates in that study take into account expected growth in water demand as anticipated in San Francisco's General Plan. According to the study, the San Francisco Public Utilities Commission can meet the current and future water demand in years of average or above-average precipitation, and in single-dry-year and multiple-dry-year events.

The proposed project may result in a slight increase in operational demand at the Pier 22½ site as the result of new built space. However, the change in water supply demand would be negligible given the small increase in population at the project site and the water conserving design of the proposed new group housing facilities. Any such increase in demand could be accommodated through existing water supplies. The proposed project therefore would have a less-than-significant impact on existing water supply entitlements and resources.

Impact UT-5: The proposed project would be served by landfills with sufficient permitted capacity to accommodate the project's solid waste disposal needs. (Less than Significant)

Solid waste collection and disposal services in San Francisco, including at Pier 22½, are provided by Recology San Francisco. Currently, solid waste that cannot be recycled, composted, or reused is disposed of at Recology's Hay Road Landfill in Vacaville.

As determined by the California Department of Resources Recycling and Recovery, there is an estimated 44 years of remaining landfill space serving the Bay Area region projected through a business-as-usual scenario using the current rate of disposal. Although the department does not provide estimates on a regional basis, there is estimated to be 26 years of remaining landfill

[108] San Francisco Public Utilities Commission, *2013 Water Availability Study for the City and County of San Francisco*, May 2013. Available from http://www.sfwater.org/modules/showdocument.aspx?documentid=4168. Accessed July 10, 2018.

capacity for the state under a "High Disposal Scenario" or "Economic Boom Scenario," and 67 years of capacity under a "Low Disposal Scenario" or "Meets 75 Percent Goal Scenario."[109]

While the proposed project operations may slightly increase solid waste generation above existing levels, through disposal of demolished materials and in relation to the increase in built space at the site, the existing landfill has sufficient capacity to accommodate debris generated during demolition and construction, and sufficient capacity to accommodate any small increase in solid waste generation at the pier. Therefore, the project impact on landfill capacity would be less than significant.

Impact UT-6: The proposed project would comply with federal, state, and local statutes and regulations related to solid waste. (Less than Significant)

The proposed project would comply with all applicable state and local statutes and regulations associated with operational and construction-related solid waste at both the Pier 1, Treasure Island and Pier 22½ sites. Proposed project operations at Pier 22½ would be subject to San Francisco's Mandatory Recycling and Composting Ordinance (City Ordinance 100-09), which requires all San Francisco residents and commercial landlords to separate their refuse into recyclables, compostable materials, and trash, thereby minimizing solid waste disposal and maximizing recycling. Construction at Pier 22½ would be subject to the Port's Green Building Code, which requires all construction and demolition debris to be transported to a registered facility that can divert a minimum of 75 percent of the material from landfills. Therefore, the proposed project would comply with federal, state, and local statutes and regulations related to solid waste, and this impact would be less than significant.

Impact C-UT: The proposed project would not make a considerable contribution to any cumulative significant effects related to utilities or service systems. (Less than Significant)

The geographic scope for potential cumulative utilities and service systems impacts consists of the service areas of the regional utility providers in San Francisco. A number of landfills are located within 100 miles that could be used by the cumulative projects listed in Table 2, above. The proposed project would result in less-than-significant impacts on water and wastewater service providers and on landfill capacity. The proposed project, along with other cumulative projects, would incrementally increase demand on utilities and service systems in San Francisco, but not beyond levels anticipated and planned for by public service providers in the service management plan areas. The cumulative projects would dispose of construction debris at available landfills, which would contribute to potential impacts on available landfill capacity. As discussed above under Impact UT-5, there is adequate landfill capacity in the Bay Area region for an estimated 44 years. For these reasons, the proposed project would not combine with past, present, and reasonably foreseeable future projects in the region to create a significant impact on utilities and service systems. The cumulative impact would be less than significant and the project's contribution would not be cumulatively considerable.

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[109] California Department of Resources Recycling and Recovery, *State of Disposal in California*, 2016. Available at: *http://www.calrecycle.ca.gov/publications/Documents/1524/20151524.pdf*. Accessed July 16, 2018.

Topics:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Not Applicable
12. PUBLIC SERVICES.					
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services such as fire protection, police protection, schools, parks, or other public facilities?	☐	☐	☒	☐	☐

Impact PS-1: 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. (No Impact)

Pier 22½ provides terrestrial fire and emergency medical services out of the Fire Station 35 facility, and marine firefighting, rescue and emergency medical operations from the operations center at the pier via the two fire boats docked at Pier 22½ and a third fire boat that is currently docked at Pier 26 but would be permanently relocated to Pier 22½ under the proposed project. As such, the proposed project would provide emergency services and would not result in an increased demand for police protection, schools, or other services or require the construction or alteration of associated government facilities.

The proposed project would provide more modern facilities at the existing pier, to more efficiently serve its existing service population, but would neither increase the demand for police protection, fire protection, schools, parks, or other services, nor be growth inducing.

For these reasons, there would be no impact on public services.

Impact C-PS: The proposed project, combined with past, present, and reasonably foreseeable future projects in the vicinity, would not result in significant physical impacts on the environment associated with the construction or alteration of public service facilities. (Less than Significant)

Cumulative development in the project vicinity would result in an intensification of land uses and a cumulative increase in the demand for fire protection, police protection, school services, and other public services. The Fire Department, the Police Department, the San Francisco Unified School District, and other City agencies have accounted for such growth in providing public services to the residents of San Francisco. Further, for those cumulative projects that may increase the demand for public services in the vicinity of Pier 22½, the City has enacted development impact fees to expand services. In addition, any new facilities needed to serve cumulative demand from new development would be subject to individual CEQA analysis.

The proposed project would not add population to the site and therefore would not increase the demand for public services. While the approximately 12,000-sf increase in building space at the

pier would contribute to the cumulative increase in built spaces requiring fire protection, the contribution represented by this small increase in built spaces would not be cumulatively considerable in the context of Embarcadero development.

For these reasons, the cumulative impacts to public services would be less than significant, and the contribution of the proposed project would not be cumulatively considerable.

Topics:	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*	*Not Applicable*
13. BIOLOGICAL RESOURCES: Would the project:					
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐	☐
b) 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 or U.S. Fish and Wildlife Service?	☐	☒	☐	☐	☐
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☐	☒
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☒	☐	☐	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☒	☐	☐
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☐	☒

Aquatic Biological Resources

Setting

The aquatic biological resources study area includes the in-water footprint of the proposed project, including immediately adjacent marine areas that could be indirectly affected by construction or operations. The Pier 1, Treasure Island site includes a shallow area of the San

Francisco Bay in-between Yerba Buena and Treasure islands, while the Pier 22½ site is located along the thoroughly developed northeastern San Francisco waterfront. The study area related to underwater sound pressure (noise) impacts includes the in-water area in the vicinity of the Pier 22½ site that could be affected by noise during pile driving (in-water construction would not occur at Pier 1, Treasure Island). General habitat information, potentially occurring special-status wildlife species (including species accounts) discussed in this section are presented in the biological resources technical report prepared for the proposed project.[110] Potential underwater sound pressure (noise impacts) resulting from pile driving at Pier 22½ are estimated through bioacoustics noise modeling conducted in the noise and vibration technical memo prepared for the proposed project.[111]

General Habitat Conditions

As discussed in the biological resources report prepared for the proposed project, aquatic habitat at the Pier 22½ study area are representative of intertidal and sub-tidal species assemblages at pier locations throughout the Central Bay. Intertidal habitats provide highly diverse and varied locations for marine flora and fauna and the proximity of Pier 22½ to the Golden Gate and Pacific Ocean provides an intertidal zone inhabited by many coastal as well as estuarine species. The seawall, constructed of rock, soil and rubble faced with rip-rap, provides additional habitat for diverse invertebrate communities because of the increased and protected surface area created by piled rocks.

Subtidal habitat along San Francisco's northeastern waterfront, characterized by piles and riprap, provides habitat for marine algae, invertebrates and fishes, while the bay bottom habitat in the project area is expected to be unconsolidated soft sediment supporting a mix of benthic organisms such as the blackspotted shrimp (Crangon nigromaculata), the bay shrimp (Crangon franciscorum), Dungeness crab (Metacarcinus magister), and the slender rock crab (Cancer gracilis). As noted by the biological resources report[112], these mobile invertebrates provide an important food source for carnivorous fishes, marine mammals, and birds.

Special Aquatic Sites

As stated by the biological resources report, within San Francisco Bay there are many marine communities and habitats that can be considered particularly sensitive to disturbance or possess unique or special ecological value.[113] Additionally, certain waters of the U.S. are considered "special aquatic sites" because they are generally recognized as having unique ecological value. Such sites include sanctuaries and refuges, mudflats, wetlands, vegetated shallows, eelgrass beds, and coral reefs. Special aquatic sites are defined by the USEPA and may be afforded additional consideration in the permit process for a project requiring federal agency approvals or covered under federal regulations. Within Central San Francisco Bay, two sensitive natural communities

[110] Baseline Environmental Consulting, Biological Resources Technical Report, Fire Station 35 Pier 22½ Project, San Francisco, California, January 17, 2018.

[111] Wilson Ihrig, Pier 22½ Fire Station 35 Project Noise and Vibration Technical Memo, March 2018.

[112] Baseline Environmental Consulting, Biological Resources Technical Report, Fire Station 35 Pier 22½ Project, San Francisco, California, January 17, 2018.

[113] San Francisco Bay Subtidal Habitat Goals Project, San Francisco Bay Subtidal Habitat Goals Report – Conservation Planning for the Submerged Areas of the Bay; 50-Year Conservation Plan, available at *http://www.sfbaysubtidal.org/report.html*. Accessed July 10 , 2018.

that are routinely afforded special attention are submerged aquatic vegetation beds, such as eelgrass beds, and native oyster beds.

Eelgrass beds perform multiple functions within an estuarine ecosystem. They are considered a "habitat-forming" species that creates unique biological environments for spawning Pacific herring[114] and serve as nursery grounds for many important Bay fish including pacific herring, halibut, and English sole. They provide substrate for epibenthic algae, invertebrates, and crustaceans and important rearing habitat for invertebrate species such as shrimp (Palaemonetus paludosus) and Dungeness crabs (Cancer magister). Eelgrass beds also provide important foraging areas for waterfowl such as black brandt (Branta bernicla nigricans)[115] and American wigeon (Anas americana). Eelgrass beds have been afforded special management considerations by California Department of Fish and Wildlife, United States Fish and Wildlife Service, National Marine Fisheries Services, United States Environmental Protection Agency, the San Francisco Bay Conservation and Development Commission, and the Golden Gate Audubon Society. As noted by the biological resources report, there are no eelgrass beds reported within the Pier 22½ area. Department of Fish and Wildlife mapping for eelgrass beds does show its presence along the eastern side of Treasure Island, but not in the vicinity of Pier 1.[116]

The Olympia oyster (Ostrea lurida) inhabits brackish water conditions, forming sparse to dense beds in coastal bays and estuaries and in drought conditions will move up into channels and sloughs, dying off when wetter conditions return. Olympia oysters are known to provide high biodiversity habitat because they provide physical habitat structure sought by juvenile fish and crustaceans, worms, and foraging fish and birds.[117] They also stabilize sediment, reduce suspended sediment, and improve light penetrations, thereby improving the physical conditions that encourage the establishment of submerged aquatic vegetation, such as eelgrass beds (Zostera marina). Naturally occurring populations of native oysters can be found throughout San Francisco Bay on natural and artificial hard substrate from Carquinez Strait to the South Bay. Oysters do well subtidally in many man-made habitats such as on marina floats and in tidally restricted ponds, lagoons, and saline lakes. Although thought to be extinct from the Bay since the mid-19th century, native oysters have been observed in various locations in San Francisco Bay since 2000.[118] Their presence in other rocky intertidal, rocky subtidal, and man-made habitats in Central San Francisco Bay, including Alcatraz and Angel Islands, is expected. Based on the experience and observations of Port workers and personnel, native oysters have been reported inhabiting the intertidal and subtidal rocks composing the riprap shoreline and on wharf pilings of the Port of San Francisco.

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114 National Oceanic and Atmospheric Administration, *Report on the Subtidal Habitats and Associated Biological Taxa in San Francisco Bay*, prepared by National Oceanic and Atmospheric Administration National Marine Fisheries Service. Santa Rosa, CA, June 2007.

115 Merkel, K.W. and Associates. 2005. Baywide eelgrass (Zostera marina L.) inventory in San Francisco Bay: Eelgrass bed characteristics and predictive eelgrass model. Report prepared for the State of California Department of Transportation in cooperation with National Oceanic and Atmospheric Administration Fisheries.

116 California Department of Fish and Wildlife GIS database accessed at: https://map.dfg.ca.gov/bios/?al=ds1503

117 Ibid.

118 Ibid.

Essential Fish Habitat

The Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) (16 U.S.C. Sections 1801–1884) of 1976 as amended in 1996 and reauthorized in 2007 applies to fisheries resources and fishing activities in federal waters that extend to 200 miles offshore. Conservation and management of U.S. fisheries, development of domestic fisheries, and phasing out of foreign fishing activities are the main objectives of the legislation.

The Magnuson-Stevens Act defines "essential fish habitat" as those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity. The Magnuson-Stevens Act, as amended through 2007, sets forth a number of new mandates for National Oceanic and Atmospheric Administration Fisheries, regional fishery management councils, and federal action agencies to identify essential fish habitat and to protect important marine and anadromous fish habitat. The Magnuson-Stevens Act provided the National Oceanic and Atmospheric Administration Marine Fisheries with legislative authority to regulate fisheries in the U.S. in the area between 3 miles and 200 miles offshore and established eight regional fishery management councils that manage the harvest of the fish and shellfish resources in these waters. The councils, with assistance from the National Oceanic and Atmospheric Administration Marine Fisheries, are required to develop and implement Fishery Management Plans, which include the delineation of essential fish habitat, for all managed species. A Fish Management Plan is a plan, composed of data, analyses, and management measures for a fishery, to achieve specified management goals for a fishery. Essential fish habitat that is identified in a Fish Management Plan applies to all fish species managed by that Fish Management Plan, regardless of whether the species is a protected species or not. Federal agency actions that fund, permit, or carry out activities that may adversely affect essential fish habitat are required under Section 305(b), in conjunction with required Section 7 consultation under Federal Endangered Species Act (FESA), to consult with the National Oceanic and Atmospheric Administration Fisheries regarding potential adverse effects of their actions on essential fish habitat and to respond in writing to the National Oceanic and Atmospheric Administration Fisheries' recommendations.

The Central Bay region of the San Francisco Bay (including the Pier 1, Treasure Island and Pier 22½ sites), is designated as essential habitat for fish managed under three Fish Management Plans and as a Habitat Area of Particular Concern under two Fish Management Plans. A total of 20 species of commercially important fish and sharks managed in the Pacific groundfish and coastal pelagics Fish Management Plans use this region of the Bay as either essential fish habitat or habitat area of particular concern. In addition, the Pacific coast salmon Fish Management Plan, which includes Chinook salmon (Oncorhynchus tshawytscha) and coho salmon (Oncorhynchus kisutch), identifies all of the San Francisco Bay as essential fish habitat.[119]

Special Status Species

As stated in the biological resources report, the protected federal and California species presented in Table 11, below, include those for which potential habitat (i.e., general habitat types for breeding or foraging) occur within the general vicinity of the project sites at Pier 1, Treasure Island and Pier 22½ in San Francisco, and can reasonably be expected to be affected by project

[119] National Marine Fisheries Service (now known as NOAA Fisheries) Southwest Region (NMFS SWR). 2001. Fisheries Management Plan Species Distributions in San Francisco, San Pablo and Suisun Bays. Accessed April 10, 2011. http://swr.nmfs.noaa.gov/hcd/loclist.htm

activities. Species for which generally suitable habitat occurs but that were nonetheless determined to have low potential to occur in the project area are also listed. This table provides the rationale for each potential-to-occur determination.

Table 11. Special-Status Fish and Marine Mammal Species That May Occur Within the Project Area

Common Name (*Scientific Name)*	Listing Status		General Habitat	Occurrence within Project Area
	FESA/ MMPA	CESA		
Sacramento River winter-run Chinook salmon *(Oncorhynchus tshawytscha)*	FE/-	SE	Ocean waters, Sacramento and San Joaquin Rivers; Migrates from ocean through San Francisco Bay to freshwater spawning grounds	P
Central Valley spring-run Chinook salmon *(O. tshawytscha)*	FT/-	ST	Ocean waters, Sacramento and San Joaquin Rivers; Migrates from ocean through San Francisco Bay to freshwater spawning grounds	P
Central Valley steelhead trout *(O. Mykiss)*	FT/-	-	Ocean waters, Sacramento and San Joaquin Rivers; Migrates from ocean through San Francisco Bay to freshwater spawning grounds	P
Central California coast steelhead trout *(O. mykiss)*	FT/-	SSC	Ocean waters, Sacramento and San Joaquin Rivers; Migrates from Ocean through San Francisco Bay to freshwater spawning grounds	P
Green Sturgeon (*Acipenser medirostris)*	FT/-	SSC	Marine and estuarine environments and Sacramento River; All of San Francisco Bay	C
Longfin smelt (*Spirinchus thaleichthys)*	FC/-	ST	Throughout the nearshore coastal waters and open waters of San Francisco Bay including the river channels and sloughs of the Delta	C
Pacific harbor seal (*Phoca vitulina)*	-/FP	-	Coastal waters, and throughout Bay	C
California sea lion (*Zalophus californianus)*	-/FP	-	Coastal waters, and throughout Bay	C
Harbor porpoise (*Phocoena phocoena)*	-/FP	-	An inshore species inhabiting shallow, coastal waters and occasional large rivers, including San Francisco Bay	C

Species observed or with a moderate to high potential to occur in the project area are discussed in further detail below.

Fish Species

Sacramento winter-run salmon. The state and federally endangered winter chinook, cut off from their native spawning grounds by Shasta Dam, now spawn as a single population in the main

stem of the Sacramento River below the dam, where cool water released from the reservoir provides naturalistic habitat.[120] Spawning occurs in early summer, and juveniles spend 5-10 months in the upper river before migrating to the Delta, where they spend an "indeterminate time" before migrating to the ocean.[121] Summer temperatures in the Delta and Suisun Bay are not salubrious for salmon, and therefore the migration through San Francisco Bay likely occurs in late winter and spring. Winter-run Chinook salmon critical habitat includes all waters of San Francisco Bay north of the Bay Bridge.

Central Valley spring-run chinook salmon. The state and federally threatened Central Valley spring chinook currently exist as three independent naturally spawning populations in the upper Sacramento system plus a hatchery population on the Feather River (Lindley et al. 2007).[122] Until on-going genetic work is complete, the timing of these fish entering San Francisco Bay will remain poorly known, although the migration probably occurs before summer temperatures arrive in the Delta and Suisun Bay. Critical habitat for the Central Valley spring-run Chinook salmon includes all waters of San Francisco Bay north of the Bay Bridge.

Central California Coast steelhead. The Central California Coast steelhead, listed as federally threatened and as a state species of concern, migrate to freshwater in winter and spawn in winter and spring, then return to the ocean if they are in good health and not isolated by low water.[123] This species exists mainly as resident trout populations above dams and flood control projects.[124] However, some steelhead runs do occur in streams tributary to San Francisco Bay.

California Central Valley Steelhead. The federally threatened Central Valley steelhead are considered winter steelhead. There is essentially a single continuous run of steelhead in the upper Sacramento River from July through May, with peaks in September and February; spawning begins in late December and can extend into April.[125] Critical habitat for Central Valley steelhead includes the waters of San Francisco Bay north of the Bay Bridge.

Green Sturgeon (Acipenser medirostris). Green sturgeon, listed as federally threatened and as a state species of concern, is the most widely distributed member and the most marine-oriented of the sturgeon family, entering rivers only to spawn. Sub-adult and adult green sturgeon occupy a diversity of depths within bays and estuaries for feeding and migration. Critical habitat for the green sturgeon includes the Sacramento River, the Sacramento-San Joaquin Delta, and Suisun, San Pablo and San Francisco Bays. Green sturgeon potentially may be present throughout the project area at any time of the year.

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120 Moyle, P. B., 2002. Inland Fishes of California. University of California Press, Berkeley, California; Lindley, S. T. et al. 2007. Framework for Assessing Viability of Threatened and Endangered Chinook Salmon and Steelhead in The Sacramento-San Joaquin Basin.San Francisco Estuary and Watershed Science, 5(1).

121 Moyle, P. B., 2002. Inland Fishes of California. University of California Press, Berkeley, California.

122 Lindley, S. T. et al. 2007. Framework for Assessing Viability of Threatened and Endangered Chinook Salmon and Steelhead in The Sacramento-San Joaquin Basin.San Francisco Estuary and Watershed Science, 5(1).

123 Ibid.

124 Ibid.

125 McEwan, D., and T.A. Jackson. 1996. Steelhead Restoration and Management Plan for California. California Department of Fish and Game, Inland Fisheries Division. Sacramento, California.

Longfin Smelt (Spirinchus thaleichthys). The longfin smelt is a small, slender-bodied pelagic fish listed as threatened under the California Endangered Species Act and is a candidate species for listing under the Federal Endangered Species Act. In April and May, juveniles are believed to migrate downstream to San Pablo Bay; juvenile longfin smelt reside throughout the Bay (e.g., San Pablo and Central Bay) during the late spring, summer and fall. They are primarily present in Central San Francisco Bay during the late summer months before migrating upstream in fall and winter. Longfin smelt have the potential to be present throughout the project area at any time of the year.

Pacific Herring (Culpea pallasii). Pacific herring is not a protected species under the federal or state endangered species acts nor a managed fish species under the Magnuson-Stevens Act. Pacific herring does, however, represent a species of special concern for San Francisco Bay since it is an important member of the San Francisco Bay marine ecosystem, providing an important food source for marine mammals, sea birds, and fish. Pacific herring constitutes a state fishery that is within an urban estuary, making it particularly susceptible to anthropogenic impacts. Pacific herring are known to occur and spawn along the San Francisco waterfront and within the project area.

Other Aquatic Species

Dungeness Crab (Cancer magister). Dungeness crab is not a protected species under the federal or state endangered species acts nor a managed fish species under the Magnuson-Stevens Act. They are however, a valuable commercial and recreational species for the Bay Area. The San Francisco Bay estuary plays a key role in the growth and development of juvenile crabs.[126] Juveniles are most abundant in San Pablo Bay with abundance decreasing further south. Adults seek out structurally complex habitats rather than exposed mud and sand to possibly deter predation. However, almost any substrate can support this crab.[127]

Marine Birds

Common marine birds observed in the developed areas of the Central Bay include California brown pelican (Pelecanus occidentalis), western gull, surf scoter (Melanitta perspicillata), and wintering species such as western grebe (Aechmophorus occidentalis). Bird species of conservation concern that use portions of the San Francisco waterfront include double-crested cormorant and Caspian tern (Sterna caspia).

The California Fish and Game Code protects raptors, most native migratory birds, and breeding birds that would occur at the project site and/or nest in the surrounding vicinity. The project would comply with California Fish and Game Code section 3500 et al., including sections 3503, 3503.5, 3511, and 3513, which provide that it is unlawful to take or possess any migratory nongame bird, or needlessly destroy nests of birds except as otherwise outlined in the code. CDFW staff enforce the code by requiring that projects incorporate measures to avoid and

126 California Department of Fish and Wildlife (CDFW), Annual Status of the Fisheries Report through 2011. https://www.wildlife.ca.gov/Conservation/Marine/Status#28027677-status-of-the-fisheries-report-through-2011

127 Goals Project. 2000. Baylands Ecosystem Species and Community Profiles: Life Histories and Environmental Requirements of Key Plants, Fish and Wildlife. Prepared by the San Francisco Bay Area Wetlands Ecosystem Goals Project. P.R. Olofson, ed. San Francisco Bay Regional Water Quality Control Board, Oakland, California.

minimize impacts to nesting birds if the project would include removal of trees or structures that are potential nesting sites during the nesting or breeding season. Additionally, CDFW staff may require notifications if any active nests are identified, including consultation with CDFW and establishment of construction-free buffer zones.

Marine Mammals

As stated by the biological resources report, few species of marine mammals are found within San Francisco Bay; only Pacific harbor seals (Phoca vitulina richardsi), California sea lions (Zalophus californianus), and harbor porpoises (Phocoena phocoena) are sighted year-round. These species are the most likely to be present within the project area and are all federally protected species.

Impact BI-1: The proposed project could have a substantial adverse effect, either directly or through habitat modifications, on species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service. (Less than Significant with Mitigation)

The potential for adverse effects through habitat modification, on species identified as a candidate, sensitive, or special-status species is more likely during construction than operation of the proposed project. Construction activities, in particular dredging and pile driving, would result in substantial momentary increases in both water and airborne noise and periods of increased turbidity as sediments are stirred up by dredging and pile extraction and installation. Operation of the proposed fire boat facility would not change substantially from current operations and, in any event, mostly involve the coming and going of the fire boats. Therefore, effects from operation of the proposed project would not be substantial.

As discussed in the Project Description, all work at Pier 1, Treasure Island (i.e., construction of the warm shell) would occur over a period of about six months (from June 2019 to May 2020) on top of the steel float. There would be no in-water work and no use of heavy equipment or impact equipment at Pier 1, Treasure Island. At Pier 22½ the in-water work would include dredging, removal of the existing piles supporting the north and south finger piers, and the driving of four new piles for the steel float and five new piles for the steel wharf south of Fire Station 35. Potential impacts to proximate wildlife species include underwater and airborne noise from pile driving, increased turbidity from extraction of existing piers and installation of new piles, and general noise associated with construction of the fire boat facility.

Special-Status Fishes and Marine Mammals During Construction

Construction activities at Pier 1, Treasure Island would occur on top of the steel float over a period of about six months. No pile driving would occur during the proposed project construction activities at Pier 1. During this time there would be some shadowing of the underlying floor of the bay by the steel float, but potential effects to aquatic species would be localized and temporary.

At Pier 22½, dredging is expected to take about 20 days, demolition is expected to take about 20 days; construction of the steel wharf would include about 10 days of pile driving; and the driving of the four steel piles for the float would take four to six days. As discussed above, the occurrence of special-status aquatic species within the project area may occur but would be temporary in nature. If they are locally present during the short duration of activities (up to 16 days of impact

pile driving), pile driving may result in impacts to managed fish species. Impact pile driving would result in the greatest disturbance to aquatic species as vibratory pile drivers work on a different principal than pile-driving hammers and therein produce a different sound profile. Vibratory pile driving or removal works by inducing particle motion to the substrate immediately below and around the pile, causing liquefaction of the immediately adjacent sediment. Liquefaction makes it possible both to drive the pile downward and extract it upward. The noise produced by vibratory drivers driving concrete and steel piles in water range between 165-195 dB (Peak) and 150-180 dB (SEL).[128] These sound levels are typically 10-20 dB lower in intensity relative to the higher, pulse-type noise produced by an impact hammer.

Impact driving of steel piles can produce high-intensity noise within the water column which can result in damage to fish or marine mammal soft tissues, such as gas bladders or eyes (barotraumas) and/or cause the animals to alter swimming, sleeping, or foraging behavior or temporarily abandon foraging habitat. This would constitute harassment.

As reported in the noise and vibration technical report prepared for the proposed project, active pile driving could occur for as much as 6 hours per day to install four 60-inch-diameter piles for the steel float to a depth of approximately 150 feet below mean sea level and four 48-inch-diameter and two 24-inch-diameter piles to a depth of about 110 feet below mean sea level for the steel wharf. Depending on how much resistance is encountered or required, each pile could require anywhere from 100 to 600 strikes each. For its analysis, the noise and vibration technical report assumed a maximum total of 3,000 strikes per day.

Table 12. Summary of Impact Pile Driving Noise Thresholds for Fish*

Peak Noise Level Injury Evaluation	
Injury Threshold (dB)	206 dB
Accumulated Sound level Injury Evaluation	
Injury Thresholds (Cumulative SEL)	Fish ≥ 2g (187 dB); Fish < 2g (183 dB)
Behavioral Effects Evaluation	
NMFS Threshold (RMS)	150 dB
Upper Range of Background Levels	160 dB

* Source: Caltrans, 2015[129]

Scientific investigations on the potential effect of noise on fish indicate that sound levels below 187 dB do not appear to result in any acute physical damage or mortality to fish (barotraumas).[130] Table 12, above, provides a summary of known acute and sub-lethal effects of noise on fish. Noise levels that result in startle responses in steelhead trout and salmon have been documented to occur at sound levels as low as 130 dB at a frequency of 100 Hz and between 180

128 Caltrans. 2009. Technical Guidance for Assessment and Mitigation of the Hydroacoustic Effects of Pile Driving on Fish. Final Report. Prepared for California Department of Transportation by ICF Jones & Stokes and Illingworth and Rodkin, Inc. February 2009.

129 California Department of Transportation, Division of Environmental Analysis, *Technical Guidance for Assessment and Mitigation of the Hydroacoustic Effects of Pile Driving on Fish*, November, 2015. Available at: *http://www.dot.ca.gov/hq/env/bio/files/bio_tech_guidance_hydroacoustic_effects_110215.pdf. Accessed april 16*, 2018.

130 Dalen, J. and G.M. Knutsen. 1986. *Scaring effects of fish and harmful effects on eggs, larvae and fry from offshore seismic explorations*. ICA Associated Symposium on Underwater Acoustics, 16-18 July, Halifax, Canada

and 186 dB in Pacific herring.[131] Any disturbance to ESA listed fish species that results in altered swimming, foraging, movement along a migration corridor, or any other alteration in normal behavior is considered harassment.

The biological resources report notes that the Long Term Management Strategy Plan for maintenance dredging of navigation channels in San Francisco Bay, established in 2001 by the United States Army Corps of Engineers and the Environmental Protection Agency, establishes construction work windows that include time periods when construction activities that have the potential to affect aquatic and terrestrial wildlife habitat and migration activity are allowed, restricted, or prohibited.[132] Different restrictions and requirements are enforced depending on the affected species and time of year. Table 13, below, presents dredging work windows and restrictions for construction along the San Francisco waterfront.

Table 13. Environmental Work Windows for Maintenance Dredging Activities as per Long-Term Management Strategy for San Francisco Bay

Species	Applicable Bay Region/Location	Authorized Work Windows
Steelhead Trout	Central San Francisco Bay, Bay Bridge to Sherman Island	June 1 to November 30
Chinook Salmon, juveniles	Bay Bridge to Sherman Island	June 1 to November 30
Coho Salmon	Waters of Marin County from the Golden Gate Bridge to Richmond-San Rafael Bridge	June 1 to October 31
Pacific Herring	Central San Francisco Bay, Richardson Bay, North and South Bay	March 1 to November 30
Dungeness Crab	North Bay, San Pablo Bay, and shallow berthing areas	July 1 to May 30

To summarize regarding the proposed in-water construction activities at Pier 22½, short-term impacts on special-status fishes and other aquatic biological resources could occur from pile driving, dredging, and other in-water construction activities. Impacts that are typically associated with these activities include turbidity associated with dredging, temporary elevated sound pressure levels associated with pile-driving, short-term loss of benthic habitat and associated benthos, and short-term loss and disruption of potential fishery habitat. As such, in-water construction activities would be restricted to a National Oceanic and Atmospheric Administration approved environmental work window (June 1 – November 30) when special-status aquatic species are least likely to be present in the study area.[133]Implementation of the **Mitigation Measure M-BI-1a** and **M-BI-1b** would ensure that, if special-status aquatic species

131 San Luis and Delta Mendota Water Authority and C.H. Hanson. 1996. *Georgina Slough acoustic barrier applied research project: results of 1994 Phase II field tests*. Interagency Ecological Program for the San Francisco Bay/Delta estuary. Technical Report 44. May 1996

132 United States Army Corps of Engineers and United States Environmental Protection Agency, *Long-Term Management Strategy for the Placement of Dredged Material in the San Francisco Bay Region*, July 2001. Available at: *http://www.spn.usace.army.mil/Portals/68/docs/Dredging/LMTS/entire%20LMTF.pdf*.

133 Ibid.

are present within the project area during in-water construction, the impact on these species would be minimized or avoided and would be less than significant.

The project would not require in-water work during the Pacific herring spawning or hatching season (December 1 – February 28); hence, no avoidance and minimization measures are required for this species.

Mitigation Measure M-BI-1a: Pile Driving

The following avoidance and minimization measures below, developed in accordance with the measures outlined in the 2013 NLAA Programmatic criteria for reduction of project noise effects on sensitive species, would be implemented during pile extraction and pile driving: :

- All pile driving shall be conducted within the established Bay Area environmental work windows between June and November in order to avoid potential impacts to fish species for this area of San Francisco Bay. These windows were promulgated in a programmatic biological opinion (National Marine Fisheries Service and California Department of Fish and Wildlife) for the Long Term Management Strategy program for managing sediment within the San Francisco Bay.
- The Port shall develop a NMFS-approved sound monitoring plan prior to the start of pile driving. This plan shall provide detail on the methods used to monitor and verify sound levels during pile driving activities. The sound monitoring results shall be made available to NMFS.
- Vibratory pile drivers may be used for the installation of the steel pilings. Vibratory pile driving shall be conducted following the US Army Corps of Engineers "Proposed Procedures for Permitting Projects that will Not Adversely Affect Selected Listed Species in California". USFWS and NMFS completed section 7 consultation on this document which establishes general procedures for minimizing impacts to natural resources associated with projects in or adjacent to jurisdictional waters.[134]
- 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.
- During the use of an impact hammer, a bubble curtain or other sound attenuation method may be utilized to reduce sound levels. If NMFS sound level criteria are still exceeded with the use of attenuation methods, the contractor shall revise sound attenuation methods as per the approved sound monitoring plan. A NMFS-approved biological monitor shall be available to conduct surveys before and during impact pile driving as specified by NMFS. The monitor shall inspect the established work zone and adjacent Bay waters and document the following during impact pile-driving:
    - Maintain the safety zones established in the sound monitoring plan around sound source, for the protection of marine mammals in association with sound monitoring station distances.

134 National Oceanic and Atmospheric Administration (NOAA). 2007. Report on the Subtidal Habitats and Associated Biological Taxa in San Francisco Bay. August.

- Halt work activities when a marine mammal enters the Level A[135] safety zone and resume only after the animal has been gone from the area for a minimum of 15 minutes.
- Maintain sound levels below 90 dBA in air when pinnipeds (seals and sea lions) are present.

The implementation of Mitigation Measure BI-1a would reduce the project's potential vibration noise effects on sensitive species species to a less-than-significant level.

Mitigation Measure M-BI-1b: Dredging

The Port shall require the selected contractor to use clamshell dredging equipment and conduct dredging between June 1 and November 30 in accordance with Long Term Management Strategy dredging windows to minimize potential adverse effects on fish and invertebrate species.

The Port shall assess the environmental risk to aquatic resources in developing sediment capping design and mitigate potential impacts based upon regulatory and resource agency review and a RWQCB approved cap design. Dredging for capping shall be conducted between June 1 and November 30 in accordance with Long Term Management Strategy dredging windows to minimize potential adverse effects on fish and invertebrate species. The Port is required to comply with these requirements as conditions of its existing dredging permits, and these or similarly effective conditions would apply for any future dredging permits.

The implementation of this measure would reduce the project's potential dredging effects on fish and invertebrate species to a less-than-significant level.

Terrestrial Mammals

The storage shed on the north finger pier at Pier 22½ may provide habitat to bat species that roost in buildings, potentially including the Townsend's big-eared bat, pallid bat, and big free-tailed bat. Demolition of the finger piers and storage shed could result in direct mortality of special status bats roosting within the project site, if present. San Francisco Public Works has adopted standard construction measures to protect biological resources such as the Townsend's big-eared, pallid, and big free-tailed bats from construction-related effects.[136] These measures are implemented as standard construction-contract specifications in the execution of all Public Works projects where is determined that potential impacts to such biological resources could occur from demolition of structures and general construction-generated noise and vibration. To reduce the potential for impacts to special-status bat species, the following standard construction measures shall be implemented by San Francisco Public Works in their role as manager of the Pier 22½ – Fire Boat Headquarters project:

- The project site, including but not limited to the storage shed on the north finger pier, the undersides of the north and south finger piers and marginal wharf, and the eaves and any other potential resting places for the Townsend's big-eared, pallid, and big free-tailed bats shall be subject to a pre-construction survey by a qualified biologist to determine presence.

135 Defined as any act of pursuit, torment, or annoyance which has the potential to injure a marine mammal or marine mammal stock in the wild.

136 San Francisco Public Works, Standard Construction Measures for Public Works Projects, June 26, 2017.

- Demolition at Pier 22½ shall occur when bats are active, approximately between the periods of March 1 to April 15 and August 15 to October 15; outside of bat maternity roosting season (approximately April 15 – August 15) and outside of months of winter torpor (approximately October 15 – February 28), to the extent feasible.
- If demolition at Pier 22½ occurs during the periods when bats are active is not feasible, a qualified biologist shall survey the project site to identify if active bat roosts being used for maternity or hibernation purposes are present. If so, a no disturbance buffer of 100 feet shall be established around these roost sites until they are determined to be no longer active by the qualified biologist.
- The qualified biologist shall be present during demolition at Pier 22½ if active bat roosts are present. Structures with active roosts shall be disturbed only when no rain is occurring or is forecast to occur for 3 days and when daytime temperatures are at least 50°F.
- Removal of structures containing or suspected to contain active bat roosts shall be dismantled under the supervision of the qualified biologist in the evening and after bats have emerged from the roost to forage. Structures shall be partially dismantled to significantly change the roost conditions, causing bats to abandon and not return to the roost.

Implementation of these San Francisco Public Works standard construction measures would reduce potential impacts on special-status bats to a less-than-significant level by requiring preconstruction surveys and implementing avoidance measures if potential roosting habitat or active roosts are located.

Birds

Special status bird species may be affected by increased noise levels, turbidity, or displacement during dredging and pile driving. Increased turbidity may reduce in-water visibility, which could affect bird foraging. Underwater noise during pile driving is also anticipated to discourage presence of fish or other bird prey species from the project area. Pile driving impacts to bird foraging resulting from increased turbidity and noise would be minimal, localized, and temporary. Additionally, the extent of available foraging habitat in close proximity to the project area is large. Therefore, impacts from pile driving are expected to be less than significant.

Demolition of structures could destroy active bird nests, if present. Construction noise may also disturb nesting birds. These effects would constitute a potentially significant impact. San Francisco Public Works has adopted standard construction measures to protect biological resources such as the special-status bird species protected by federal and state Endangered Species Acts and the state Department of Fish and Game Code.[137] These measures are implemented as standard construction-contract specifications in the execution of all Public Works projects where is determined that potential impacts to such nesting birds and their nests could occur from demolition of structures and general construction-generated noise and vibration. To reduce the potential for impacts to nesting birds and their nests, the following standard

[137] Ibid.

construction measures shall be implemented by San Francisco Public Works in their role as manager of the Pier 22½ – Fire Boat Headquarters project:

- The project site, including but not limited to the storage shed on the north finger pier, the undersides of the north and south finger piers and marginal wharf, and the eaves and any other potential nesting places for the birds shall be subject to a pre-construction survey by a qualified biologist to determine presence.
- At Pier 22½, if it is determined that bird nesting habitat is only present for gulls, surveys shall be conducted actively during construction from April through August during gull nesting season. Any old nests, potential nests, or nests under construction (but not active) shall be removed.
- If active nests are located during the preconstruction bird nesting survey, the wildlife biologist shall evaluate if the schedule of construction activities could affect the active nests and the following measures shall be implemented based on their determination:
    - If construction is not likely to affect the active nest, it may proceed without restriction; however, a biologist shall regularly monitor the nest to confirm there is no adverse effect and may revise their determination at any time during the nesting season. In this case, the following measure would apply.
    - If construction may affect the active nest, the biologist shall establish a no disturbance buffer. Typically, these buffer distances are between 25 feet and 250 feet for passerines and between 300 feet and 500 feet for raptors. These distances may be adjusted depending on the level of surrounding ambient activity (e.g., if the project area is adjacent to a road or active path) and if an obstruction, such as a building, is within line-of-sight between the nest and construction. For bird species that are federally and/or state-listed sensitive species (i.e., fully protected, endangered, threatened, species of special concern), a proposed project representative, supported by the wildlife biologist, shall consult with the U.S. Fish and Wildlife Service and/or California Department of Fish and Wildlife regarding modifications to nest buffers, prohibiting construction within the buffer, modifying construction, and removing or relocating active nests that are found on the site.
- Removing inactive passerine nests may occur at any time. Inactive raptor nests shall not be removed unless approved by the U.S. Fish and Wildlife Service and/or California Department of Fish and Wildlife.
- Removing or relocating active nests shall be coordinated by the project representative with the U.S. Fish and Wildlife Service and/or California Department of Fish and Wildlife, as appropriate, given the nests that are found on site.
- Any birds that begin nesting within the project area and survey buffers amid construction activities are assumed to be habituated to construction-related or

similar noise and disturbance levels and no work exclusion zones shall be established around active nests in these cases.

Implementation of these San Francisco Public Works construction measures would reduce potential impacts to special-status bird species to a less-than-significant level by requiring preconstruction surveys and appropriate avoidance measures should such species be present.

Insects and Plants

There is no suitable habitat for special status insect or plant species at Pier 1, Treasure Island or Pier 22½; therefore, the proposed project would have no impact to either of special status insects or plants.

Summary

Based on the analysis presented above, the proposed project could result in significant impacts, either directly or through habitat modifications, on species identified as candidate, sensitive, or 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. Potential impacts to special status species would be reduced to a less-than-significant level with incorporation of San Francisco Public Works construction measures requiring pre-construction surveys and effective avoidance measures. The project sponsor would be required by San Francisco Public Works to obtain and comply with all required resource agency permit conditions and to implement construction measures at Pier 22½.

Impact BI-2: 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 U.S. Fish and Wildlife Service and/or California Department of Fish and Wildlife. (Less than Significant with Mitigation)

Sensitive natural communities present within the project areas at the Pier 1, Treasure Island and Pier 22½ and the vicinity of the Pier 26 laydown site are limited to aquatic habitats. No riparian habitat or other upland sensitive natural communities would be affected by the proposed project. The proposed project would result in the temporary shading of about 16,600 sf beneath the steel float at Pier 1, Treasure Island and the permanent shading of the same area beneath the new fire boat facility at Pier 22½. There would be no long-term shading impacts at Pier 1 and the long-term shading impacts on aquatic habitats at Pier 22½ would not be substantial, due to the small size of the increased shading area relative to existing overwater structures, the abundance of suitable and similar neighboring habitat in the area, and ongoing disturbance of the area by commercial and recreational activities under existing conditions. Potential construction impacts to aquatic habitats, including turbidity and underwater noise effects, would be short term and less than significant with implementation of **Mitigation Measure M-BI-1a, Pile Driving and Mitigation Measure M-BI-1b, Dredging**, as described in **Impact BI-1**. Therefore, for effects to aquatic habitats classified as essential fish habitat under the Magnuson-Stevens Fishery Conservation and Management Act, including the Coastal Pelagic, Pacific Groundfish, and Pacific Coast Salmon Fishery Management Plans, all impacts from construction and operation of the proposed project would be less than significant.

As discussed above, eelgrass (a special aquatic site) or other submerged aquatic vegetation has not been observed in or near the aquatic footprint of the proposed project at either Pier 1,

Treasure Island or Pier 22½.[138,139,140] Eelgrass (Zostera marina) beds, a sensitive natural habitat, have been observed along the eastern shore of Treasure Island, but outside the proposed project footprint at Pier 1 (see Figure 2, above). The proposed project would include docking at and routine use of this pier, but no new long term permanent construction at Pier 1, and no changes in existing typical uses of the pier or the surrounding waters. Aquatic access to the dock for project purposes would be subject to the same restrictions as other existing ongoing activity (e.g. regulation of the speed of vessels approaching the pier, to minimize seabed and shoreline erosion). The proposed project activities therefore would not have the potential to result in either direct or indirect adverse effects to eelgrass beds.

Impact BI-3: The proposed project would not have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means. (No Impact)

There are no wetlands located within or adjacent to the Pier 21½, the Pier 1, Treasure Island warm shell construction site, or the potential laydown area at Pier 26; therefore, the proposed project would have no impact to wetlands.

Impact BI-4: The proposed project would not interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites. (Less than Significant with Mitigation)

The Pier 1, Treasure Island and Pier 22½ sites both contain aquatic habitat that may support migratory fish or marine mammal species, as well as nesting migratory birds protected by the California Fish and Game Code. As discussed under Impact BI-1, construction of the fire station warm shell at Pier 1, Treasure Island would take place on top of the steel float and impacts to wildlife from noise and other disturbances would be temporary and limited in area. Potential laydown activity at Pier 26 would be confined to the deck of the existing pier and would not be expected to interfere substantially with the movement of any species or impede the use of native wildlife nursery sites. At Pier 22½, the proposed improvements would not create any barriers to movement or migration, and would not permanently affect native wildlife nursery sites. As discussed in Impact BI-1, the north finger pier and the storage shed at Pier 22½ may support nesting bats and/or birds protected by federal and state endangered species acts. With implementation of **Mitigation Measure M-BI-1a, Pile Driving; Mitigation Measure M-BI-1b, Dredging;** to reduce impacts to special status species to a less-than-significant level, significant impacts to fish or marine mammal movement from temporary construction noise would be reduced to a less-than-significant level. No other construction impacts to movement or migration of fish and wildlife species are anticipated. In addition, with incorporation of San Francisco

138 U.S. Army Corps of Engineers, Agreement on Programmatic EFH Conservation Measures for Maintenance Dredging Conducted Under the LTMS Program, June 9, 2011. Available from: http://www.westcoast.fisheries.noaa.gov/publications/habitat/essential_fish_habitat/ltms_efh_full_signed_agreement_final_060911.pdf.

139 San Francisco Bay Subtidal Habitat Goals Project, San Francisco Bay Subtidal Habitat Goals Report, 2010. Available from: http://www.sfbaysubtidal.org/report.html.

140 California Department of Fish and Wildlife, CDFW BIOS Viewer Eelgrass Dataset, last updated May 4, 2016, including San Francisco Bay data from Merkel & Associates (2014).

Public Works adopted construction measures for biological resources, impacts resulting from demolition of existing structures and construction of the proposed project to special-status bat and bird species would be less-than-significant.

Impact BI-5: The proposed project would not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance. (Less than Significant)

The proposed project would not require tree removal and would therefore not conflict with City and County of San Francisco Tree Protection Legislation (including San Francisco Public Works Code Section 8.02-8.11, which requires disclosure and protection of protected trees). There are no other local policies or ordinances for protecting biological resources that are applicable to the project sites at Pier 1, Treasure Island and Pier 22½. Therefore, the proposed project would result in less-than-significant impacts related to potential conflicts with local policies or ordinances protecting biological resources.

Impact BI-6: The proposed project 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. (No Impact)

There are no adopted Habitat Conservation or Natural Community Conservation plans for the City and County of San Francisco. The California Eelgrass Mitigation Policy[141] applies to any activities in California which may adversely affect eelgrass. It requires assessment of the potential for project actions to alter conditions of the physical environment in a manner that would reduce eelgrass habitat distribution or density (e.g., elevated turbidity from the initial implementation or later operations of an action, increased shading, changes to circulation patterns, changes to vessel traffic that lead to greater groundings or wake damage, increased rates of erosion or deposition) and, where potential impacts are identified, development of a mitigation plan to achieve no net loss in eelgrass function. As noted in Impact BI-2, the proposed project would not directly or indirectly affect eelgrass and any vessels operating in the general vicinity of eelgrass beds on Treasure Island would be subject to restrictions for the protection of eelgrass (such as avoidance of and reduction of speed when passing in the vicinity the eelgrass beds) that may be required of other vessels operating at the Pier. The project therefore would not conflict with the California Eelgrass Mitigation Policy. The proposed project would have no impact associated with conflicting with any habitat conservation plans.

Impact C-BI: The proposed project in combination with other past, present or reasonably foreseeable projects, could result in significant impacts to biological resources. (*Less than Significant with Mitigation*)

The geographic context for the analysis of cumulative impacts on biological resources generally encompasses the waters surrounding the project sites and considers the projects listed in Table 2 (pp. 13-14, above). On-going pier maintenance dredging and routine repair and maintenance of Port facilities could result in adverse impacts to biological resources in the area. As is the case for

141 *California Eelgrass Mitigation Policy*, NOAA Fisheries West Coast Region, October 2014. *http://www.westcoast.fisheries.noaa.gov/publications/habitat/california_eelgrass_mitigation/Final%20CEMP%20October%202014/cemp_oct_2014_final.pdf*. Accessed July 16, 2018.

the proposed project, construction and operation of these projects would be required to comply with applicable state and federal regulations protecting special status species, which would reduce the potential for cumulative impacts on biological resources to less than significant.

Without project-specific mitigation, the contribution of the proposed project to significant cumulative biological resources impacts could be considerable, due to the proposed project's potential to cause significant, project-specific impacts on sensitive biological resources. However, implementing **Mitigation Measure M-BI-1a, Pile Driving** and **Mitigation Measure M-BI-1b, Dredging,** in addition to incorporation of San Francisco Public Works construction measures for biological resources, would avoid or substantially reduce the proposed project's effects on special status species. As a result, the proposed project's contribution to cumulative impacts on biological resources would be less than significant and would not be cumulatively considerable.

Topics:	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*	*Not Applicable*
14. GEOLOGY AND SOILS. Would the project:					
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:					
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☒	☐	☐
ii) Strong seismic ground shaking?	☐	☐	☒	☐	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐	☐
iv) Landslides?	☐	☐	☐	☐	☒
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐	☐
c) Be located on geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☒	☐	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☐	☐	☒
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☐	☒

Topics:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Not Applicable
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	☒	☐

The project site is not located on expansive soil; therefore, Initial Study Checklist Criterion E.14(d) is not applicable to the proposed project. The proposed project would connect to the existing sewer collection system and would not use a septic water disposal system or other soils-based alternative disposal system; therefore, Initial Study Checklist Criterion E.14(e) is not applicable to the proposed project.

Impact GE-1: The proposed project would not result in exposure of people and structures to potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, seismic ground-shaking, liquefaction, lateral spreading, or landslides. (Less than Significant)

The Pier 22½ and greater San Francisco waterfront area would experience violent or very strong ground shaking (Modified Mercalli Intensity Unit VIII to IX) in the event of a large earthquake along the San Andreas or Hayward faults (modeled as magnitude 7.5 and 6.9, respectively).[142] The project area has been mapped as a high liquefaction hazard area,[143] with liquefaction likely to be triggered by strong ground shaking. Seismically-induced ground shaking or liquefaction could result in structural damage and possible injury or loss of life. However, a geotechnical study conducted in 1993,[144] which included the portion of Pier 22½ underlying and just south of Fire Station 35 and the rock fill that supports the adjacent sea wall, indicates that liquefaction is unlikely to occur in the stiff to very stiff clays and dense sands that underlie the project site. The geotechnical report also indicated that, based on the available data, the potential for liquefaction of the rock fill slope is low to moderate. Proposed changes to the Pier 22½ marginal wharf involve installation of an access ramp to the fire boat facility and a public viewing area; no changes to Fire Station 35 are proposed aside from moving Fire Department personnel to the new fire boat facility.

As noted in the project description, the main pier under Fire Station 35 was partially retrofitted in 2009 to improve its seismic stability. Although a new geotechnical study was not conducted specifically to inform reinforcement of the marginal wharf and construction of the access bridge, the 1993 geotechnical study included borings at the north end of the marginal wharf that informed the design of the proposed marginal wharf and the associated access way to the new steel float. The proposed fire boat facility would not be expected to be affected by strong seismic shaking or liquefaction as this facility would not include foundations in the soil.

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142 Association of Bay Area Governments, Interactive Future Earthquake Shaking Scenarios Map. Available at: *http://gis.abag.ca.gov/website/Hazards/?hlyr=northSanAndreas.* Accessed March 27, 2018.

143 Area where liquefaction hazards are high are likely to experience strong shaking during a seismic event.

144 Final Report Geotechnical Study, Seismic Safety Evaluation of Fire Station 49- Fire Boat Headquarters, San Francisco, California, prepared by AGS, Inc. for EQE Engineering and Design, July 1, 1993.

Fill materials and bay muds underlie Pier 22½ and may be susceptible to seismically-induced lateral movement of up to 3 inches.[145] This potential for lateral movement is addressed in the design of the marginal wharf and access way with the addition of new pilings inboard of the seawall. The access ramp would be supported by four 48-inch-diameter and two 24-inch-diameter steel piles driven to approximately 110 feet below mean sea level both in the bay and inland of and structurally independent of the historic seawall.

Fill materials and inundated bay muds are not expected to have expansive properties, and damage due to soil expansion therefore is unlikely. The San Francisco waterfront is relatively flat in the vicinity of Pier 22½. Landslides in this area are not likely and the site has not been delineated as within an earthquake-induced landslide zone.

Prior to project approval, the project will require review and consultation with the Port and with the Department of Building Inspection regarding seismic adequacy of project design.

On this basis, substantial adverse effects resulting from seismic hazards at Pier 22½ is low, and their impact is less than significant.

Impact GE-2: The proposed project would not result in substantial loss of topsoil or erosion. (Less than Significant)

As noted under Project Description, a small amount of soil on The Embarcadero would be excavated during utility work. Because the project site is flat and utility construction would involve only minor excavation, construction activities would not result in substantial soil erosion. In addition, the construction contractor would be required to implement best management practices to prevent erosion and discharge of soils into stormwater runoff (see Section E.15, Hydrology and Water Quality). This impact therefore would be less than significant.

Impact GE-3: The proposed project would not be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse. (Less than Significant)

Fill materials and bay muds that underlie the project sites are relatively flat and, for that reason, have a low susceptibility to seismically induced settlement. There is low to moderate potential for the fill slope that supports the outboard edge of the seawall to be affected by seismically induced liquefaction. However, as discussed under Impact GE-1, above, the proposed project would not have foundation elements in in the seawall and, given the small area of temporary disturbance resulting with installation of the piles, the underlying substrate is not expected to become unstable. Therefore, impacts would be less than significant.

Impact GE-4: The proposed project would not indirectly destroy a unique paleontological resource or site or unique geologic feature. (Less than Significant)

Paleontological resources are the fossilized remains of plants and animals, including vertebrates (animals with backbones), invertebrates (e.g., starfish, clams, ammonites, and marine coral), and fossils of microscopic plants and animals (microfossils). The age and abundance of fossils depend on the location, topographic setting, and particular geologic formation in which they are found. Fossil discoveries provide a historical record of past plant and animal life and can assist

[145] Ibid.

geologists in dating rock formations. In addition, fossil discoveries can expand the understanding of the time periods and geographic range of existing and extinct flora or fauna.

The Society for Vertebrate Paleontology has outlined criteria for screening the paleontological potential of rock units and has established assessment and mitigation procedures tailored to accommodating such potential.[146] High- and low-potential rocks are determined by applying the following criteria:

> **High Potential.** Geologic units from which vertebrate or significant invertebrate or plant fossils have been recovered in the past, or rock formations that would be lithologically and temporally suitable for the preservation of fossils. Only invertebrate fossils that provide new information on existing flora or fauna or on the age of a rock unit would be considered significant.
> **Low Potential.** Geologic units that are not known to have produced a substantial body of significant paleontological material, as demonstrated by paleontological literature and prior field surveys, and that are poorly represented in institutional collections.

Although not discussed in the Society for Vertebrate Paleontology standards, artificial fills and soils are materials with little or no potential to contain paleontological resources. While such materials were originally derived from rocks, they have been weathered or reworked such that fossils would not likely be preserved.

The project site is located along the San Francisco Bay waterfront which is flat and has no unique topographic or geologic features. As discussed above, geologic strata at the project site include bay bottom sediments and Bay Mud offshore of the sea wall and rock fill overlying Bay Mud inland of the sea wall. Shale bedrock of the Franciscan complex was encountered beneath these layers at 80 to 94 feet depth. Native sediments may be found under the fill but construction excavation for utility connection on The Embarcadero would be shallow, and would not penetrate the fill to expose such sediments. Pile driving likely would marginally penetrate the shale sediments under the bay mud, but would not expose any such sediments for observation.

No fossil localities have been identified at the project site, and the only project activities that would encounter the Pleistocene-aged upper layered sediments or Franciscan Complex bedrock would be the installation of the piles. Pile installation would involve limited disruption of the underlying geologic units, and would be unlikely to encounter paleontological resources.

Fossil remains would be unlikely in the artificial fill of the project site. Although plant and invertebrate fossil remains have been found in young bay mud, which occurs at variable depths throughout the project site, these fossils are abundant and their occurrence would not be noteworthy. Further, no vertebrate fossils have been identified in the young bay mud in San Francisco. Therefore, the artificial fill and young bay mud are considered to have a low paleontological potential.

Given the low potential to encounter paleontological resources as a result of any of the project activities, impacts related to the destruction of unique paleontological resources would be less than significant. As stated above, there are no unique geologic features at the project site and, as

[146] Society of Vertebrate Paleontology. 1995. Assessment and Mitigation of Adverse Impacts to Nonrenewable Paleontologic Resources: Standard Guidelines. Society of Vertebrate Paleontology News Bulletin 163:22-27.

the project involves minimal disturbance of the substrate, there would be a less-than-significant impact related to the destruction of unique geologic features.

Impact C-GE: The proposed project would not make a considerable contribution to any cumulative significant effects related to geology or soils. (Less than Significant)

The geographic scope of potential geology and soils impacts are generally restricted to the project site and immediate vicinity because geology and soils-related impacts are localized and site-specific. As discussed above, the proposed project would result in less-than-significant impacts related to geology and soils. Nearby cumulative development projects would be subject to the same seismic safety standards and design review procedures as are applicable to the proposed project. Compliance with required seismic safety standards and the design review procedures would ensure that the effects from nearby development projects would also be less than significant. The effects of each project would be restricted to its immediate vicinity.

Impacts on paleontological resources also are site-specific and generally do not combine with impacts of other projects. As discussed above, the proposed project would not affect any unique paleontological resources, and thus would not combine with impacts of any other projects on such resources. For these reasons, the proposed project would not combine with past, present, and reasonably foreseeable future projects in the project vicinity to create a significant cumulative impact related to geology and soils or to unique paleontological resources.

Topics:	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*	*Not Applicable*
15. HYDROLOGY AND WATER QUALITY. Would the project:					
a) Violate any water quality standards or waste discharge requirements?	☐	☐	☒	☐	☐
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☐	☒	☐
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on- or off-site?	☐	☐	☒	☐	☐
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site?	☐	☐	☒	☐	☐

Topics:		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Not Applicable
e)	Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☒	☐	☐
f)	Otherwise substantially degrade water quality?	☐	☐	☒	☐	☐
g)	Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other authoritative flood hazard delineation map?	☐	☐	☒	☐	☐
h)	Place within a 100-year flood hazard area structures that would impede or redirect flood flows?	☐	☐	☒	☐	☐
i)	Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☒	☐	☐
j)	Expose people or structures to a significant risk of loss, injury or death involving inundation by seiche, tsunami, or mudflow?	☐	☐	☒	☐	☐

Impact HY-1: The proposed project would not violate any water quality standards or waste discharge requirements and would not otherwise substantially degrade water quality. (Less than Significant)

Regulatory Setting

The San Francisco Bay is classified as Waters of the United Stated States under the federal Clean Water Act, and is subject to regulation by the San Francisco Bay Regional Water Quality Control Board pursuant to Section 401 of the Clean Water Act. Waters of the United States generally correspond to those waters delineated as federally jurisdictional pursuant to Section 404 of the Clean Water Act. In California, the Porter-Cologne Act is the principal law governing water quality regulation. It establishes a comprehensive program to protect water quality and the beneficial uses of water. The Porter-Cologne Act applies to surface waters, wetlands, and ground water and to both point and nonpoint sources of pollution. All discharges from the City's combined sewer system to San Francisco Bay are operated in compliance with the Federal Clean Water Act and the State Porter-Cologne Water Quality Control Act through the National Pollutant Discharge Elimination System (NPDES) permit for discharges from the "Southeast Water Pollution Control Plant, North Point Wet Weather Facility, Bayside Wet Weather Facilities, and Wastewater Collection System" (referred to as the Bayside NPDES Permit).

Regulatory standards and objectives for water quality in the Bay are established in the Water Quality Control Plan for the San Francisco Bay Basin, commonly referred to as the Basin Plan.[147]

147 San Francisco Bay Regional Water Quality Control Board (RWQCB), *Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan),* May 4, 2017. Available at:

The Basin Plan identifies existing and potential beneficial uses for surface and ground waters and provides numerical and narrative water quality objectives designed to protect those uses.

The open tidal waters of the San Francisco Bay below the highest astronomical tide are subject to regulation under Section 404 of the Clean Water Act. Those waters below the Mean High Water elevation are also regulated under Section 10 of the Rivers and Harbor Act. Under Section 401 of the Clean Water Act, every applicant for a federal permit or license for any activity that may result in a discharge to a water of the United States must obtain a state Water Quality Certification from the RWQCB that the proposed activity will comply with state water quality standards.

Demolition, Dredging and Pile Driving

The proposed project would involve removal of about 75 deteriorated wooden piles and installation (by vibratory and impact pile driving) of four hollow steel guide piles for the new steel float and six steel piles for the marginal wharf at the project site. Pile removal would be accomplished by a pile extractor stationed on a barge anchored adjacent to Pier 22½. The pile driver(s) for piling installation also would operate from a barge anchored offshore of Pier 22½. For pile driving, the majority of installation would be carried out by a vibratory driver, while final pile driving would be carried out by an impact pile driver. Piling removal is anticipated to require approximately 20 working days and piling installation would require approximately 10 days, as shown in Table 1 (p. 7).

Demolition would be followed by dredging of approximately 18,600 cubic yard of bay bottom sediments in the area east of the Pier 22½ main pier, performed from water-side barges using a clamshell bucket. Dredged materials would be placed into scows for transfer to approved disposal sites. Best management practices to avoid or minimize effects to waters would be implemented and detailed in a Dredge Operations Plan submitted to the permitting agencies for approval before dredging begins.

Pile driving and dredging for the proposed project would disturb sediments and may result in temporary localized increases in turbidity, releases of chemicals in the sediment, decreases in dissolved oxygen, and changes to pH in the water column that could locally degrade the water quality in the project vicinity. Turbidity is a condition in which the concentration of particles suspended in the water is increased, making the water appear cloudy. The suspended sediment can potentially lower the concentration of dissolved oxygen in water, increase the salinity of the water, and decrease light penetration into the water. In addition, nutrient loading can occur as a result of resuspension of sediments during dredging. Substantially depressed oxygen levels (i.e., below 5 mg/L) can cause respiratory stress to aquatic life, and concentrations below 3 mg/L can cause mortality. This could, in turn, affect certain beneficial uses and habitat for benthic organisms (bottom dwellers) and sessile organisms (organisms attached to the benthic environment), and result in other effects on other marine species. See also Section E.13, Biological Resources.

However, as discussed in the project description, dredging and debris removal would be performed from barges using a clamshell bucket and would be transferred to an adjacent barge and for disposal at permitted disposal sites. Clamshell dredges remove bottom sediment through

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https://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/planningtmdls/basinplan/web /docs/BP_all_chapters.pdf. Accessed July 16, 2018.

the direct application of mechanical force to dislodge and excavate the material at almost in situ densities (that is, as relatively-intact blocks of sediment). With this technique, suspension of sediment from the ascent of the dredged material is minimized, and suspended sediment descends through the water column to the bottom and is rapidly dispersed by currents and tides, such that turbidity impacts are minimized.

Oxygen levels in the waters immediately around the dredging operation would be slightly reduced by dredging activity for a short period. Tidal flushing would rapidly improve depressed oxygen levels by introducing oxygenated water into the project area. Dredging activities would be scheduled to occur between June and November, specifically to avoid the peak spawning period of herring, a species susceptible to turbidity impacts. Therefore, turbidity associated with dredging would be temporary and would not cause long-term effects.[148] In addition, **Mitigation Measure M-BI-1b: Dredging** would further reduce turbidity by using clamshell dredging equipment and compliance with the Long Term Management Strategy for developing sediment capping. Studies conducted by the San Francisco Estuary Institute have also indicated that there is no risk to the ecosystem due to increased nutrient loading caused by dredging activities[149] and that sediment disruption caused by dredging activities does not pose an environmental risk related to decreased dissolved oxygen concentrations.[150]

In addition, the best management practices discussed in the project description would be implemented and further detailed in a Dredge Operations Plan submitted to the permitting agencies for approval before dredging begins. These best management practices are subject to modification and additions based upon regulatory and resource agency review and include:

- In-water construction activities (i.e., demolition, dredging and pile installation) shall be restricted to the National Oceanic and Atmospheric Administration approved environmental work window (June 1 to November 30).
- 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 be placed in rain, wind, or waves, where they could enter into jurisdictional waters.
- No fresh concrete or concrete washings shall enter the water.
- Protective measures 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.

[148] San Francisco Bay Conservation and Development Commission (BCDC), Long-Term Management Strategy for Bay Area Dredged Material, Final Environmental Impact Statement/Environmental Impact Report, August 1998.

[149] San Francisco Estuary Institute (SFEI), "Effects of Short-term Water Quality Impacts Due to Dredging and Disposal on Sensitive Fish Species in San Francisco Bay," SFEI Contribution 560, San Francisco Estuary Institute, Oakland, California, 2008.

[150] Ibid.

- Machinery or construction materials not essential for project improvements shall not be allowed at any time in the intertidal zone. The construction contracts shall be responsible for checking daily tide and current reports.
- The Port shall have a spill contingency plan for hazardous waste spills into the San Francisco Bay.

Implementation of the specified best management practices would be ensured through the requirements of permits issued by the US Army Corps of Engineers under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act, and subsequent water quality certification by the state water control board under Section 401 of the Clean Water Act as well as BCDC under the McAteer-Petris Act.

As described in the project description, the Port would file an application for a dredging permit with the Dredge Material Management Office (DMMO) (a joint program under the BCDC, the San Francisco Regional Water Quality Control Board, the State Lands Commission, the San Francisco District US Army Corps of Engineers, and the USEPA. The project dredging permit would include requirements for sediment sampling and disposal, which would be implemented during dredging.

With implementation of water quality control measures specified in the permit requirements described above, impacts of demolition, pile driving and dredging on water quality would be less than significant.

Other Project Construction Activities

All proposed project construction activities would comply with all local, state, and federal permits, including BCDC, U.S. Army Corps of Engineers, and San Francisco Regional Water Quality Control Board requirements. Applicable permit and plan conditions are expected to lay out requirements for maintaining water quality during construction, including but not limited to minimizing turbidity, managing trash, and handling fuels and chemicals. Through issuance of the building permit, the proposed project construction at Pier 22½ and at Pier 1, Treasure Island would also be required to comply with the Port of San Francisco's standard best management practices for debris[151] and stormwater management[152] during construction, including the following:

Construction Debris Management

- Closed debris containment booms, floating debris screens, and/or absorbent booms will be positioned beneath and alongside work areas whenever possible. During construction, the barges performing the work will be moored in a position to capture and contain the debris generated during any sub-structure or in-water work. Care will be taken to minimize debris falling into the water. In the event that debris does reach the bay, personnel in workboats will immediately retrieve the debris for proper

151 *Port of San Francisco Port-Wide Maintenance Manual*, April 2016. https://www.waterboards.ca.gov/sanfranciscobay/board_info/agendas/2016/September/6a_ssr_attach_a.pdf

152 "BMP Fact Sheets", *San Francisco Stormwater Management Requirements and Design Guidelines*, SFPUC and Port of San Francisco, May 2016. https://sfport.com/sites/default/files/AppA_FactSheets_Final_May2016_Compre.pdf

handling and disposal. For small-scale over-water repairs and maintenance, tarps, tubs and/or vacuums will be used as appropriate to catch sawdust, debris, and drips.

- All construction material, wastes, debris, sediment, rubbish, trash, fencing, etc., will be removed from the site on a regular basis during work and at project completion. Debris will be transported to an authorized disposal area.

Stormwater Management

- Little or no terrestrial ground disturbance is anticipated since the proposed activities focus on construction on existing piers and the new offshore float. However, if ground disturbance on land is necessary (such as, potentially, for utility connections), construction crews will restrict the footprint of disturbance to the minimum necessary to complete the project, to minimize exposure of soil to wind and rain.
- Construction material that could wash or blow away will be covered every night and during any rainfall event.
- Construction materials will be stored in an area that does not freely drain to the bay, free from standing water and wet soil, and protected from rain. If necessary, materials will be stored on skids or support timbers to keep them off the ground.

Fuels and other chemicals used during construction at both sites, as well as hazardous building materials (i.e., lead-based paint, asbestos, and polychlorinated biphenyl-containing materials) encountered during demolition of the Pier 22½ finger piers and south parking area, or during excavation of fill on The Embarcadero, could degrade Bay water quality if improperly handled or spilled. Clean Water Act section 303(d)-listed pollutants for the Central San Francisco Bay include heavy metals and polychlorinated biphenyl-containing materials that may be found in fill soils or building materials on site. As previously discussed, the proposed project would not involve substantial excavation, which would reduce the potential for release of hazardous materials in on-site soils. Building materials would be handled and disposed of in accordance with applicable hazardous materials regulations and permit conditions. Construction at both Pier 22½ and Pier 1, Treasure Island would adhere to site-specific Spill Prevention, Control, and Countermeasure Plans and with standard Port construction best management practices for water quality and similar construction contract requirements. Construction activities within and over the Bay would be subject to the requirements of permits issued by the US Army Corps of Engineers under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act, and would be required to receive water quality certification from the state water control board under Section 401 of the Clean Water Act. The permits would specify the best management practices, such as those described above, for the protection of water quality. Implementation of water quality control measures proposed as part of the project and enforced through compliance with permit requirements would ensure that water quality impacts related to construction activities within and over the Bay would be less than significant. As such, there would be minimal potential for impacts on water quality related to Section 303(d)-listed pollutants from construction of the proposed project.

Given the relatively high natural turbidity of the San Francisco Bay, the localized nature of impacts, and the fact that the project would entail little or no earthwork and would be required to comply with all applicable permits and regulations, project construction would not substantially degrade water quality and impacts would be less than significant.

Operations

The proposed project would not entail a change in operations at the fire station but would change the fire station group housing and some fire boat, rescue service and emergency operations activities.

Fire boat support services on the steel float have the potential to affect water quality through potential pollutant discharges of hazardous materials such as chemicals and solvents used onboard, boat cleaning and maintenance materials, fuels, bilge or ballast water, sewage from toilets, gray water, and trash. As described above, light cleaning/washing/detailing takes place in front of the firehouse. Undercarriage cleaning is done off site. Light washing of fire boats, without the use of detergents, would be undertaken at the steel float, as needed. Hull repairs, cleaning and painting are done, while in dry dock, at an offsite facility. Best management practices are used on the pier and would be used at the steel float to minimize and contain spills of potentially hazardous materials.

The Pier 22½ area slopes very slightly towards the south such that stormwater runs overland from the pier to storm drains on The Embarcadero. The marginal wharf would be reduced by the proposed project but would continue to drain to The Embarcadero in the same manner as at present. Stormwater that falls on the new steel float would be collected by a series of catch basins inset into the float, each equipped with a cartridge media filter to separate the pollutants from the storm water before the water drains to the bay. The filters would be maintained per the manufacturer's instructions to ensure that pollutants do not flow to the bay.

There would be no change in fire boat operations except that one fire boat currently stationed at Pier 26 would be relocated to Pier 22½. Fire boat operations and associated activities on the float and at Pier 22½ would continue to adhere with plans and policies designed to minimize or avoid potential water quality impacts. Consistent with past practices at the Pier 22½ site, proposed project operations would obtain coverage under the National Pollutant Discharge Elimination System General Permit for Storm Water Discharges Associated with Industrial Activities. The project sponsor would be required to prepare and implement a Stormwater Pollution Prevention Plan for operations at Pier 22½ that would provide site-specific best management practices regarding the control of contaminants and sediments in runoff and storage and the use of hazardous materials. The Stormwater Pollution Prevention Plan also would comply with San Francisco Public Works Code Section 147.2 and minimize stormwater runoff impacts. The project sponsor would also adhere to site-specific Spill Prevention Control and Countermeasure Plans or equivalent plans that would address protecting water quality through implementation of best management practices, hazardous materials storage and handling protocols, and spill prevention and cleanup procedures.

Under the proposed project, fire boats would be supplied with fuel from a new Class A fuel storage facility consisting of a double-walled, surface mounted tank equipped with secondary containment berms, located inside the ground floor of the fire boat facility and accessible via an outside door.

The emergency generator would be fueled directly from a dual-wall subbase fuel tank and a second remote tank located either on the roof or in the hull of the float structure, which together would provide a 72-hour operating capacity. During refueling operations, the diesel fuel delivery truck would remain on the landside of the steel pier structure. The San Francisco Fire Department would contract with a US Coast Guard & California Department of Fish and Wildlife-certified

"over-water" fueling vendor to provide all emergency generator refueling services, to ensure against accidental spills.

This activity would be conducted in adherence with applicable regulations, including Coast Guard regulations (33 CFR 156.120 and 33 CFR 155.320). Any spills would be cleaned up immediately. Spill response equipment and procedures would be identified in the required Spill Prevention Control and Countermeasure Plan.

The fire boats draw water from the bay for firefighting and pumping into the Auxiliary Water Supply System (AWSS) or Flexible Water Supply System (FWSS). Under existing conditions, during fire emergencies fire-fighting water may be drawn from the City's on-land AWSS or from the bay, to be discharged over land (as when the fire boats were used to fight the Marina fire after the 1989 earthquake) or to fight fires on boats on the bay. These practices would not change under the proposed project. These activities would comply with federal and state regulations with respect to water discharge, including a vessel general permit that regulates discharges from water vessels.

Sanitary sewage generated on the fire boats would be expected to be minimal, based on the small crew size and intermittent use of fire boats. These would continue to be subject to the requirements of the MARPOL convention[153] and Section 312 of the Clean Water Act, which include requirements for onboard marine sanitation devices, and for storage and discharge of sewage, treatment of sewage, and disinfection of sewage. Sewage systems onboard the fire boats are self-contained and would continue to be pumped off into the San Francisco Public Utilities Commission combined sewer system in San Francisco while the boats are docked, as under existing conditions.

Due to the adjacency of Pier 22½ to the bay, litter from staff stationed at the site potentially could enter the bay. The Fire Department and the Port would continue to be responsible for trash collection and management in adherence with all applicable federal, state, and local regulations for waste management and disposal. The design of the new facilities complies with the City's Zero Waste requirements, including providing space and access to ensure convenient recycling and composting of waste from the fire boat facility. Solid waste collection and disposal services would continue to be provided by existing service providers.

The proposed project would be required to comply with San Francisco's Stormwater Management Requirements and Design Guidelines,[154] which regulate the volume and quality of stormwater discharged from the site into the public combined stormwater and sewer collection system. Compliance with the 2016 Stormwater Management Requirements and Design Guidelines would ensure that discharges comply with current standards. Wastewater at the site would continue to be discharged into the combined system, as discussed in Section E.11, Utilities and Service Systems.

As noted in the project description above, it is possible that periodic dredging of the waters offshore of Pier 22½ could be needed to ensure continuing access to the pier. The Port currently

153 International Convention for the Prevention of Pollution from Ships. Available at: *http://www.imo.org/en/About/Conventions/ListOfConventions/Pages/International-Convention-for-the-Prevention-of-Pollution-from-Ships-(MARPOL).aspx*. Accessed July 16, 2018.

154 San Francisco Public Utilities Commission, Stormwater Management Requirements and Design Guidelines, May 2016. Available from *http://www.sfwater.org/Modules/ShowDocument.aspx?documentID=9026.* Accessed July 16, 2018.

holds DMMO permits for maintenance dredging for most of its pier operations. If maintenance dredging is needed for the new steel float, the Port would apply to the DMMO to add this location to the existing dredging permit, and any dredging operations would be subject to the same controls as described above for in-water construction activities.

The small increase in wastewater generated by the project would not result in a violation of the City's existing NPDES permit. Further, while the proposed project would include construction that would disturb the bay bottom and would result in an increase in the size of the facilities at Pier 22½ site, development of required water quality protection plans and continued compliance with regulations and permit requirements, as detailed above, would ensure that water quality impacts associated with construction and operations of the proposed project would be less than significant.

Impact HY-2: The proposed project would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or lowering of the local groundwater table. (No Impact)

The proposed project would entail up to 50 cubic yards of excavation on the shore to depths of up to 4 feet for utility connections but would not entail any excavation to depths that could affect aquifer systems or groundwater. The project would include installation of a new steel float in the bay adjacent to Pier 22½ but would not entail the construction of new impervious surfaces on land, and therefore has no potential to impede groundwater recharge. Therefore, the proposed project would not result in any impacts related to groundwater.

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 or siltation on- or off-site. (Less than Significant)

The new steel float would be anchored off shore and would have no potential to alter existing drainage patterns. The new marginal wharf would replace a portion of the existing Pier 22½ and would reduce the total impervious surface area of the portion of the pier that is contiguous with The Embarcadero. As discussed under the Project Description, the project would entail only minor and short term excavation on land. This excavation would be within or adjacent to existing streets. Therefore, the proposed project would not alter the existing drainage pattern or result in any soil erosion. The proposed project would comply with the San Francisco Storm Water Management Requirements and Design Guidelines,[155] including measures pertaining to utility connections, drainage patterns, and impermeable surfaces. Therefore, the project would not affect existing drainage patterns at Pier 22½, and the impact with respect to erosion or siltation from drainage pattern alterations would be less than significant.

Impact HY-4: 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, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site. (Less than Significant)

[155] Ibid.

As described under Impact HY-3, the proposed project would not entail substantial alterations to existing drainage patterns. Construction at Pier 1, Treasure Island and the potential laydown area at Pier 26 would not alter existing stormwater conditions at those locations.

The Pier 22½ site is entirely paved. The proposed improvements would eliminate approximately 7,800-sf of existing impervious surface through demolition of the two finger piers and the south parking lot area of the existing marginal wharf. Reconstruction of the marginal wharf would result in replacement of a portion of the demolished area of the marginal wharf, which is adjacent to The Embarcadero; the project would therefore result in a net decrease in the total area of the Pier 22½ impervious surface adjacent to The Embarcadero. While the new float would have an impervious surface area of approximately 16,600 sf, this new surface area would be discontinuous with Pier 22½, with the marginal wharf, and with The Embarcadero, and thus would not contribute to any existing surface runoff from Pier 22½ or The Embarcadero. New construction would be designed and constructed with drainage infrastructure that complies with the San Francisco Storm Water Management Requirements and Design Guidelines and other applicable regulations. Stormwater runoff from the pier and marginal wharf would be captured by the stormwater systems directed to the City's sanitary sewer system, while stormwater on the steel float would be captured and filtered in place before draining to the bay, as described above. The proposed project would not alter existing drainage patterns in any way that exacerbates existing flood hazards. Therefore, the impact of the project's potential for flooding from alteration of existing drainage patterns would be less than significant.

Impact HY-5: The proposed project would not create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff. (Less than Significant)

The proposed improvements at Pier 22½ would result in a net increase of approximately 12,400 sf of new impervious surface areas consisting of the steel float and the somewhat smaller marginal wharf area. However, the impervious surface area that is contiguous with the main pier and The Embarcadero would decrease as the result of the reduction in size of the potion of Pier 22 ½ that is south of Fire Station 35. Most of the increased surface area would be on the new steel float, which would be anchored offshore of and discontinuous with the pier. New construction would be designed and constructed in compliance with the San Francisco Stormwater Management Requirements and Design Guidelines, including requirements to reduce runoff. Moreover, Corps of Engineers and Bay Conservation and Development Commission permits for the project would require that any potential stormwater runoff from the surfaces of the piers be appropriately captured and treated.

As discussed under UT-1 and UT-2, stormwater on the existing Pier 22½ drains overland by surface flow for collection at storm drains on The Embarcadero, and would continue to be drained in this fashion under the proposed project. The new float would be equipped with an independent stormwater filtering system and that would drain runoff to the bay. Compliance with applicable regulations, as detailed under Impact HY-1 (p. 105), would ensure that proposed project operations neither introduce nor contribute substantial inputs of polluted runoff.

For these reasons, the proposed project would result in less-than-significant impacts related to exceeding the capacity of stormwater drainage systems or providing substantial additional sources of polluted runoff.

Impact HY-6: The proposed project would not place structures within a 100-year flood hazard area that would impede or redirect flood flows; would not place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map; and would not expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam. (Less than Significant)

Potential to redirect flood flows. As noted under HY-5, above, Pier 22½ is within a Federal Emergency Management Agency (FEMA)-delineated 100-year flood plain, and waterfront flooding could occur in this area. However, new and replacement piles, and replacement of the existing southern portion of the main pier with a new marginal wharf of smaller size at the same location would have little or no effect with respect to impeding or redirecting flood flows relative to existing conditions. As noted, the new float would not be directly connected to the pier or to the shoreline except via an elevated access ramp and would not have the potential to affect the movement of flood waters on the shoreline. Therefore, the project's impact with respect to the redirecting or impeding flood flows resulting from the proposed project would be less than significant.

Housing within a flood hazard area. The group housing constructed at the new fire boat facility under the proposed project would be located on a floating structure that is separated from land by water. The float would be secured to pilings allowing it to rise and fall with seas or tides, such that the facilities dormitory housing would not be susceptible to flooding. The risk to housing and its Fire Department residents from flooding therefore would be less than significant.

Failure of levees or dams. There are no levees, dams, or dam inundation zones that could affect Pier 22½. Therefore, exposure to risk of flooding from the failure of a levee or dam is not applicable to the proposed project.

Sea level rise. Pier 22½ is within a Federal Emergency Management Agency-delineated 100-year flood plain.[156] Based on the City's mapping, the project site is vulnerable to the effects of projects sea level rise.[157] The City of San Francisco's Sea Level Rise Action Plan projects a sea level rise of 36 inches to as much as 66 inches by the year 2100.[158] With a design life of 50 years, the project site is projected to be subject to a sea level rise of 33.5 inches by 2070.

The proposed project would not alter the location of existing Fire Station 35; its risk from sea level rise therefore would not be altered by the project. The new offshore steel float, with its fire boat facility superstructure, would be attached horizontally to four guide piles to allow the steel float to move vertically with the rise and fall of the tides, including "King Tides", and with rising sea level. The design height of the piling collars is approximately 5 feet higher than the projected sea level rise at the design life of the facility. The new facilities on the steel float therefore would be resilient to projected sea level rise.

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[156] Federal Emergency Management Area, "Special Flood Areas Subject to the 1% Annual Chance Flood", Flood Insurance Rate Map, City and County of San Francisco, California, Map 06075C0120A, panel number 120 of 260, 2013. Available at http://sfgov.org/sfc/riskmanagement/Modules/ShowImage5bf6.jpg?imageid=2672. Accessed July 16, 2018.

[157] Ibid.

[158] *San Francisco Sea Level Rise Action Plan*, San Francisco Planning Department, March 2016. Available at: *http://default.sfplanning.org/plans-and-programs/planning-for-the-city/sea-level-rise/160309_SLRAP_Executive_Summary_EDreduced.pdf*. Accessed July 16, 2018.

The new access ramp between the float and the Pier 22½ marginal wharf also would be designed to accommodate tidal action and sea level rise, with flexible connections at each end both in the access ramp and in the associated utility lines. These facilities therefore would not be vulnerable to flooding, including flooding from sea level rise.

The new marginal wharf, at the landward end of the access ramp, adjacent to Embarcadero, would include an above-ground utility box(es) that could be susceptible to sea level rise effects. King Tides, combined with storm surges, cause waves to splash onto some portions of the Embarcadero, even under existing conditions. The new marginal wharf could be subject to future inundation as the result of sea level rise. To avoid impacts from tidal effects, utility boxes would be constructed to be impervious to water, and would be relocated in the future, if necessary, in conjunction with future improvements along The Embarcadero, as needed to address sea level rise. The marginal wharf would not include above-ground structures other than utility boxes and therefore, although flooding of the wharf could occur in future, as there are no structures on the wharf and as wharves are designed with the expectation that they will be subjected to tidal effects, potential future flooding would not expose people or structures to flooding risks or hazards.

The proposed new facilities at Pier 22½ would not divert flood flows or increase the exposure of housing, individuals or structures to substantial risks of loss, injury, or death involving flooding. Therefore, project impacts related to flood risk would be less than significant.

Impact HY-7: The proposed project would not expose people or structures to a significant risk of loss, injury or death involving inundation by seiche, tsunami, or mudflow. (Less than Significant)

Pier 22½ is not subject to geological conditions that could expose it to risks from a mudflow (i.e., not in mountainous areas or near channelized features).

The project site is located within a potential tsunami inundation area, as delineated on the state's tsunami inundation maps.[159] Pier 22½ also could be vulnerable to seiche effects. The primary tsunami threat in San Francisco Bay is from distant earthquakes along subduction zones elsewhere in the Pacific basin. However, by the time a tsunami entered the bay, its impacts would be reduced compared to those on the open coast, likely involving just a few feet of inundation. In an extreme worst-case scenario involving a rupture of the Alaska-Aleutians subduction zone, waves at Pier 22½ could reach as high as 8.04 feet.[160] Like tsunamis, seiches can result in long-period waves that cause run-up or overtopping of adjacent land masses.[161] The National Oceanic and Atmospheric Administration operates the tsunami warning system that serves San Francisco

[159] California Emergency Management Agency, California Geological Survey University of Southern California, 2009, Tsunami Inundation Map for Emergency Planning, San Francisco, 2009. Available at: http://www.conservation.ca.gov/cgs/geologic_hazards/Tsunami/Inundation_Maps/SanFrancisco/Documents/Tsunami_Inundation_SF_Overview_SanFrancisco.pdf.

[160] City and County of San Francisco, *Emergency Response Plan Tsunami Response Annex*, March 2011. Available from http://www.sfdem.org/modules/ShowDocument.aspx?documentid=1115. Accessed July 16, 2018.

[161] A seiche is caused by oscillation of the surface of an enclosed body of water, such as San Francisco Bay, due to an earthquake or large wind event.

and other coastal areas. Tsunami warning procedures for San Francisco County are provided in its tsunami emergency response plan.[162]

As discussed above, under Impact HY-6, the proposed project would not alter the flooding risk for the existing pier or for Fire Station 35 and the individuals stationed there, including the three persons added to the site by the proposed project. Its floating design would allow the new dock to rise with rising waters, and the facilities thus would be somewhat less vulnerable to tsunami and seiche effects than would fixed facilities. Further, the National Oceanic and Atmospheric Administration tsunami warning system and the City/County's emergency response plans would reduce the tsunami and seiche risks to persons stationed at the proposed fire boat facility.

The utility boxes on the marginal wharf could be subject to flooding by seiche or tsunami (and by sea level rise as discussed above under HY-6). The elevation of the marginal wharf above the bay, and the fact that utilities boxes would be designed to be impervious to water, would somewhat mitigate this potential risk. The risk, in any case, would be relatively low because of the rarity of such effects and because the utility boxes would not be critical facilities, backup generation would be supplied by the emergency generator on the float, and the utility box could be relocated in the future without significant effects, if necessary.

Based on the low likelihood of the occurrence of a significant seiche or tsunami event at Pier 22½, and taking into consideration the design of project facilities and the early warning systems that are in place, the proposed project would not expose individuals or structures to a substantial risk of loss, injury or death due to inundation from seiche or tsunami. Therefore, this impact would be less than significant.

Topics:	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*	*Not Applicable*
16. HAZARDS AND HAZARDOUS MATERIALS. Would the project:					
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐	☐
b) 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?	☐	☐	☒	☐	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐	☐

[162] City and County of San Francisco, *Emergency Response Plan Tsunami Response Annex*, March 2011. Available from http://www.sfdem.org/modules/ShowDocument.aspx?documentid=1115. Accessed July 16, 2018.

Topics:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Not Applicable
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☐	☒
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☐	☒
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐	☐
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☐	☐	☒

Because the project site is not within an area subject to an airport land use plan, within two miles of a public airport, or near any private airstrips, topics E.16(e), and E.16(f) are not applicable to the proposed project. In addition, according to a search of the Envirostor and Geotracker data bases,[163] the project site is not included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5. The project site also is not close to any wildlands and therefore would not be subject to risks from wildland fires. Topics E.16(d) and E.16(h) therefore also are not applicable.

Impact HZ-1: The proposed project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials, or through reasonably foreseeable upset or accident conditions involving the release of hazardous materials into the environment. (Less than Significant)

Demolition

Proposed work at Pier 22½ includes demolition of the newer portions of Pier 22½ and the associated finger piers, and demolition of the north finger pier shed. Due to the age of existing structures at Pier 22½ and the historical uses of the site, it is expected that some routine removal and management of hazardous materials may be required during demolition. Based on its

[163] California Department of Toxic Substances Control, GeoTracker Database, accessed March 26, 2018. Available at: *http://geotracker.waterboards.ca.gov/.* Accessed July 16, 2018.

apparent age of construction, the south finger pier may contain hazardous materials, including asbestos (as covering on pier utility pipes), lead-based paint, creosote-treated wood, and residual contaminants from past spills on the piers (such as fuel or marine coating spills). The demolition of the piers therefore potentially could result in release of hazardous substances and produce demolition debris that are contaminated with hazardous substances. Hazardous materials are unlikely to be encountered in building materials during demolition of the north pier shed, since its construction was subject to environmental regulations enacted prior to 1989 construction (e.g. restriction against the use of lead-based paints). All potentially hazardous substances presently stored in the shed or on the piers would be removed prior to the beginning of construction.

As discussed below under Construction Excavation, the proposed project is subject to the Maher Ordinance and, accordingly, a Phase I Environmental Site Assessment was prepared for the project.[164] The site assessment determined that there were three *recognized environmental conditions*[165] associated with the presence of undocumented, potentially contaminated fill (potentially including 1906 earthquake debris), a dry cleaner facility located at the nearby Hills Plaza since 2005, and the potential presence of hazardous building materials in the structures proposed for demolition. As recommended by the Phase 1 Environmental Site Assessment, prior to demolition, a hazardous building materials assessment would be performed on structures proposed for demolition. The purpose of this assessment is to determine the presence of regulated or hazardous substances in the building materials of the structures proposed for demolition. The assessment would include a survey of the interior and exterior of the shed on the north finger pier and the underside of the north finger pier, the south finger pier, and the main pier. If a survey cannot be performed at the south finger pier due to safety reasons (because the structure may be unstable), building materials at the south finger pier would be assumed to contain similar hazardous materials to those identified at the north finger pier or the south main pier. Hazardous building materials identified (or suspected) as the result of the assessment would be abated in accordance with applicable regulations prior to demolition. Further, the project sponsor would ensure that all hazardous materials presently stored or in use in equipment at the site, including electrical equipment and the generator, are properly removed or relocated prior to demolition. Hazardous materials that are not relocated would be disposed of in accordance with applicable regulations.

There is a potential for polychlorinated bi-phenals (PCBs), asbestos containing materials, and lead-painted or contaminated materials to be encountered during demolition or during excavation for utility construction. Demolition and excavations would comply with all applicable federal, state, and local regulations to ensure that hazardous materials are handled in a safe and lawful manner, which would reduce the potential for harmful health effects due to exposure to

164 Phase I Environmental Site Assessment, Fire Station No. 35, Pier 22-1/2, The Embarcadero, San Francisco, California, Baseline Environmental Consulting, January 26, 2018.

165 Recognized environmental conditions (or RECs) are defined in ASTM E1527-13 as "the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to any release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment." According to ASTM E1527-13, the term "REC" is not intended to include de minimis conditions that generally do not present a material risk of harm to public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental authorities.

hazardous materials and for an accidental release of hazardous materials to the environment, as discussed below.

Construction Excavation

The project would entail excavation of up to 50 cubic yards of soil between Fire Station 35 and The Embarcadero for utility connections. Article 22A (Analyzing the Soils for Hazardous Waste, known as the Maher Ordinance) applies to projects that involve disturbance of more than 50 cubic yards of soil if they are located bayward of the historic high tide line; have been zoned or used for industrial purposes; are located within 150 feet of an elevated highway; have soil or groundwater contamination; or are within 100 feet of a known or suspected underground storage tank.[166] Projects to which the ordinance is applicable must prepare a site history report to identify whether past site uses may have caused contamination, conduct soil and/or groundwater testing for the presence of the potentially hazardous constituents, prepare a soils analysis report and, if contamination is identified, prepare and implement a site mitigation plan.

The Maher ordinance applies to the project site because of its location on the bay side of the historic high tide line and excavation of up to 50 cubic yards would occur partly in an area underlain by fill of undetermined origin.

Prior to any excavations, a subsurface investigation would be performed at The Embarcadero waterfront where excavation is proposed. The purpose of the investigation would be to obtain soil quality information to determine proper soil management options and worker health and safety considerations during construction.

Should unanticipated soil contamination be encountered during onshore utility excavations, soil would be segregated and handled in accordance with all applicable regulations for the handling and disposal of hazardous materials.

Regarding in-water work, extraction and/or cutting of existing piles and installation of new piles are not expected to result in more than incidental disturbance of bay bottom sediments and would not bring spoils to the surface. The proposed dredging would disturb sediments that potentially are contaminated, as discussed under HY-1, above (pp. 106-112). As described under HY-1, dredged sediments would be subject to testing for hazardous materials and, consistent with regulatory requirements, any contaminated sediments would be off-hauled for appropriate disposal at a licensed facility. Details of requirements that would minimize the potential for exposure of people or the environment to contaminants encountered during dredging are also provided under HY-1.

Construction

Construction of the new fire boat facility, installation of new pilings and construction of the marginal wharf would entail the routine use of petroleum-based fuels and of chemicals such as plastic and marine paint coatings, but would not include the use of any acutely-hazardous materials. As a building permit requirement, the proposed project would be required to comply with the Port of San Francisco's standard best management practices for spill prevention and response, which requires the following:

166 San Francisco Department of Public Health, Hazardous Waste - Analyzing Soil for Hazardous Waste, 2013. Available from *http://www.sfdph.org/dph/EH/HazWaste/hazWasteAnalyzeSoil.asp.* Accessed July 17, 2018.

- Fueling and maintenance of vehicles and equipment will be conducted offsite with the exception of barge-mounted and fixed cranes. Fueling locations will be inspected after fueling to document that no spills have occurred. Any spills will be cleaned up immediately and reported in accordance with existing Port standard operating procedures for spill reporting. All Port vehicles carry spill response supplies.
- Fueling cranes on barges or fixed to pier decks over water will be performed using proper fuel transfer procedures as specified by federal regulations for fuel transfer. Land-based equipment will be fueled by mobile trucks with secondary containment or at the Port's maintenance facility. Fueling location will be inspected after fueling to document that no spills have occurred. Spills will be cleaned up immediately using spill response equipment.
- Well-maintained equipment will be used to perform construction work, and, except in the case of a failure or breakdown, equipment maintenance will be performed off site. Repair crews will check heavy equipment daily for leaks, and not use equipment until any leak is fixed. If leaks or spills are encountered, the source of the leak will be identified, leaked material will be cleaned up, and the cleaning materials will be collected and will be properly disposed.
- All hazardous material shall be stored upland in storage trailers and/or shipping containers designed to provide adequate containment. Short- term laydown of hazardous materials for immediate use shall be permitted with the same anti-spill precautions.
- Petroleum products, chemicals, fresh cement, saw water, or concrete or water contaminated by the aforementioned shall not be allowed to enter the water.

Routine construction chemicals that would be used during construction include fuels, lubricants and solvents needed for the fueling and maintenance of construction equipment. Storage and use of these potentially hazardous materials at the construction site could result in the accidental release of small quantities of hazardous materials, which could degrade soil and or water quality. Project construction would implement best management practices to control construction site runoff and prevent it from entering San Francisco Bay. These measures include storing chemicals in water-tight containers with appropriate secondary containment, maintaining materials and equipment for spill cleanup, and implementing spill response procedures in the event of a release.

Implementation of the regulations and procedures listed above, along with the Port's standard best management practices and other applicable federal, state, and local laws and regulations, would reduce potential impacts from routine transport, use, or disposal of hazardous materials during demolition and construction to a less-than-significant level.

Operations

Fire station operations would not change under the proposed project. The two fire boats that currently are docked at Pier 22 ½ and Fire Engine 35 would be stationed at the pier, as they are at present. The only change would be that a third fire boat would be docked at the new fire boat facility.

Hazardous materials would be kept on site, including fuel and oil, and nominal amounts of various chemicals for equipment maintenance and fire suppression. Although the location for storage of hazardous materials would change with operation of the proposed fire boat facility, the types and overall amounts are expected to be similar. Biohazards associated with operation of the proposed project (primarily small quantities of medical waste) would be handled according to applicable regulations and in the same manner as for the existing Fire Station facility. The quantities of hazardous materials and the manner in which they would be used would be approximately the same as under existing conditions. Operations typically do not entail the use, handling or transport of acutely hazardous materials.

Operations would continue to adhere to site-specific Spill Prevention, Control, and Countermeasure Plans, which would outline how potentially-hazardous materials would be managed to ensure compliance with all applicable regulations, including, discharge prevention measures, discharge or drainage controls, countermeasures for accidental releases and methods of disposal (refer to Impact HY-1 in Section E.15, above, for additional discussion of water quality regulations).

Although the small increase in operating space at the project site could result in a corresponding small increase in hazardous materials use under the proposed project, due to the small overall quantities of hazardous materials and the facility's continued compliance with applicable federal, state, and local laws and regulations, the project's impacts with respect to routine transport, use, or disposal of hazardous materials, including accidental releases, would be less than significant.

Impact HZ-2: The proposed project would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school. (Less than Significant)

Pier 22½ is within one-quarter mile of an existing school, Youth Chance High School, a private high school operated by the YMCA at 169 Steuart Street. The school is located about 1,200 feet (0.23 miles) northwest of the project site.

As discussed under HZ-1, above, neither construction nor operation of the proposed project would include the use of any acutely hazardous materials, substances or waste. While both construction and operations would contribute to diesel emissions from heavy equipment, boats and fire engines, and emergency generator use, as discussed in Section E.7 (Air Quality) above, project construction emissions would not exceed any toxic air contaminant thresholds, and emissions from project operations are not expected to differ from existing conditions. Further, neither use of project construction equipment nor project operations would result in significant concentrations of air emissions.

As also discussed under HZ-1, the structures to be demolished at the project site may include hazardous materials, such as creosote, lead paint, and potentially asbestos or mercury. No such materials would be expected to be present in the shed building, as it was constructed in 1989 after the use of such materials was discontinued. Demolition of these facilities would not be expected to produce any hazardous air emissions. While any contaminated materials encountered during demolition would need to be off-hauled, haul trucks would be subject to regulatory controls such as a requirement to keep loads covered, and specifications as to where disposal could occur, which would prevent exposure of the people and the environment, including any local schools, to dust, emissions, or hazardous substances. The impact of the project with respect to potential to

expose a school to hazardous emissions, materials, substances or waste would be less than significant.

Impact HZ-3: The proposed project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. (Less than Significant)

The proposed project would not significantly impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan, including but not limited to the following plans:

The City and County of San Francisco Emergency Management Program. The City and County of San Francisco Emergency Management Program is a jurisdiction-wide system that provides emergency management actions for the prevention of, preparedness for, response to, and recovery from any emergency or disaster within the City and County of San Francisco (including Pier 22½).

Water Emergency Transportation Authority's Water Transportation System Management Plan. The Water Emergency Transportation Authority is a regional agency authorized by the state to operate a comprehensive Bay Area public water transit system. In 2009, the Water Emergency Transportation Authority 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.

Tsunami Response Plans. The National Oceanic and Atmospheric Administration operates the tsunami warning system that serves San Francisco County, among other areas. Tsunami warning procedures for San Francisco County are provided in its tsunami emergency response plan.[167]

By adhering to the provisions of the California Building Standards Code and the San Francisco Building Code (which require additional life-safety protections for new construction), and by maintaining adequate emergency vehicle access throughout construction (as required by local ordinances and the conditions of permit approvals), proposed project construction and operation at Pier 22½ would not impede or interfere with implementation of the City and County of San Francisco Emergency Management Program or other emergency response plans for the project area.

The pier improvements and berthing access at the new steel float would increase access for emergency responders to and from the site and improve existing emergency response facilities. The fire boats and fire engine stations at Pier 22½, and the pier's Emergency Operation Center and crew facilities would be expected to facilitate emergency response, and potentially assist in evacuation, during an emergency. The proposed project would not physically interfere with emergency response or emergency evacuation.

The proposed project would not block any evacuation routes or otherwise affect evacuation from Pier 22½. It would provide an earthquake-resilient connection between The Embarcadero and the steel float, which would provide a reliable evacuation route, and thus would improve the ability of the first responders to implement the tsunami response plan for San Francisco County.

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167 City and County of San Francisco, *Emergency Response Plan Tsunami Response Annex*, March 2011. Available from http://www.sfdem.org/modules/ShowDocument.aspx?documentid=1115.

Based on the analysis presented above, the proposed project's potential for impacts with respect to emergency response or evacuation plans would be less than significant.

Impact C-HZ: The proposed project would not make a considerable contribution to any cumulative significant effects related to hazards and hazardous materials. (Less than Significant)

Environmental impacts related to hazards and hazardous materials are generally restricted to the project site and immediate vicinity due to the site-specific nature of hazardous materials in existing buildings and in underlying soils. As outlined in this section, the proposed project would not result in significant impacts related to hazards or hazardous materials. There are seven potential cumulative projects in the vicinity of the Pier 22½ site listed in Table 2 (pp. 13-14, above) that could affect hazards or hazardous materials. These relate to ongoing Port pier maintenance dredging; ongoing routine repair and maintenance of Port facilities; and the Seawall Resiliency project. As is the case for the proposed project, construction and operation of these nearby cumulative projects would be required to comply with applicable local, state, and federal regulations regarding the storage, handling, and disposal of hazardous materials and emergency access. Therefore, the proposed project, in combination with other reasonably foreseeable projects, would result in less-than-significant cumulative hazards and hazardous materials impacts.

Topics:	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*	*Not Applicable*
17. MINERAL AND ENERGY RESOURCES. Would the project:					
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☐	☒
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☐	☒
c) Encourage activities which result in the use of large amounts of fuel, water, or energy, or use these in a wasteful manner?	☐	☐	☐	☒	☐

The San Francisco General Plan indicates that mineral resources are not found in San Francisco to "any appreciable extent." Mineral resources therefore are not addressed in the general plan.[168] The project site is located in a region classified as a Mineral Resource Zone 1 (MRZ-1). This type of classification represents areas where, "adequate information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists for their

168 San Francisco General Plan, Environmental Protection Element. Available at: *http://generalplan.sfplanning.org/*. Accessed July 17, 2018.

presence."[169] Both Pier 22½ and the warm shell construction site at Treasure Island are located on fill or over water with no known mineral resources. Neither site has been delineated as a mineral resource recovery site on a local general plan, specific plan, or other land use plan. The implementation of the proposed project would have no impact on the availability of mineral resources or mineral resource recovery sites. Therefore, Topics 17(a) and 17(b) are not applicable.

Impact ME-1: The proposed project would include the use of fuel, water and energy, but would not encourage activities that would result in the use of large amounts of fuel, water, or energy, or use these resources in a wasteful manner. (Less than Significant)

Construction of the proposed project would require the use of energy resources, such as water, electricity, and diesel fuel. These energy resources would be used by construction equipment and construction workers' vehicles at both Pier 22½ and at the off-site construction location at Treasure Island. However, construction of the proposed project would adhere to applicable regulations which, for the Pier 22½ site, include the Port's Green Building Standards, and the use of best management practices to ensure that these resources would be used conservatively.[170] The Green Building Standards require minimizing waste of energy, water, and other resources and reducing greenhouse gas emissions from project construction and operations in the City.

Operation of the proposed project would also require the use of water, electricity, and diesel fuel. While the new fire boat facility would increase the square footage of occupied area at the project site, increased fuel and utility demand for heating, lighting, and water would not be significant given the structure's energy-conserving LEED design. Further, the Port's Green Building Standards also apply to operations of the proposed project, requiring, for example, that new facilities achieve a minimum 30 percent reduction in the use of indoor potable water. The new fire boat facility at Pier 22½ would include design features that limit resource use, such as high-efficiency lighting and water-saving control measures (see Section E.11, Utilities and Service Systems). The minor increase of three personnel stationed at the pier or associated with the fire boats or fire engine would similarly not result in a significant increase in the use of fuel, water and energy over present demand. The largest use of energy in terms of operations would be diesel fuel to power the fire boats. However, the project would not change the use of these crafts or the frequency of their operations such that a significant increase in the use of fuel would result.

For the reasons noted above, the proposed project would not result in the use of large amounts of fuel, water, or energy, or use these resources in a wasteful manner and impacts would be less than significant.

Impact C-ME: The proposed project, in combination with other past, present, or reasonably foreseeable projects, would not result in a cumulative impact on mineral and energy resources. (Less than Significant)

As discussed above, no known mineral deposits or resource recovery areas exist at the project sites; therefore, the proposed project would not contribute to any cumulative impacts on mineral

169 California Department of Conservation, Division of Mines and Geology, 1996. Update Classification: Aggregate Materials in the South San Francisco Bay Production Consumption Zone. Available at: *http://www.conservation.ca.gov/cgs/information/publications/counties/Pages/sfo.aspx*. Accessed July 17, 2018.

170 California Division of Mines and Geology, Open File Report 96-03 and Special Report 146, Parts I and II, Generalized Mineral Land Classification Map of the South San Francisco Bay Production-Consumption Region, 1996. Available at: *https://maps.conservation.ca.gov/cgs/publications/*. Accessed July 17, 2018.

resources. While the proposed project would use energy resources, both the proposed project and other projects in the vicinity would be subject to local and state laws mandating efficiencies and reductions in overall resource consumption. Therefore, the proposed project, in combination with other reasonably foreseeable projects, would result in a less-than-significant cumulative impact on mineral or energy resources.

Topics:	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*	*Not Applicable*
18. AGRICULTURE AND FORESTRY RESOURCES: In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.					
Would the project:					
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☐	☒
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)) , timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☐	☒
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or forest land to non-forest use?	☐	☐	☐	☐	☒

The proposed project does not involve the use of farmland, forestry land or other agricultural resources. Neither existing uses at the site nor project site population would change under the proposed project. Therefore, this section is not applicable to the proposed project.

The project site at Pier 22½ and the temporary construction site at Treasure Island are zoned C-2 (Community Business) and TI-MU (Treasure Island Mixed Use), respectively. No farmland, lands

subject to a Williamson Act contract, forest land, or timberland exist in the project area.[171] The proposed project would not result in the conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use. Because the project sites are in existing developed areas and do not contain farmland, land zoned for agricultural use, forest land, or timberland, none of the above criteria (Topics 18[a] through 18[e]) is applicable.

Topics:	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*	*Not Applicable*
19. MANDATORY FINDINGS OF SIGNIFICANCE—					
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐	☐
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	☐	☐	☒	☐	☐
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☒	☐	☐

a) As discussed in the previous sections (E.1 through E.17), impacts as a result of the proposed project are anticipated to be less than significant or less than significant with mitigation in the areas discussed. The foregoing analysis identifies potentially significant impacts related to cultural resources, noise, air quality, and biological resources, which would be mitigated through implementation of mitigation measures, as described in the following paragraphs and in more detail in Section F, Mitigation Measures and Improvement Measures.

As described in Section E.6, Noise, construction of the proposed project has the potential to impact the historic bulkhead buildings at the Pier 22½ site from vibration during construction. Incorporation of San Francisco Public Works standard construction measures for vibration-

[171] California Department of Conservation, *The California Land Conservation Act of 1965 2016 Status Report*, December, 2016. Available at: *http://www.conservation.ca.gov/dlrp/lca/Pages/stats_reports.aspx*. Accessed August 30, 2018.

related effects to historic resources would reduce construction vibration-related impacts to a less-than-significant level.

As described in Section E.7, Air Quality, the proposed project at Pier 22½ has the potential to expose sensitive receptors to substantial concentrations of diesel emissions, resulting in a significant air quality impact. Implementation of **Mitigation Measure M-AQ-4: Best Available Control Technology for Diesel Generators at Pier 22½**, would reduce emissions by 89 to 94 percent compared to equipment with engines that do not meet any emission standards and without a Verified Diesel Emissions Control Strategy, and impacts would be less than significant.

As described in Section E.13, Biological Resources, the proposed project has the potential to affect special status bats at the Pier 22½ site and nesting birds at both project sites during construction. **Mitigation Measure M-BI-1a, Pile Driving** and **Mitigation Measure M-BI-1b, Dredging,** in addition to incorporation of San Francisco Public Works construction measures for biological resources, would avoid or substantially reduce the proposed project's effects on special status species to less-than-significant levels.

b) The proposed project, in combination with past, future, and foreseeable projects would not result in any cumulative impacts. As the project would not create new housing or employment, the project would not contribute to cumulative impacts related to population and housing, utilities, recreation, and public services. The project would result in no or less-than-significant impacts to land use, aesthetics, noise, greenhouse gas emissions, wind and shadow, air quality, geology and soils, hydrology and water quality, hazards, mineral and energy resources, and agricultural and forest resources, and would not contribute to any cumulative effects regarding these topics. Implementation of **Mitigation Measure M-AQ-4: Best Available Control Technology for Diesel Generators at Pier 22½,** and **Mitigation Measures M-BI-1a, Pile Driving and M-BI-1b, Dredging**, in addition to incorporation of San Francisco Public Works construction measures for biological resources (special-status bat and bird species), would ensure that the proposed project would not contribute considerably to cumulative impacts regarding air quality or biological resources.

c) As discussed in Section E.16, Hazards and Hazardous Materials, naturally-occurring asbestos is present in the artificial fill materials at the project site. Implementation of Asbestos ATCM requirements would ensure that no visible dust would cross the project boundaries and the public would not be exposed to naturally-occurring asbestos and associated metals. As a result, the proposed project would not result in adverse effects to humans.

Note: Authority cited: Sections 21083 and 21083.05, 21083.09 Public Resources Code. Reference: Section 65088.4, Gov. Code; Sections 21073, 21074 21080(c), 21080.1, 21080.3, 21083, 21083.05, 21083.3, 21080.3.1, 21080.3.2,21082.3, 21084.2, 21084.3, 21093, 21094, 21095, and 21151, Public Resources Code; Sundstrom v. County of Mendocino,(1988) 202 Cal.App.3d 296; Leonoff v. Monterey Board of Supervisors, (1990) 222 Cal.App.3d 1337; Eureka Citizens for Responsible Govt. v. City of Eureka (2007) 147 Cal.App.4th 357; Protect the Historic Amador Waterways v. Amador Water Agency (2004) 116 Cal.App.4th at 1109; San Franciscans Upholding the Downtown Plan v. City and County of San Francisco (2002) 102 Cal.App.4th 656.

F. MITIGATION MEASURES AND IMPROVEMENT MEASURES

The following mitigation measures have been identified to reduce potentially significant impacts resulting from the proposed project to a less-than-significant level. An improvement measure recommended to reduce or avoid a less-than-significant impact related to stationary equipment noise is also identified below. Accordingly, the Port has agreed to implement the mitigation measures and all improvement measure described below.

Mitigation Measures

Mitigation Measure CR-1: Condition Assessment and Review Process Requirements for Maintenance and Repair Work

The Port and the San Francisco Fire Department (SFFD) will undertake a conditions assessment of the historic Firehouse 35 to identify repair and maintenance needs of the historic facility (superstructure and substructure) to achieve a state of good repair necessary to maintain the Fire Department occupancy, consistent with Port Building Code requirements. Based on the findings of the conditions assessment, future maintenance and repair work identified by the Port and SFFD will be reviewed by San Francisco Planning Department Preservation staff or the San Francisco Historic Preservation Commission (HPC) for consistency with the Secretary of the Interior's Standards the Treatment of Historic Properties (Secretary's Standards) to protect the integrity of Firehouse 35 and Embarcadero Historic District. Additionally, the Port and SFFD will consult with San Francisco Planning Department Preservation staff to determine if the proposed work requires a Certificate of Appropriateness and HPC review. SFFD and the Port will work with the Planning Department to prioritize the repair and maintenance work identified in the Conditions Assessment. Further, all future maintenance and repair work shall be consistent with the conditions assessment and following performance measures:

1. The review of maintenance and repair work by Port staff shall include an analysis of the potential impact of the work on the interior and exterior character-defining features of the historic Firehouse 35 as described in the landmark site designation report and the 2006 Nomination for the listing of the Embarcadero Historic District on the National Register of Historic Places. The historic preservation review and analysis shall be prepared in a Historic Resources Evaluation (HRE) that meets the Planning Department's format and content requirements and shall include a Standard's analysis. The HRE shall be submitted to Planning Department Preservation staff for review and approval. In cases where a final determination has been made by Planning Department Preservation staff that the Secretary's Standard are not met, the specific tenant improvement or alteration must be redesigned to meet the Standards.
2. Proposed maintenance and repair shall not alter or obscure primary elevations or character-defining window or door openings of the resource and their ingress and egress functions.
3. The introduction of disabled access on the exterior and interior of historic Firehouse 35 shall be done in a manner that minimizes alteration, construction and

interventions, thereby protecting character defining features. For Port properties, accessibility requirements are administered by the Port Chief Harbor Engineer. Determinations about alternate means of compliance through the use of the accessibility requirements of the California Historical Building Code (CHBC) are made on a case-by-case basis and seek to protect significant historic features and materials.

4. The project sponsors shall consult early in the design process with the Port's Historic Preservation staff, Planning Department Preservation staff and the Architectural Review Committee of the HPC as required to obtain a determination that the proposed approach is appropriate and sensitive to the historical integrity of the resource as well as consistent with the Secretary's Standards.

5. Signage, exterior lighting, fencing, interpretive exhibits and landscape improvements shall be presented in a comprehensive program of improvements developed for the resource for review and approval by Planning Department Preservation staff or the HPC.

Mitigation Measure M-AQ-4: Best Available Control Technology for Diesel Generators at Pier 22½

The project sponsor shall ensure that the backup diesel generator meets or exceeds one of the following emission standards for particulate matter: 1) Tier 4-certified engine; or 2) Tier 2- or Tier 3-certified engine that is equipped with a California Air Resources Board Level 3 Verified Diesel Emissions Control Strategy. A non-verified diesel emission control strategy may be used if the filter has the same particulate matter reduction as the identical California Air Resources Board-verified model and if the Bay Area Air Quality Management District approves of its use. The project sponsor shall submit documentation of compliance with the Bay Area Air Quality Management District New Source Review permitting process (Regulation 2, Rule 2, and Regulation 2, Rule 5) and the emission standard requirement of this mitigation measure to the Planning Department for review and approval prior to issuance of a permit for a backup diesel generator from any City agency.

Mitigation Measure M-BI-1a: Pile Driving

The avoidance and minimization measures specific to pile driving activities, below, have been developed in accordance with the majority of the measures outlined in the 2013 NLAA Programmatic criteria, in order to reduce project effects on sensitive resources. Avoidance and minimization measures that would reduce project noise effects include the following:

- All pile driving shall be conducted within the established Bay area environmental work windows between June and November in order to avoid potential impacts to fish species for this area of San Francisco Bay. These windows were promulgated in a programmatic biological opinion (NMFS and CDFW) for the Long Term Management Strategy program for managing sediment within the San Francisco Bay.
- The Port shall develop a NMFS-approved sound monitoring plan prior to the start of pile driving. This plan shall provide detail on the methods used to monitor and verify sound levels during pile driving activities. The sound monitoring results shall be made available to NMFS.

- Vibratory pile drivers may be used for the installation of the steel pilings. Vibratory pile driving shall be conducted following the US Army Corps of Engineers "Proposed Procedures for Permitting Projects that will Not Adversely Affect Selected Listed Species in California". USFWS and NMFS completed section 7 consultation on this document which establishes general procedures for minimizing impacts to natural resources associated with projects in or adjacent to jurisdictional waters.[172]
- 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.
- During the use of an impact hammer, a bubble curtain or other sound attenuation method may be utilized to reduce sound levels. If NMFS sound level criteria are still exceeded with the use of attenuation methods, the contractor shall revise sound attenuation methods as per the approved sound monitoring plan. A NMFS-approved biological monitor shall be available to conduct surveys before and during impact pile driving as specified by NMFS. The monitor shall inspect the established work zone and adjacent Bay waters and document the following during impact pile-driving:
    - Maintain the safety zones established in the sound monitoring plan around sound source, for the protection of marine mammals in association with sound monitoring station distances.
    - Halt work activities when a marine mammal enters the Level A[173] safety zone and resume only after the animal has been gone from the area for a minimum of 15 minutes.
    - Maintain sound levels below 90 dBA in air when pinnipeds (seals and sea lions) are present.

Mitigation Measure M-BI-1b: Dredging

The Port shall require the selected contractor to use clamshell dredging equipment and conduct dredging between June 1 and November 30 in accordance with Long Term Management Strategy dredging windows to minimize potential adverse effects on fish and invertebrate species.

The Port shall assess the environmental risk to aquatic resources in developing sediment capping design and mitigate potential impacts based upon regulatory and resource agency review and a RWQCB approved cap design. Dredging for capping shall be conducted between June 1 and November 30 in accordance with Long Term Management Strategy dredging windows to minimize potential adverse effects on fish and invertebrate species.

[172] National Oceanic and Atmospheric Administration (NOAA). 2007. Report on the Subtidal Habitats and Associated
Biological Taxa in San Francisco Bay. August.

[173] Defined as any act of pursuit, torment, or annoyance which has the potential to injure a marine mammal or marine mammal stock in the wild.

Improvement Measure

Improvement Measure I-NO-1, Stationary Equipment Noise Controls. Noise attenuation measures shall be incorporated into all stationary equipment (including HVAC equipment and emergency generators) installed on all buildings that include such stationary equipment as necessary to meet noise limits specified in Section 2909 of the Police Code. Interior noise limits shall be met under both existing and future noise conditions, accounting for foreseeable changes in noise conditions in the future (i.e., changes in onsite building configurations). Noise attenuation measures could include provision of sound enclosures/barriers, addition of roof parapets to block noise, increasing setback distances from sensitive receptors, provision of louvered vent openings, location of vent openings away from adjacent residential uses, and restriction of generator testing to the daytime hours.

G. PUBLIC NOTICE AND COMMENT

On July 19, 2017, the Planning Department mailed a Notification of Project Receiving Environmental Review to owners of properties within 300 feet of the project site, adjacent occupants, and neighborhood groups. One comment was received from an individual who expressed support for the proposed project.

H. DETERMINATION

On the basis of this Initial Study:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project sponsor. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, no further environmental documentation is required.

_____
Lisa Gibson
Environmental Review Officer
for
John Rahaim
Director of Planning

DATE_____

I. Initial Study Preparers

Planning Department, City and County of San Francisco
Environmental Planning Division
165 Mission Street, Suite 400
San Francisco, CA 94103

Acting Environmental Review Officer:	Lisa Gibson
Senior Environmental Planner:	Rick Cooper
Environmental Planners:	Christopher Thomas
	Sally Morgan

J. Figures

Figure 1. Pier 1, Treasure Island Location

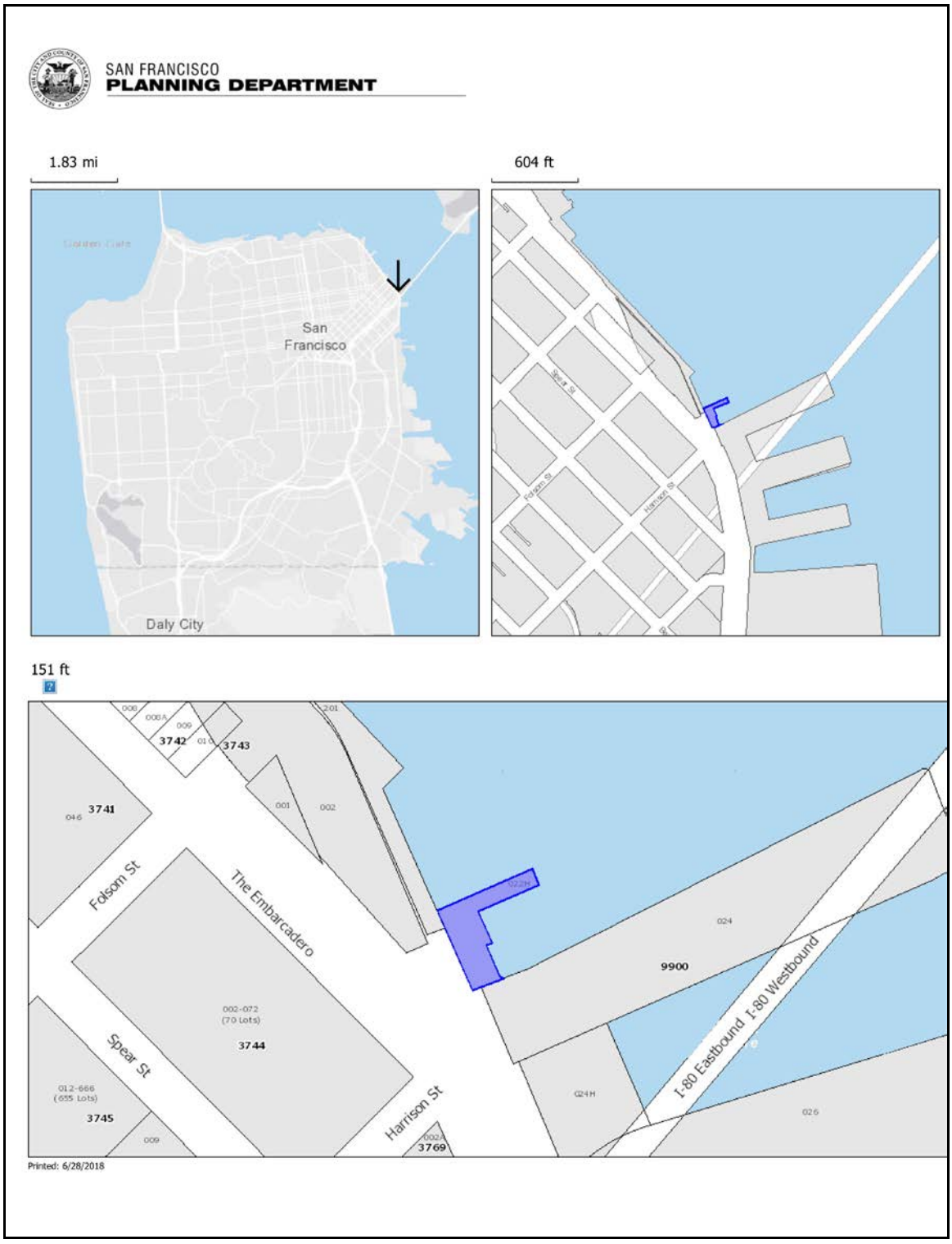

Figure 2. Pier 22½, The Embarcadero Location

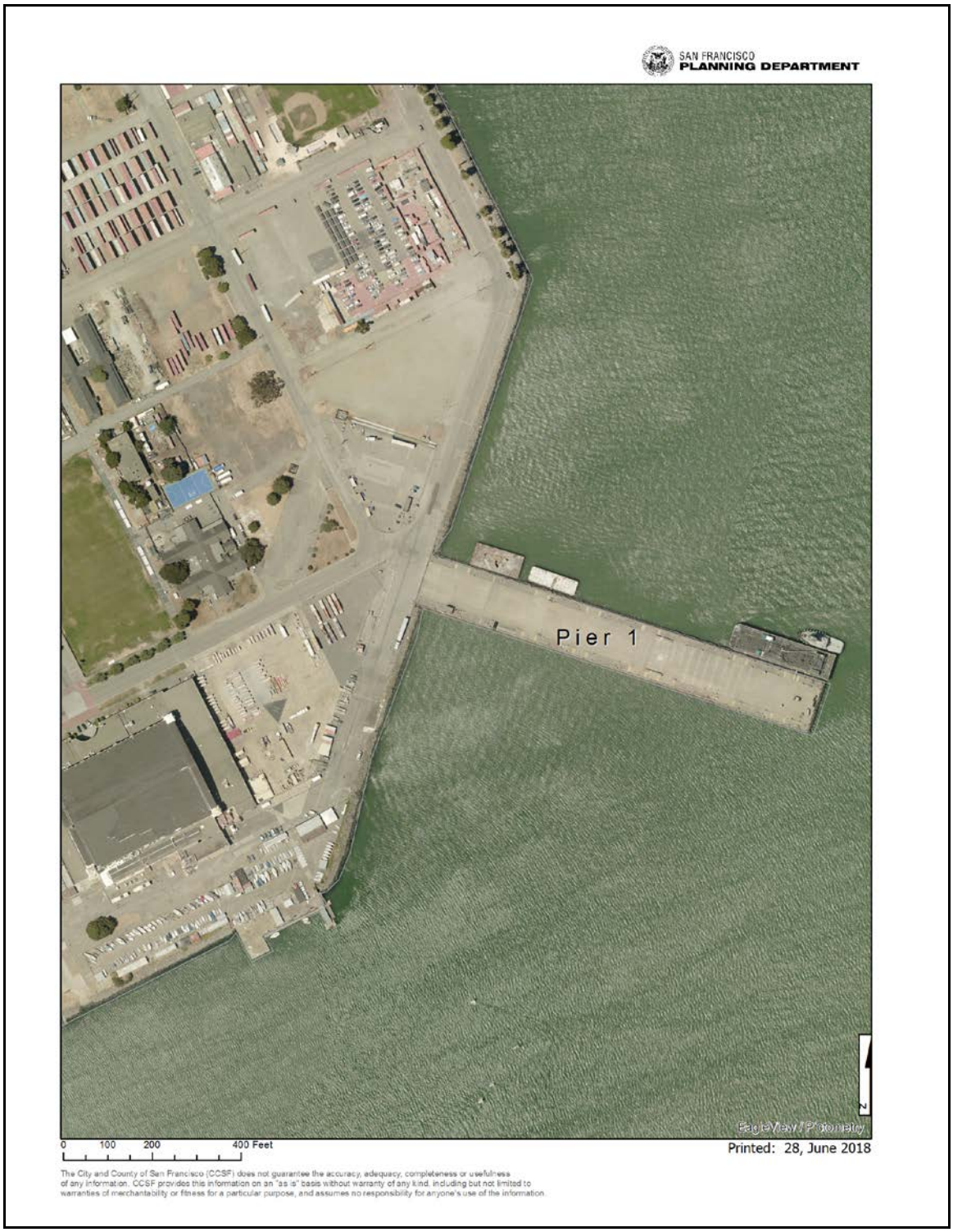

Figure 3. Pier 1, Treasure Island Existing Conditions

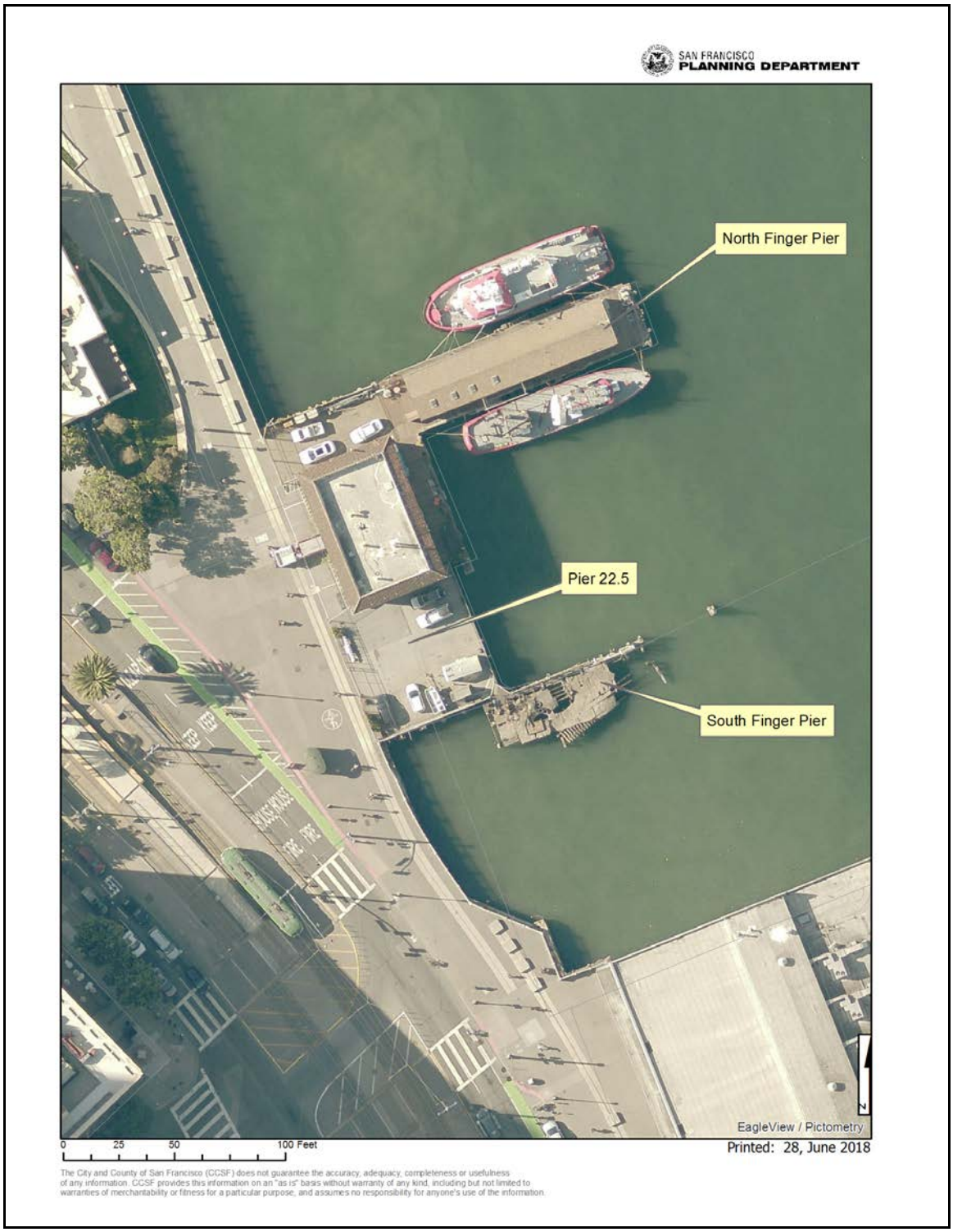

Figure 4. Pier 22½ Existing Conditions

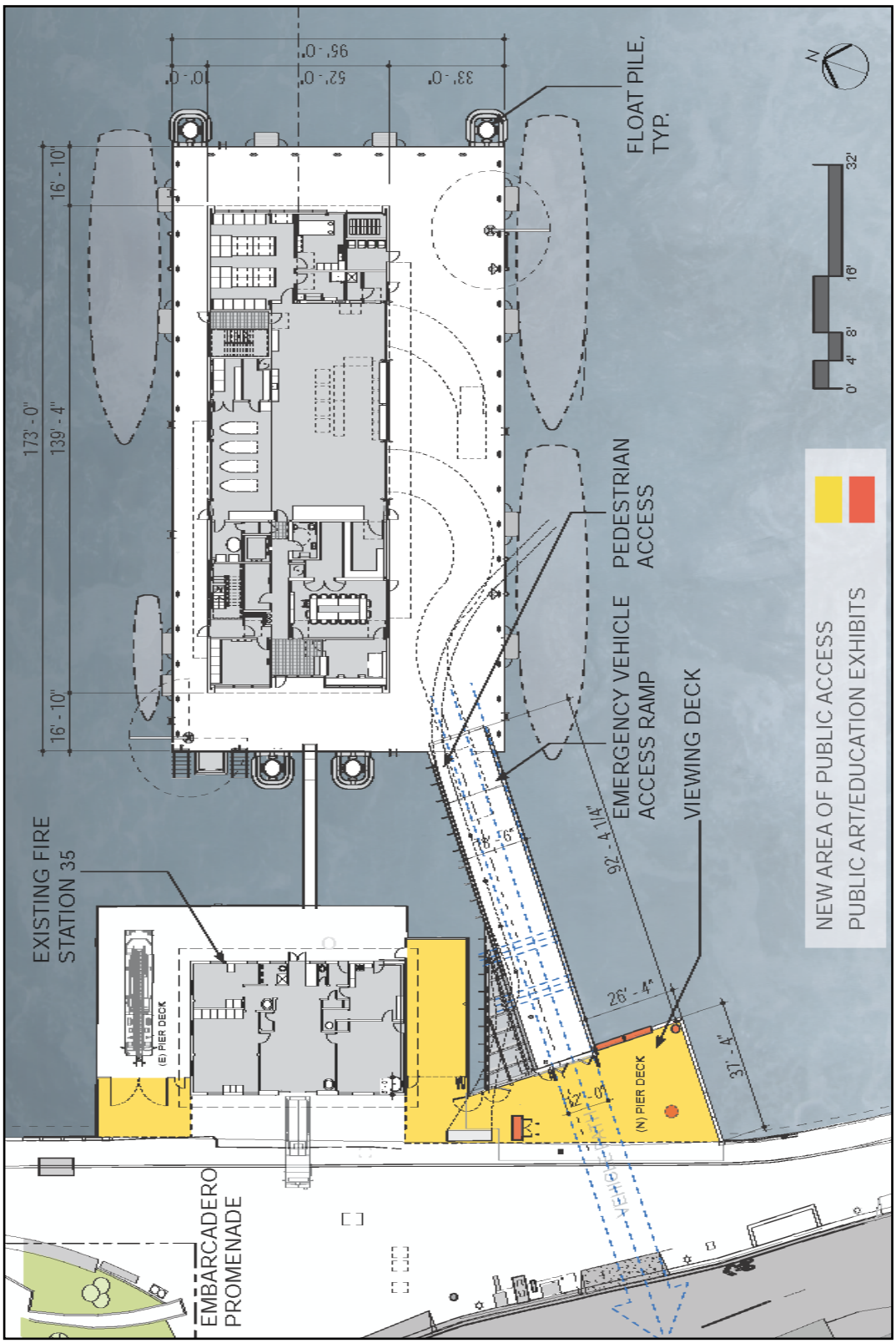

Figure 5. Pier 22½ Site Plan

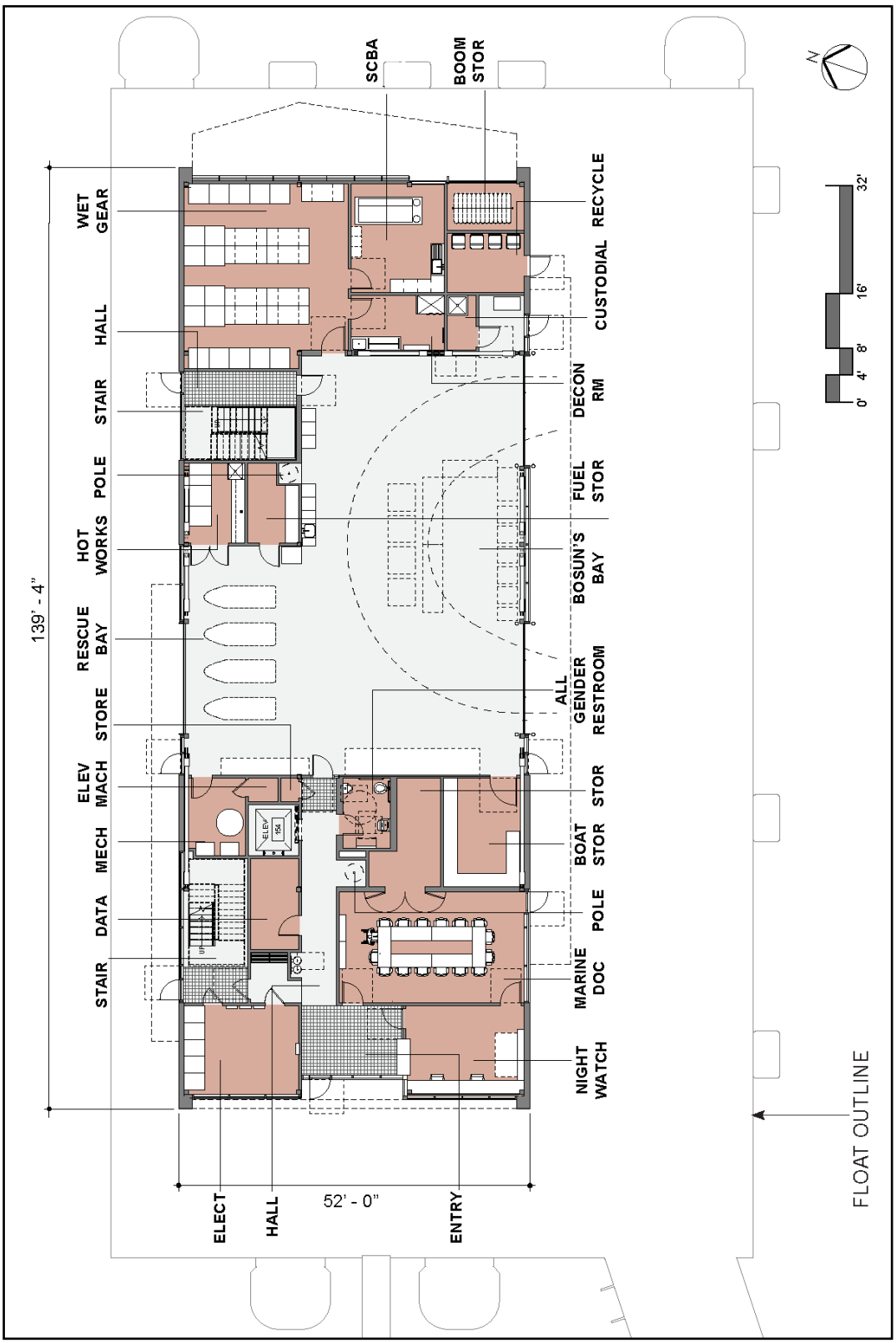

Figure 6. Fire Boat Facility Level 1

Figure 7. Fire Boat Facility Level 2

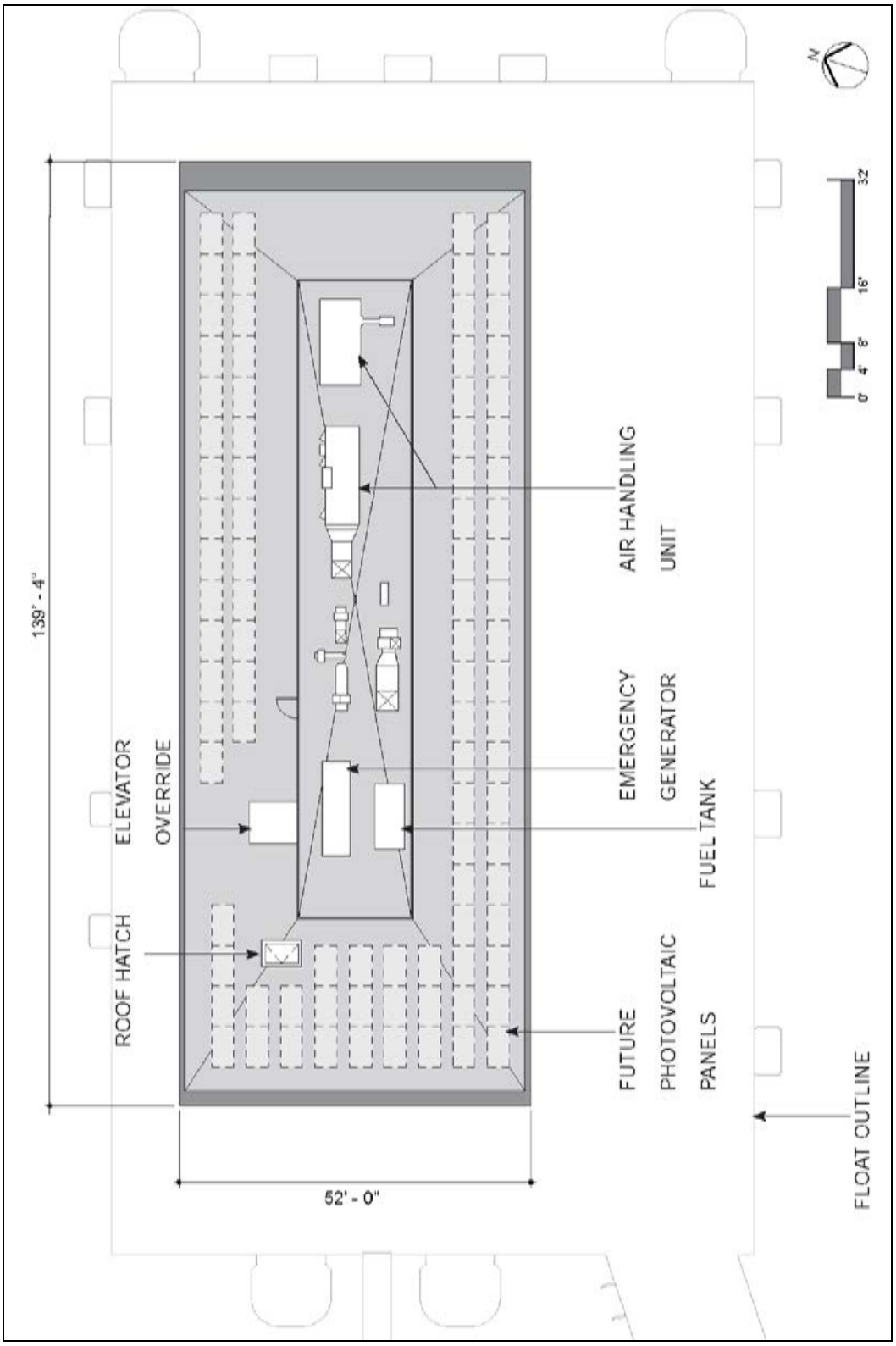

Figure 8. Fire Boat Facility Roof Plan

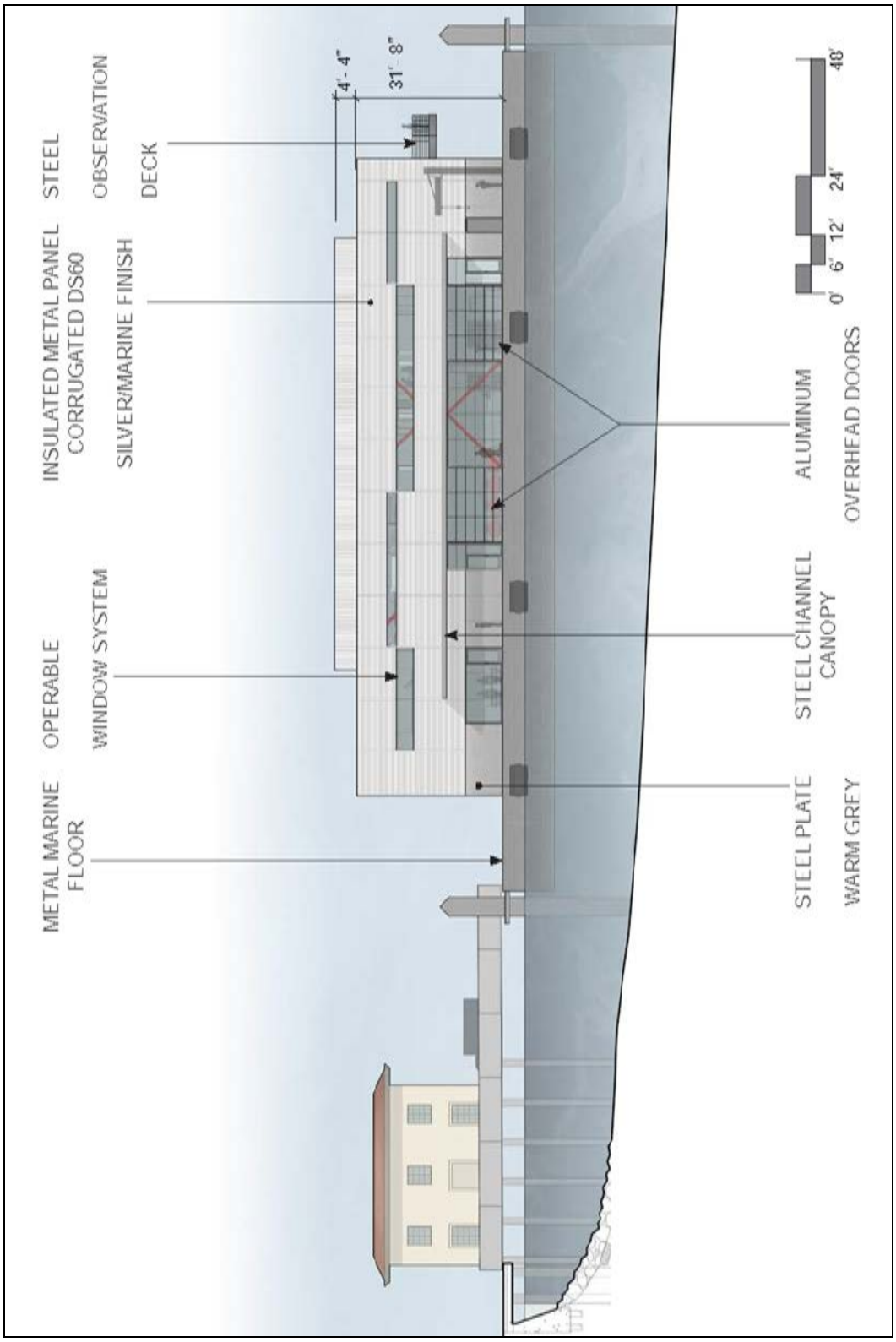

Figure 9. Fire Boat Facility South Elevation

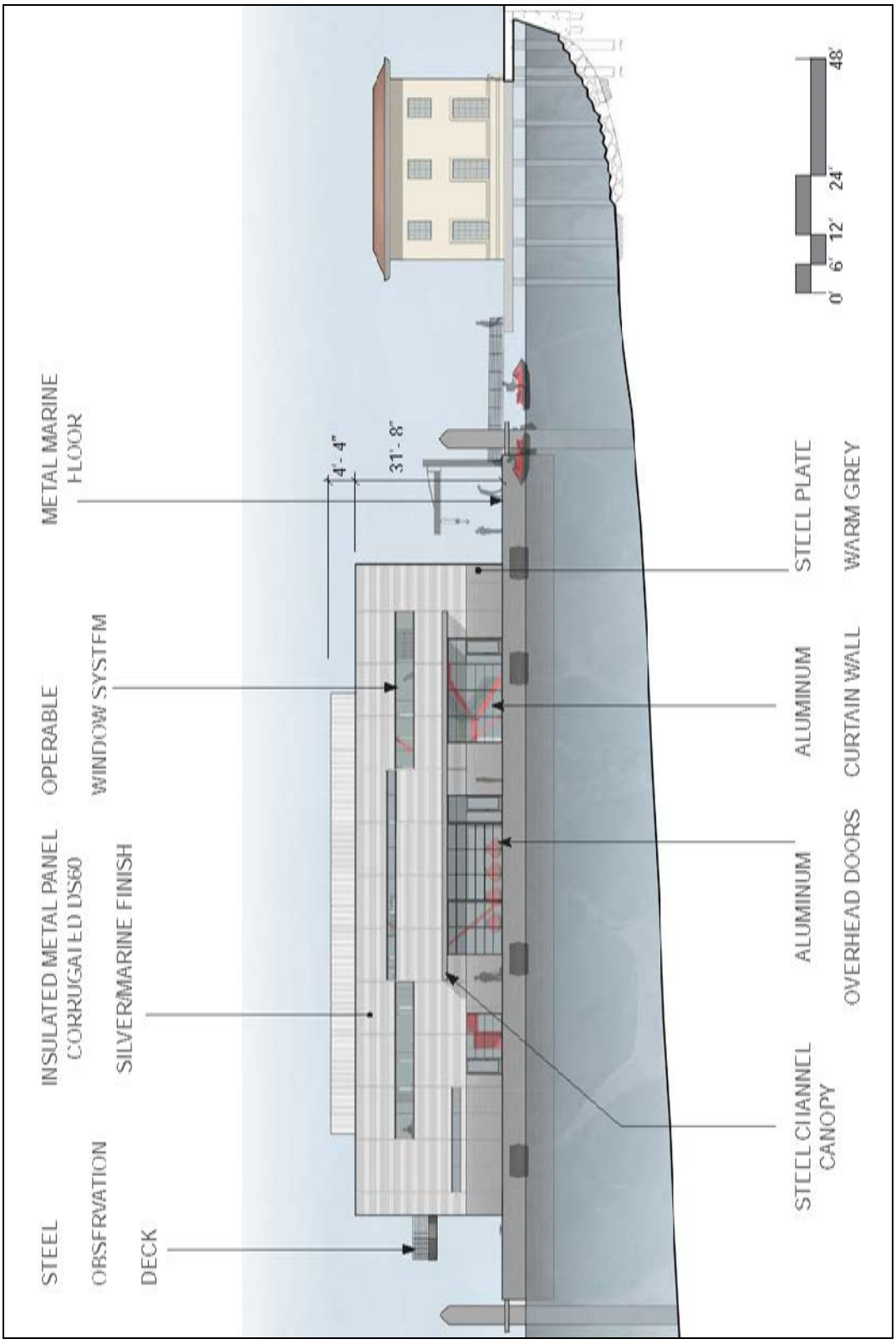

Figure 10. Fire Boat Facility North Elevation

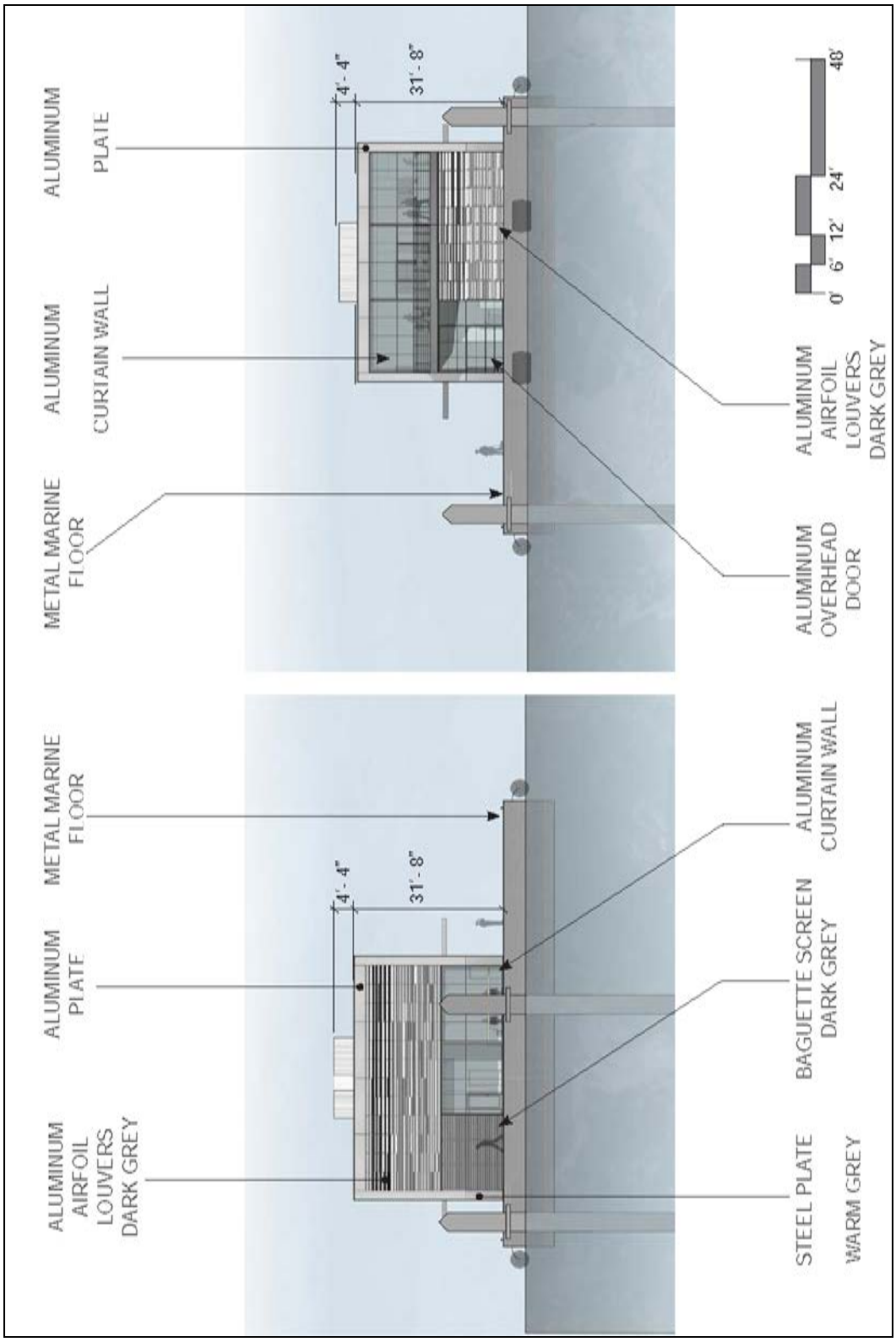

Figure 11. Fire Boat Facility East-West Elevations

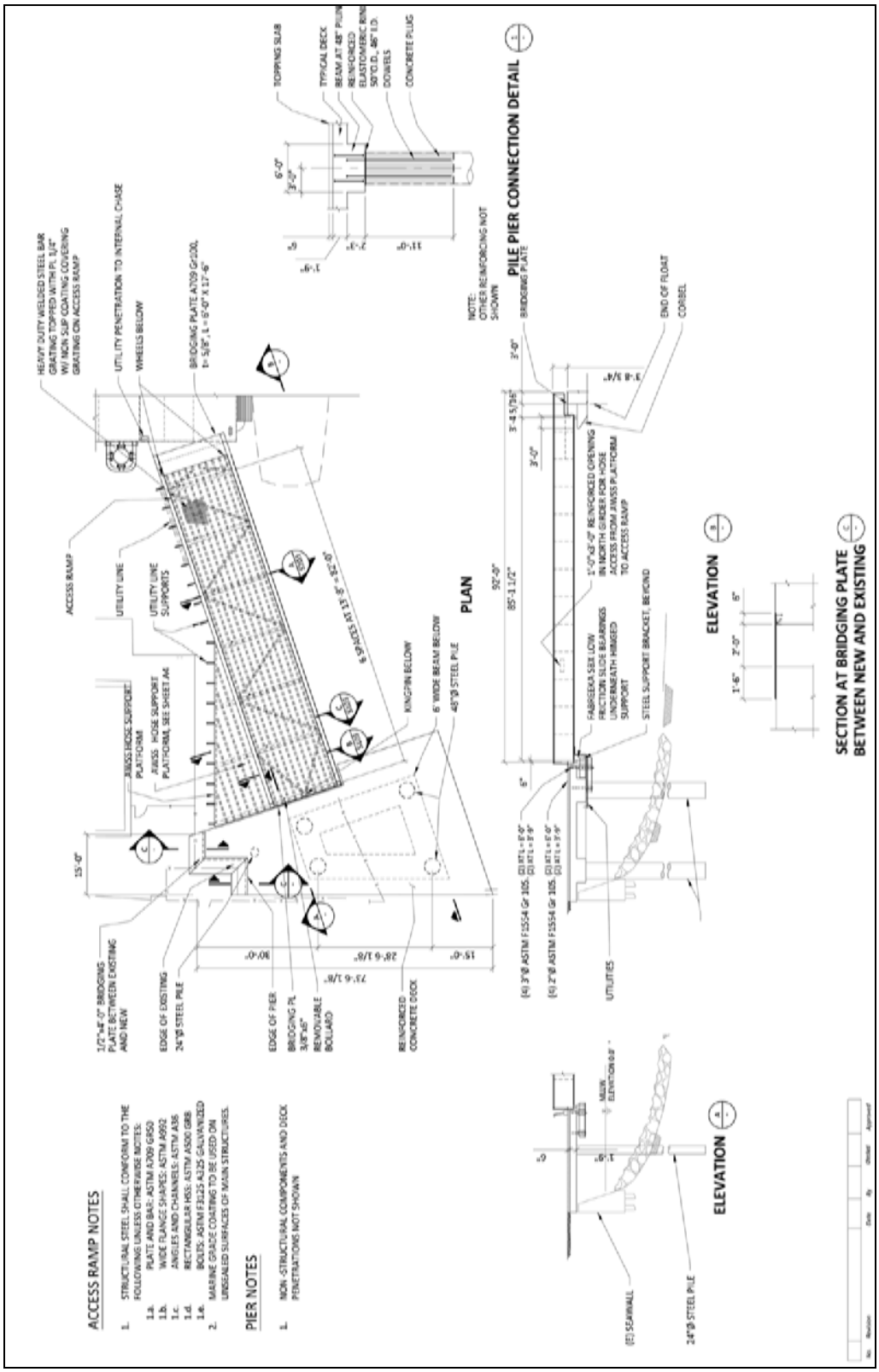

Figure 12. Proposed Observation Deck and Access Ramp

Figure 13a. Existing View of Project Site from Herb Caen Way

Figure 13b.
View of Proposed Project from Herb Caen Way

Figure 14a. Existing View of Project Site Looking East from Harrison Street

Figure 14b. View of Proposed Project Looking East from Harrison Street

Figure 15a. Existing View of Project Site from Rincon Park

Figure 15b. View of Proposed Project from Rincon Park

Figure 16a. Simulated View of Proposed Project from South

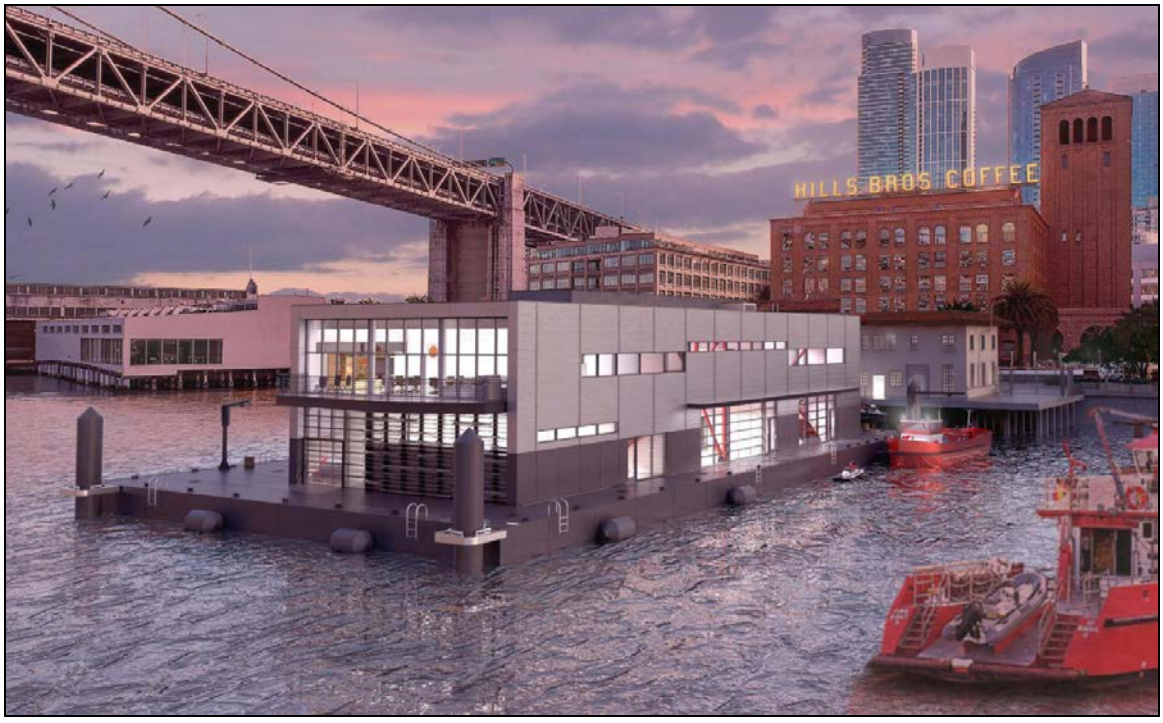

Figure 16b. Simulated View of Proposed Project from San Francisco Bay

Appendices

NO: Noise and Vibration Technical Memo
BR: Biological Resources Technical Report