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Final Mitigated Negative Declaration

Date of Issuance of PMND:	December 6, 2017; amended on February 15, 2018 (amendments to the PMND are shown in deletions as ~~strikethrough~~; additions in double underline)
Case No.:	**2017-000188ENV**
Project Title:	**Alcatraz Ferry Embarkation Project**
Zoning:	Light Industrial District 40-X Height and Bulk District
Block/Lot:	9900/031, 031H, 033 (Pier 31½), and 200-150-07 (Fort Baker)
Project Area:	73,800 square feet (Pier 31½) and 39,200 square feet (Fort Baker)
Project Sponsor	National Park Service Brian Aviles – (415) 624-9685 Golden Gate National Parks Conservancy Catherine Barner – (415) 561-3000 Port of San Francisco Diane Oshima – (415) 274-0553
Lead Agency:	San Francisco Planning Department
Staff Contact:	Julie Moore – (415) 575-8733 julie.moore@sfgov.org

PROJECT DESCRIPTION:

Alcatraz Island, a national historic landmark, is part of and managed by the Golden Gate National Recreation Area, a National Park Service unit that includes numerous park facilities within the San Francisco Bay area, including Fort Mason, Fort Baker, Ocean Beach, and Crissy Field. Under the proposed project, the Park Service seeks to enter into a long-term agreement with the Port of San Francisco for the development and operation of an improved ferry embarkation site at Pier 31½ to support Alcatraz Island visitors. The Port agreement would require the Park Service's selected concessioner to renovate the marginal wharf, the Pier 33 bulkhead buildings, and portions of the Pier 31 and Pier 33 shed buildings. In addition, the Park Service's partner, the Golden Gate National Parks Conservancy, would renovate the Pier 31 bulkhead building and additional portions of the Pier 31 and Pier 33 shed buildings. Renovations would provide a combination of indoor and outdoor spaces to welcome, orient, and provide improved basic amenities for the public. The proposed project would also include other administrative and operational spaces, such as new boarding ramps and floats to support the berthing of up to three ferry boats at a time. These improvements would establish an identifiable and well-functioning facility to provide a quality experience for visitors. The proposed project would also establish limited ferry service between Pier 31½ and the existing Fort Baker pier, as well as interpretive cruises around the bay.

FINDING:

This project could 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, Mitigation Measures and Improvement Measures.

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

Lisa Gibson
Environmental Review Officer

2/23/18
Date of Issuance of Final Mitigated Negative Declaration

cc: Ming Yeung, Port of San Francisco
Master Decision File
Distribution List

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Appendix

Appendix A Federal and State Listed Species with the Potential to Occur in the Study Area

Appendix B Supplemental Transportation Circulation Study

Initial Study

Pier 31½, Port of San Francisco/Alcatraz Ferry Embarkation Project

Planning Department Case No. 2017-000188ENV

A. PROJECT DESCRIPTION

Alcatraz Island, a national historic landmark, is part of and managed by the Golden Gate National Recreation Area, a National Park Service unit that includes numerous park facilities within the San Francisco Bay area, including Fort Mason, Fort Baker, Ocean Beach, and Crissy Field (Figures 1 and 2). Under the proposed project, the Park Service seeks to enter into a long-term agreement with the Port of San Francisco for the development and operation of an improved ferry embarkation site at Pier 31½ to support Alcatraz Island visitors. The Port agreement would require the Park Service's selected concessioner to renovate the marginal wharf, the Pier 33 bulkhead buildings, and portions of the Pier 31 shed building. In addition, the Park Service's partner, the Golden Gate National Parks Conservancy, would renovate the Pier 31 bulkhead building and additional portions of the Pier 31 shed building. Renovations would provide a combination of indoor and outdoor spaces to welcome, orient, and provide improved basic amenities for the public. The proposed project would also include other administrative and operational spaces, such as new boarding ramps and floats to support the berthing of up to three ferry boats at a time. These improvements would establish an identifiable and well-functioning facility to provide a quality experience for visitors. The proposed project would also establish limited ferry service between Pier 31½ and the existing Fort Baker pier, as well as interpretive cruises around the bay.

Project Location, Existing Site Characteristics, and Operations

Pier 31½

Pier 31½ is located along the northern end of The Embarcadero and within Port jurisdiction. The existing embarkation site is located primarily in the open area between the Pier 33 shed to the north and the Pier 31 shed to the south, and to the rear (bay side) of the Pier 33 and Pier 31 bulkhead buildings. The outdoor site occupies approximately 0.95 acre along the water. The site lies within the Port of San Francisco Embarcadero Historic District. Figure 3 shows the layout of the existing embarkation site, which has been operated by Alcatraz Cruises, LLC, since 2006. The ferry embarkation site program is located on the marginal wharf,[1] except for a portable restroom facility and limited operational space located in the Pier 33 shed. The site features a portable ticket booth, several exhibits, and a small parking area of approximately 15 spaces for Park Service operations, located on the southeastern portion of the marginal wharf. There is a large canopy structure over the queuing area adjacent to the water, a seating area with café tables and chairs under eight market umbrellas, and a temporary fabric canopy over a concession stand. The Pier 33 bulkhead building is occupied by the privately-operated Alcatraz Café and Grill. A passenger loading zone compliant with Federal Accessibility Standards for tour bus operations is

[1] A wharf is a docking structure oriented parallel to the shore. A wharf built as a continuation of the shoreline is known as a "marginal wharf."

located in front of the Pier 33 building. The Pier 31 bulkhead building is vacant. There is currently one float to accommodate two berths at the existing site.

Visitors enter Pier 31½ from The Embarcadero between the bulkhead buildings. Visitor use the ticket booth, circulate through several small interpretive exhibits, and enter the covered queuing area, which has space for visitors to stand. A pre-boarding area adjacent to the gangway offers seating for those with disabilities. Visitors are guided down the gangway and on to the ferry.

In 2016, the Pier 31½ facility served 1.76 million visitors a year, which included people traveling to Alcatraz Island and other ferry destinations, as well as a small number of visitors without tickets to Alcatraz Island or other destinations but who visited the facility to enquire about tickets or learn about the island. There were 7,077 annual and 24 peak day ferry trips to Alcatraz Island via the primary embarkation site at Pier 31½, which included service to both Alcatraz Island and Angel Island (the "Alcatraz plus Angel Island Loop"). In addition, during the peak season (June to September), the concessioner operated 133 bay cruises from the site that were not associated with Park Service operations. Table 1 presents the annual, peak day, and average day number of ferry trips that occurred from Pier 31½ in 2016. Table 2 presents the annual, peak day, and average day number of visitors that visited Pier 31½ in 2016.

TABLE 1
FERRY TRIPS FROM PIER 31½ UNDER EXISTING CONDITIONS

		2016		
		Ferry Trips		
Destination	One-Way Trip Distance from Pier 31½ (nautical miles)	No. Annual Calls (trips/year)	No. Peak Day Calls[2] (trips/day)	No. Average Day Calls (trips/day)
Alcatraz	1.5	6,956	22	18
Alcatraz Plus Angel Island Loop	5.5	121	2	2
Bay Cruise[1] (Hornblower)	8	133	3	3
	Total	**7,229**	**27**	**23**

1. Hornblower offered the bay cruise during the summer season (June through September)
2. Peak day trips would occur in peak season (March to November)



SOURCE: Anchor QEA

Case No. 2017.000188ENV: Pier 31.5, Port of San Francisco/Alcatraz Ferry Embarkation Project

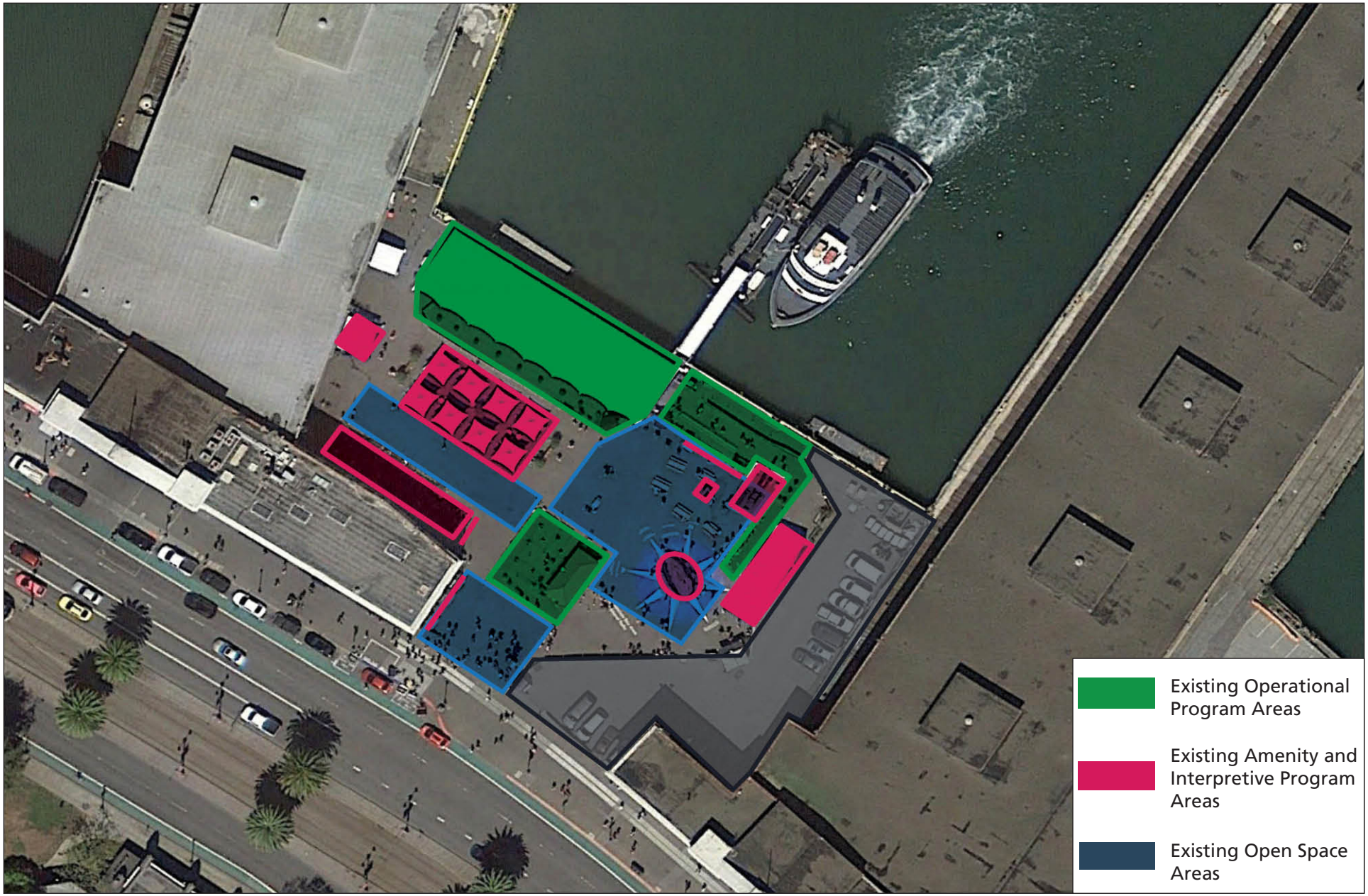
Figure 1
Vicinity Map



SOURCE: Anchor QEA

Case No. 2017.000188ENV: Pier 31.5, Port of San Francisco/Alcatraz Ferry Embarkation Project

Figure 2
Area Map



SOURCE: National Park Service

Case No. 2017.000188ENV: Pier 31.5, Port of San Francisco/Alcatraz Ferry Embarkation Project

Figure 3
Existing Site Program Use

TABLE 2
VISITOR NUMBERS UNDER EXISTING CONDITIONS

Destination	Annual	Peak Day	Average Day
Alcatraz[1]	1.7 million	5,840	4,397
Alcatraz Plus Angel Island Loop	36,000	100	80
Bay Cruise	24,000	220	180
Total	**1.76 million**	**6,160**	**4,657**

1. Includes visitors to Pier 31½ who did not travel to Alcatraz Island

Visitors have several transportation options to arrive at the site, including combinations of public transit (e.g., the MUNI streetcar on The Embarcadero, bus, cable car, or Bay Area Rapid Transit), tour buses, taxis, bicycles, personal vehicles, and walking. In a 2012 Visitor Flow Survey, the Park Service found that most visitors arrive by public transportation (35 percent), walk (23 percent), or carpool (28 percent) to the site. Ample paid parking for personal vehicles is located nearby, as are many other visitor services.

Fort Baker

Fort Baker is a former U.S. Army post located in Marin County at the foot of the Golden Gate Bridge and entrance to the bay. Fort Baker comprises approximately 335 acres, including a core zone of 91 acres surrounding a parade ground and 24 historic military buildings dating from the late nineteenth century. The site also includes a historic pier, gun batteries, open space, and rocky shoreline, and is connected to the Golden Gate National Recreation Area's trail system.[2] Fort Baker is a federal park, which is part of the Golden Gate National Recreation Area and managed per the policies and decisions set forth in the Park Service's *Fort Baker Plan Environmental Impact Statement* (Fort Baker Plan).[3] The park currently offers recreational and educational opportunities through its partners, including the Cavallo Point Lodge, the Bay Area Discovery Museum, and the Travis Sailing Center. Visitors can go fishing or crabbing off the pier at Horseshoe Cove, launch a kayak or sailboat at the boat ramp, explore the seacoast fortifications at Battery Yates on the eastern Bluff, and take walks along the waterfront and trails which provide spectacular views of the Golden Gate Bridge and San Francisco Bay.

The existing pier was built in 1937 and modified in subsequent years. There is no ferry service to Fort Baker. Currently, the pier is mostly used for recreational fishing and offers clear, unobstructed views of the bay, San Francisco, and Angel Island. The structural deck is constructed of cast-in-place concrete and is topped with an asphalt surface. The concrete deck is supported by plumb and precast-concrete piles, and lateral support to the pier is provided by rows of similar battered piles on the northeast, southeast, and southwest sides. The existing pier has significant damage and deterioration, and the precast-concrete

[2] National Park Service, Fort Baker Brochure, updated June 2008. Available from https://www.nps.gov/goga/planyourvisit/upload/2008-0910-sb-foba-web.pdf.

[3] National Park Service, *Fort Baker Plan Final Environmental Impact Statement*, October 1999. Available from http://parkplanning.nps.gov/document.cfm?parkID=303&projectID=20244&documentID=20847.

piles also show significant damage (in the form of large cracks, rust stains, and exposed reinforcing steel) visible above the waterline.

Project Background and Objectives

The Park Service has provided public access to Alcatraz Island from San Francisco since the 1970s, embarking from various locations in San Francisco. From 2006 to the present, the ferry embarkation site has been located at Pier 31½ on The Embarcadero. The current facility functions adequately, but the public areas are entirely outdoors, and the site has a temporary visual character that the Park Service considers inappropriate for a national park gateway. It is also too small to accommodate projected visitor levels and only supports two berths, which restricts ferry operations. The existing concession contract has been extended to expire in 2018. For a variety of reasons, the Park Service has not been able to require its concessioner to greatly improve the embarkation facility, which has led to visitor confusion, community concerns, and inconsistency in providing visitor support services. Visitor demand is expected to grow in line with a general growth in tourism in San Francisco, which will exacerbate current crowding.

The proposed project was defined and analyzed in the Alcatraz Ferry Embarkation Environmental Impact Statement (EIS).[4] As stated in the EIS, the Park Service desires an identifiable and well-functioning facility that provides a quality welcome and support program for visitors, orients visitors to the history of Alcatraz Island, ~~and provides a connection to~~ other Golden Gate National Recreation Area parklands, and ~~orientation~~ to the national park system in general. The EIS evaluated several alternative locations for the embarkation facility: Pier 31½ and Pier 41 at the Port of San Francisco; and a site at Fort Mason. The EIS also evaluated opportunities for new or enhanced linkages to the bay and other park lands. The Draft EIS was available for public review from March 20 to June 4, 2015. After exhaustive study and review, the Park Service identified the Pier 31½ Alternative, as described herein, inclusive of developing a limited ferry service to Fort Baker and an interpretive bay cruise, as the preferred alternative among the alternatives evaluated in the EIS. The Park Service completed the final EIS in January 2017. The Park Service expects to complete the record of decision finalizing the EIS in fall 2017.

Under the proposed project, the Park Service seeks to enter into a long-term General Agreement (50 years) with the Port that will provide for the development and operation of the new ferry embarkation site at Pier 31½ to support Alcatraz Island visitors, interpretive bay cruises, and provide connections to Golden Gate National Recreation Area sites, including new limited ferry service to Fort Baker and expanded signage highlighting other regional park facilities. This development will be accomplished through two Port leases: one with the Park Service ferry concessioner and one with the Golden Gate National Parks Conservancy.

Many potential visitors are unable to obtain tickets to Alcatraz Island due to high demand. Enhanced on-shore visitor facilities would provide those visitors with interpretive information about the island. The

[4] National Park Service, *Alcatraz Ferry Embarkation Final Environmental Impact Statement*, January 2017. Available from https://parkplanning.nps.gov/document.cfm?parkID=303&projectID=41352&documentID=77056.

proposed project would improve cross-bay connectivity and accommodate ~~existing and future~~ visitor demand for recreational travel to Fort Baker and the Marin Headlands, thereby enhancing the Golden Gate National Recreation Area's operational effectiveness.

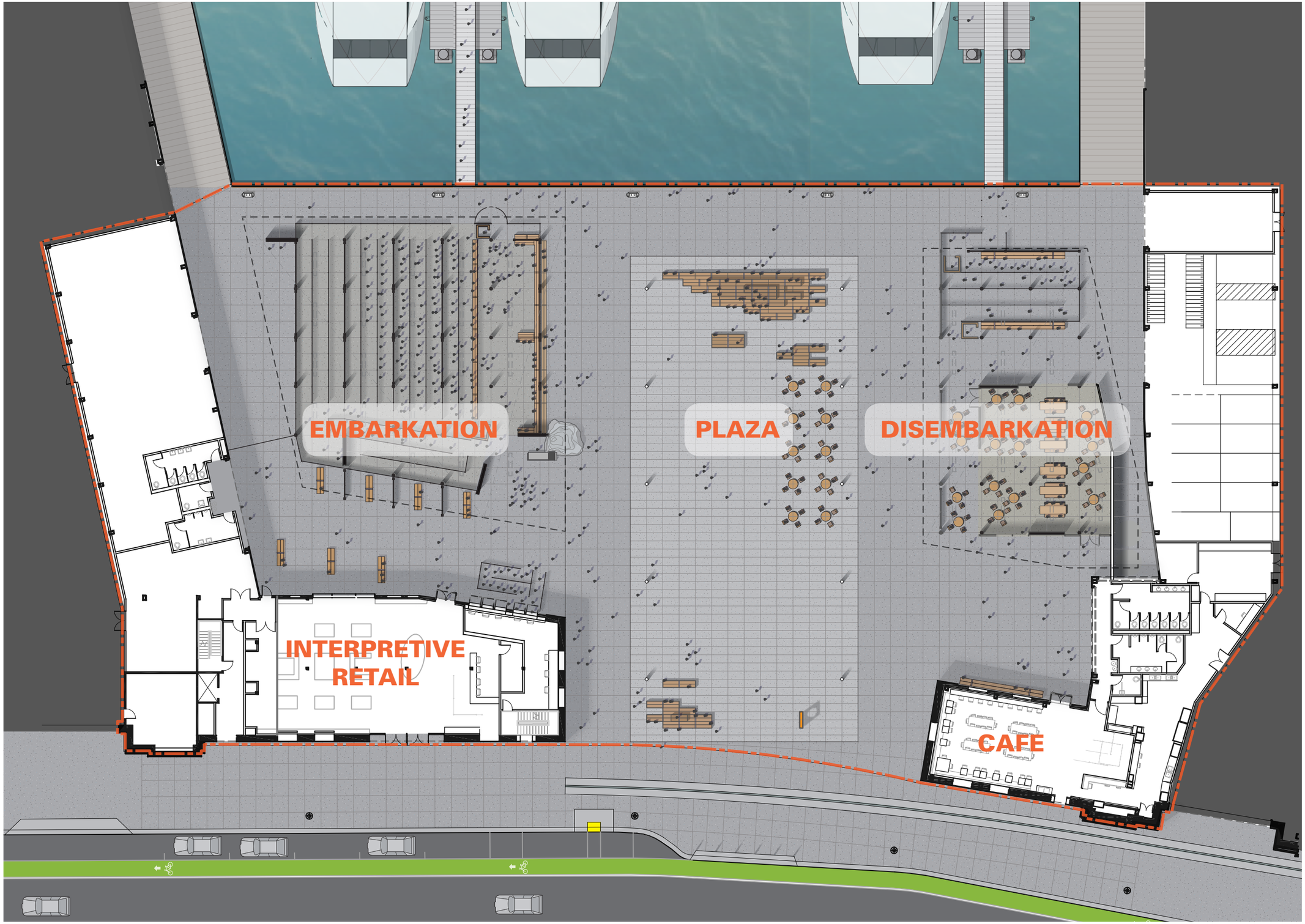
Project Components

Pier 31½

The proposed project would require improvements to the existing facility, which lies within the Port of San Francisco Embarcadero Historic District. The overall treatment philosophy is rehabilitation, informed by *The Secretary of the Interior's Standards for Rehabilitation of Historic Buildings*.[5] The proposed project seeks to preserve and protect the original historic fabric of the pier structures, and where possible, rehabilitate and restore original fabric. The marginal wharf in between the pier structures would be rehabilitated in a manner that is sensitive to its historic open, utilitarian character as a site for berthing large vessels and loading/unloading cargo.

The proposed project would renovate the Pier 31 and Pier 33 bulkhead buildings on The Embarcadero, portions of the sheds at Pier 31 and Pier 33, and all the outdoor space between Piers 31 and 33 for embarkation services (Figure 4). The proposed project would remove the existing parking and exhibits to create an open civic plaza in the center of the marginal wharf that would welcome the public and improve access to the waterfront (Figures 5 and 6). The proposed project would remove the non-historic canopy structure and construct two new canopies adjacent to the pier sheds to protect and organize visitor queuing and boat operations. The interiors of both bulkhead buildings would be reconfigured, while restoring the exterior historic features to the extent feasible (Figure 7). The existing single dock and gangway would be relocated and replaced with two parallel floating docks and gangways (to accommodate three berths) accessed from the existing wharf (Figure 8).

[5] National Park Service, *The Secretary of the Interior's Standards for Rehabilitation of Historic Buildings*, 2017. Available from https://www.nps.gov/tps/standards/treatment-guidelines-2017.pdf.



SOURCE: EHDD

Case No. 2017.000188ENV: Pier 31.5, Port of San Francisco/Alcatraz Ferry Embarkation Project

Figure 4
Site Plan

- **A** Main Dock (Berths 1 & 2)
- **B** Secondary Dock (Berth 3)
- **C** Ferry Primary Queue
- **D** Ferry Pre-Queue
- **E** Group Queue and Orientation
- **F** Ticket Confirmation Booth
- **G** Ticket Check Booth
- **H** Interpretive Panels
- **I** Ticketing Queue
- **J** Visitor Contact Desk
- **K** Additional Ferry Queue Photo
- **L** Taking Area
- **M** Seatwall
- **N** Enclosed Dining Area
- **O** Rainwater Cisterns
- **P** Wood Deck
- **Q** Outdoor Dining
- **R** Monument Sign Information
- **S** Display
- **T** Fixed Bench
- **U** (E) Drive Apron
- **V** Collapsible Bollards
- **W** (E) Curb Ramp
- **X** (E) Accessible Loading Zone
- **Y** (E) Bike Lane
- **Z** (E) Pier Apron



SOURCE: EHDD

Case No. 2017.000188ENV: Pier 31.5, Port of San Francisco/Alcatraz Ferry Embarkation Project

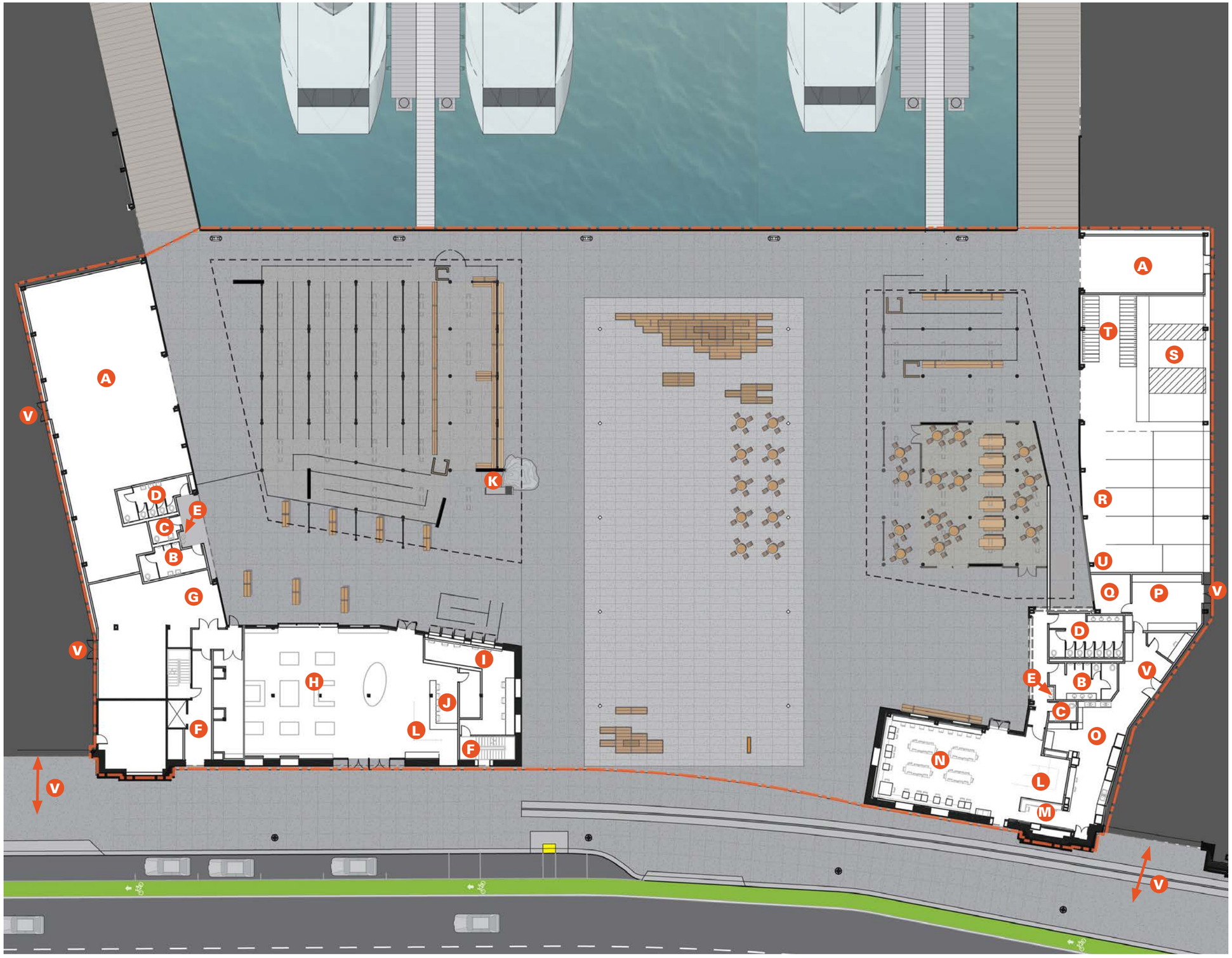
Figure 5
Site Program



Figure 6
View of Pier 31½ from The Embarcadero under the Proposed Project

The following improvements would take place at the Pier 31½ project site:

- **In-Water Infrastructure:** The existing berth would be removed, and two new berths would be installed, each consisting of an accessible gangway, float, and guide piles. A total of 12 hollow steel piles, 24 to 36 inches in diameter, would be driven to depths up to 90 feet below the water; no fill material would be removed during the process.
- **Marginal Wharf:** Queuing outside the Pier 33 Bulkhead Building would be reorganized and the existing white canopy replaced with a concrete canopy. Seating, ticket confirmation and check-in booths, interpretive panels, and an information display would be added to this area.
- **Ticketing Queue and Infrastructure:** New ticket windows would be added to the east façade of the Pier 33 Bulkhead Building. Restoration work would also occur along the same façade, including restoration of historic windows and removal of post-1949 additions.
- **Interior Renovations to the Pier 33 Bulkhead Building and Shed:** The Pier 33 Bulkhead Building has existing second and third floors. The space would be modified to accommodate exhibits, interpretive retail, storage, restrooms, office space, and a ticketing area. The second floor would be mostly demolished (except for a small area to create a mezzanine level for offices and a mechanical platform). Portions of the shed would be renovated for public restrooms and site operations.
- **Interior Renovations to the Pier 31 Bulkhead Building and Shed:** The Pier 31 Bulkhead Building is currently an unoccupied construction zone stripped to the core shell of deck, structure, exterior framing, and roof structure. Modifications to the interior space would consist of constructing a



Key

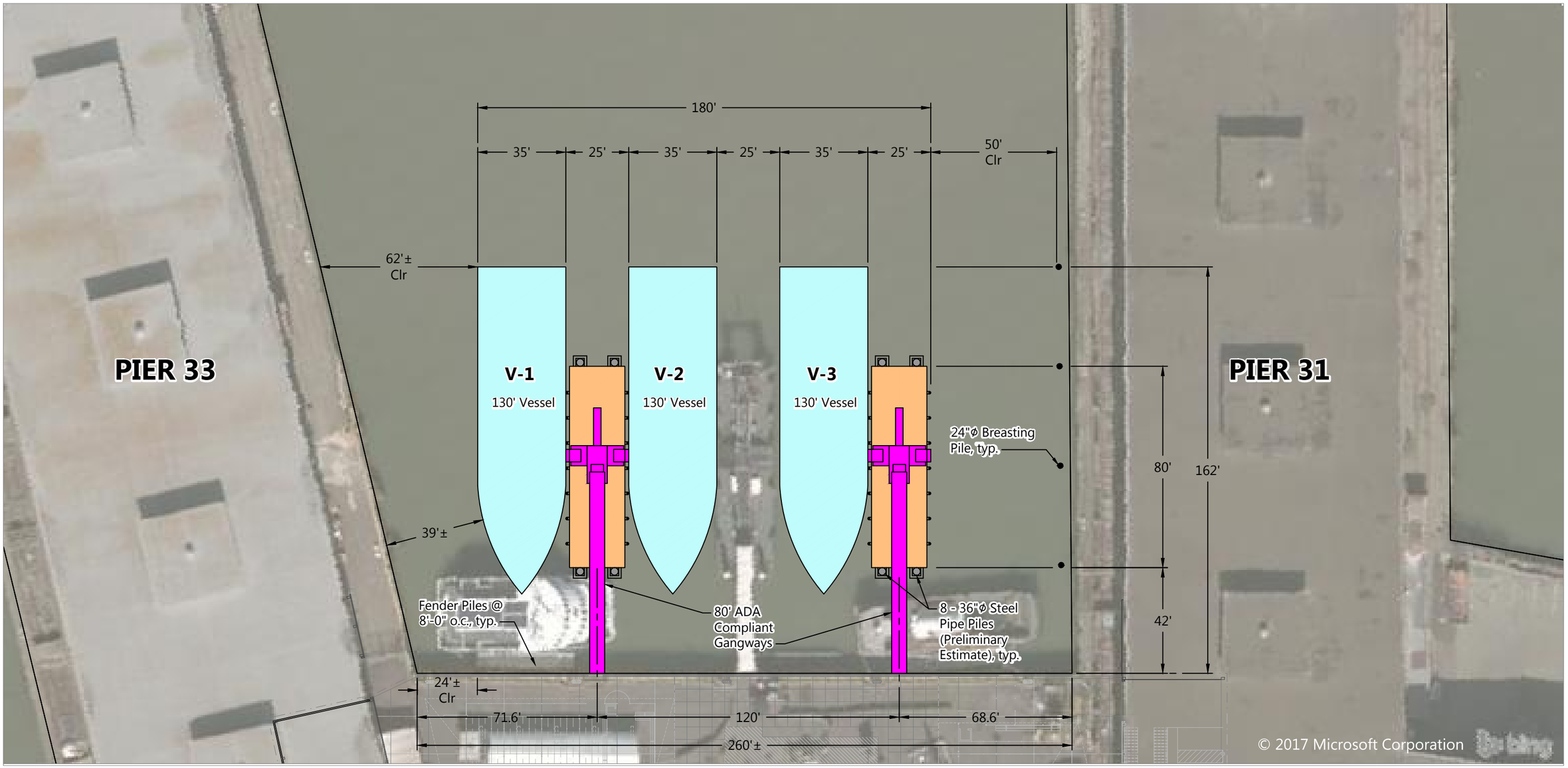
A	Operations Storage
B	Men's Restroom
C	Family Restroom
D	Women's Restroom
E	Drinking Fountains
F	Circulation (Staff)
G	Staff Break Room / Locker Room
H	Interpretive Retail
I	Ticketing Sales & Office
J	Point of Sales
K	Information Counter
L	Queuing
M	Cafe Service
N	Cafe Seating
O	Prep Kitchen
P	Dry Storage
Q	Cold Storage
R	Tandem Staff Parking
S	Accessible Parking
T	Bike Parking
U	Trash & Recycling
V	Service Loading

*Additional program located in Pier 33 mezzanine and upper level.

SOURCE: EHDD

Case No. 2017.000188ENV: Pier 31.5, Port of San Francisco/Alcatraz Ferry Embarkation Project

Figure 7
Building Program



SOURCE: Anchor QEA. Aerial photograph provided by Bing, via Autodesk. Wharf Development Plan provided by EHDD.

NOTE: Dimensions based on aerial photo ±3'. Detail survey required.

0 40
Feet

Case No. 2017.000188ENV: Pier 31.5, Port of San Francisco/Alcatraz Ferry Embarkation Project

Figure 8
New Dock Arrangement

café, space for food preparation, and storage. Portions of the shed would be renovated for public restrooms, public bicycle parking, disabled visitor parking, staff parking, and site operations.

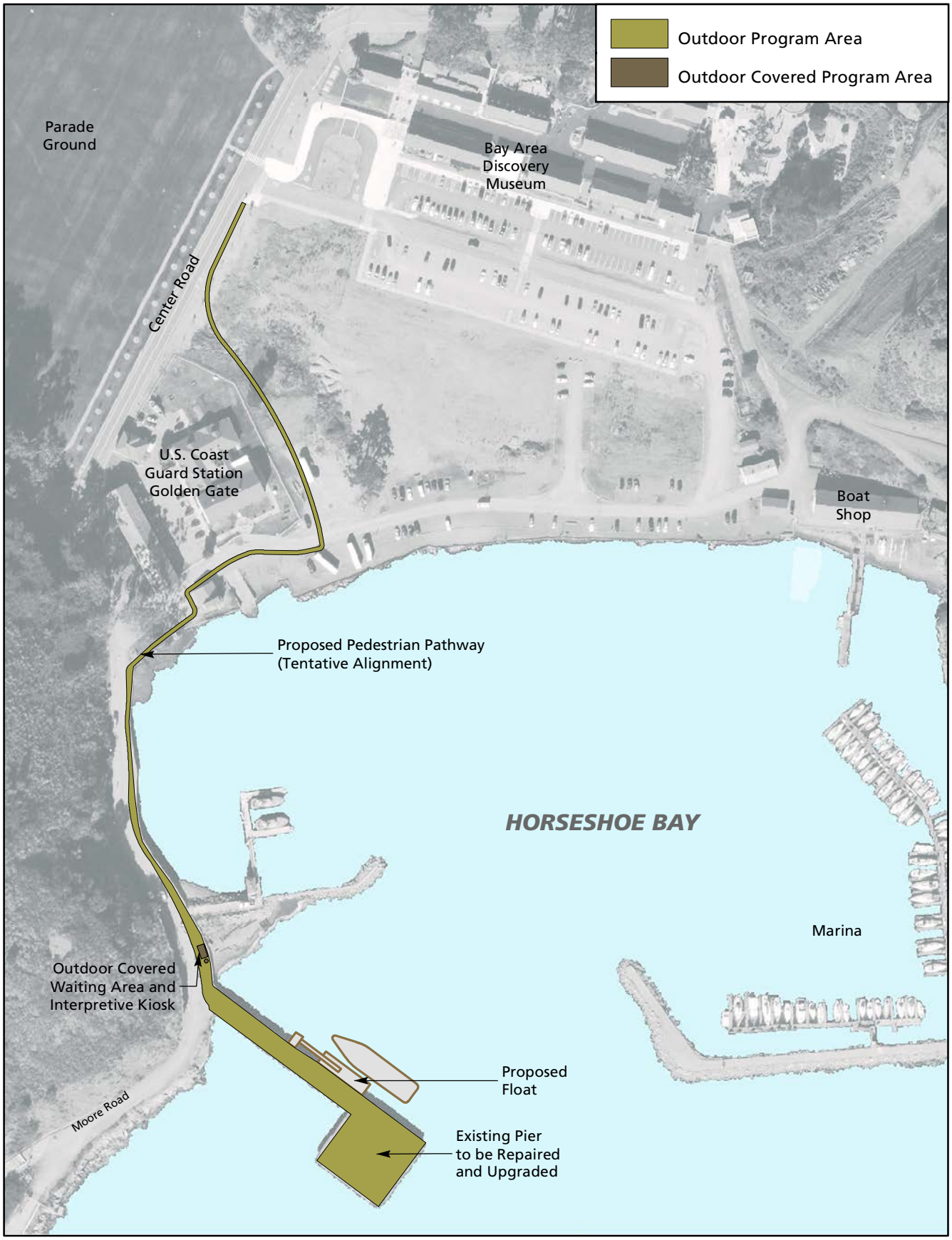
- **Café Seating and Additional Queuing Area:** Queuing outside the Pier 31 Bulkhead Building would be reorganized and the existing white fabric canopy replaced with a concrete canopy made in part of glass panels that would allow more natural light through than the existing fabric panels. Seating, interpretive panels, and a dining area with tables and food stalls would be added.
- **Civic Plaza:** The existing parking, seating, sign, and interpretive displays would be replaced with low bench seating and a monument sign, as well as space for tables and chairs. The surface of the plaza would be improved.
- **Emergency Generator:** An emergency backup generator would be installed.
- **Loading Zone**: A new 110-foot vehicle loading zone would be developed along The Embarcadero between the site entrance and the Pier 33 driveway. The loading zone would be separated from the roadway and bike lane by flexible bollards and could accommodate a queue of five vehicles.
- **Bicycle Parking:** Additional bicycle parking and related signage would be installed at the site.

Fort Baker

Figures 9 and 10 show the concept plan and a perspective sketch of the proposed improvements to the Fort Baker pier, respectively. The construction necessary to establish ferry service at Fort Baker would primarily involve repairs and upgrades to the existing massive concrete pier, which was constructed for military purposes in the late 1930s.

The following improvements would take place at Fort Baker and be overseen directly by the Park Service:

- **Pier Infrastructure:**
  - Damaged concrete and reinforcing bars would need to be repaired and replaced on portions of the deck soffit and bulkhead wall.
  - Fender piles, the asphalt paving on top of the deck, and the existing guardrails would be replaced.
  - A new gangway and float would be installed. A total of four new piles would be installed for the gangway landing, and four new steel guide piles would be installed for the float. Piles would be 30 to 36 inches in diameter and driven to depths up to 90 feet.
- **Pedestrian Pathway:** A new pedestrian pathway (approximately 1,400 feet) would be constructed to connect the Bay Area Discovery Museum and Cavallo Point Lodge with the pier. These upgrades would include adding Americans with Disabilities Act-compliant ramps to the Murray Circle sidewalk where it intersects the access road between Murray Circle and McReynolds Road just north of East Road.
- **Signage:** Maps and interpretive signage would be installed near the pier to orient visitors to Fort Baker facilities and nearby trails.



Case No. 2017.000188ENV: Pier 31.5, Port of San Francisco/Alcatraz Ferry Embarkation Project

SOURCE: National Park Service

0 200 Feet

Figure 9
Fort Baker Concept Plan



SOURCE: Anchor QEA

Case No. 2017.000188ENV: Pier 31.5, Port of San Francisco/Alcatraz Ferry Embarkation Project

Figure 10
Fort Baker Perspective Sketch

Project Operations

Pier 31½

Visitor demand is expected to grow in line with a general growth in tourism in San Francisco. Park Service modeling forecasts that 7,790 visitors could visit the primary ferry embarkation site per day, or 1.9 million visitors per year, in 2018. These numbers include both ticketed passengers and visitors to the site without tickets, as well as passengers taking part in interpretative bay cruises and limited ferry service to Fort Baker.

While site operations would be similar to existing conditions—visitors would continue to embark from the site to Alcatraz Island and there would still be a gift shop and café—expanding services into the bulkhead buildings would increase the site's functional area and enhance interpretation compared to existing conditions. New public restrooms in the Pier 31 and 33 sheds would expand the capacity and replace the portable restrooms presently in use (Figure 7).

The site would be designed to provide a logical flow for visitors and enhance the overall visitor experience over the entire site, from the curb to the berth. The new vehicle loading zone would better manage visitor drop-off/pick-up activities and improve safety for passengers, drivers, and cyclists during such activities. The general public would have access to the center of the site, including the waterfront edge, extending the Port's Bayside History Walk. Most of the proposed project elements would continue to be in the outdoor areas between Piers 31 and 33, including interpretive and rest areas, ferry queuing, and boat staging. The proposed project also includes a food service area and space for exhibits and sale of interpretive products in the bulkhead buildings. These improvements would also accommodate people who are not visiting Alcatraz Island and include information on other recreational options in the national park system. The additional berth would support the interpretative bay cruise and limited service to Fort Baker. There are no plans to accommodate bicycles on the ferry boats.

Table 3 presents the annual, peak day, and average day number of ferry trips anticipated to occur from Pier 31½ by 2020 under proposed project conditions. Ferry trips are not expected to grow over 2020 numbers. Table 4 presents the annual, peak day, and average day number of visitors (1.7 million) anticipated to visit Pier 31½ under proposed project conditions. As shown in Tables 2 and 4, visitor levels to Alcatraz are not expected to grow over current levels. The increases in the Alcatraz destination ferry trip numbers, as presented in Table 3, are the result of changing schedules and peak demand, not the result of improvements at Pier 31½. A variety of vessels of different passenger capacities (ranging from 125 to 350 passengers) currently serve Alcatraz, and it is expected that the general fleet mix would stay the same. Trips to Fort Baker would be limited to two per day and would occur on weekends only. As part of the proposed project, and discussed in more detail below, the Park Service would require that all ferries meet U.S. Environmental Protection Agency Tier 3 engine standards within 2 years of the agreement.

TABLE 3
FERRY TRIPS FROM PIER 31½ UNDER PROPOSED PROJECT CONDITIONS

Destination	One Way Distance from Pier 31½ (nautical miles)	2020 to Project End		
		Number of Annual Calls (calls/year)	Number of Peak Day Calls (calls/day)	Number of Average[4] Day Calls (calls/day)
Alcatraz[1]	1.5	7,136	22	18
Alcatraz Plus Angel Island Loop	5.5	354	2	2
Interpretive Cruise[2]	8	450	3	2
Fort Baker[3]	4	208	2	1
Total		**8,148**	**29**	**23**

1. Alcatraz trips would be offered daily.
2. Interpretive cruises would be offered daily during peak season only (May – September)
3. Fort Baker trips would be offered on weekends only.
4. "Average day" refers to a typical off-peak day, not a mathematical average.

TABLE 4
VISITOR NUMBERS UNDER PROPOSED PROJECT CONDITIONS

Destination	Annual	Peak	Average Daily[2]
Alcatraz[1]	1.7 million	6,040	3,955
Alcatraz Plus Angel Island Loop	46,000	500	500
Interpretive Cruise	90,000	750	500
Fort Baker	40,000	500	250
Total	**1.9 million**	**7,790**	**5,205**

1. Includes visitors to Pier 31½ who do not travel to Alcatraz Island
2. "Average daily" refers to a typical off-peak day, not a mathematical average.

The following conditions will be required by the Park Service as part of the concession contract and therefore an enforceable part of the proposed project. The selected concessioner will need to meet the below ferry requirements, at minimum, to reduce emissions. The Park Service recognizes that the concessioner may have non-Tier 3 propulsion engines initially, and allows for a 24-month grace period from the effective date of the concession contract. While the 24-month grace period will be allowed if needed, the Park Service prefers all engines at a minimum meet the Tier 3 emission standards on each vessel as soon as possible after the effective date of the concessioner agreement. Contract requirements include the following:

- Project Condition 1: Tier 3 Propulsion Engine Requirements. Within 24 months of the effective date of the concession contract, all diesel-powered propulsion engines shall meet the published United States Environmental Protection Agency emission standards for Tier 3 engines as specified in 40 Code of Federal Regulations (CFR) Part 1042 for the class of engine in use. All auxiliary engines must meet at least Tier 2 engine standards. Please note:
    - Tier 1 propulsion and auxiliary engines are no longer compliant with the California Air Resources Board Commercial Harbor Craft Regulations and compliance with this measure

does not eliminate the requirement for the concessioner to comply with applicable California Air Resources Board Commercial Harbor Craft regulations.

- California Air Resources Board Commercial Harbor Craft regulations require the use of California ultra-low sulfur diesel.

- Project Condition 2: Alternative Fuels and Technologies. The Park Service will only consider proposals for using alternative fuels or alternative fuel conversion technologies, including but not limited to, bio-diesel, ethanol, natural gas, propane, or other fuels, if the proposal is able to provide the U.S. Environmental Protection Agency Certificate of Conformity that demonstrates the engines meet or exceed the U.S. Environmental Protection Agency emissions standards for Tier 3 engines when using the alternative fuel. All conversion technologies must be U.S. Environmental Protection Agency-compliant.
- Project Condition 3: Hybrid-electric and Fully Electric Power Systems. As an alternative to Tier 3 propulsion engines, use of hybrid-electric or fully electric power systems may be proposed. The Park Service considers a "hybrid-electric power system or vessel" to be one that relies on some combination of electric (i.e., battery) and diesel or alternative fuel to generate onboard propulsion and auxiliary power. The Park Service considers a "fully electric power system and vessel" to be one that does not have any diesel or alternative fuel engines onboard and instead uses onboard batteries to supply all vessel propulsion and auxiliary power needs. The Park Service assumes that offerors proposing to use fully electric power systems (i.e., batteries instead of diesel or alternative fuel engines) would result in no direct engine emissions, as this system would not operate diesel or alternative fuel engines to produce electrical power.
- Project Condition 4: Idling Limits. Ferries will be restricted to a limit of 15 minutes idling at berth (propulsion and auxiliary engine).

Site transportation access and arrival options would be generally consistent with those of existing conditions, with a few key modifications. There are two existing bicycle racks, each accommodating approximately 20 bicycles. These racks and a small staff parking area currently located on the south side of the marginal wharf would be relocated inside the Pier 31 shed building. The current staff parking area accommodates approximately 15 parked cars, although no parking stall lines are provided. The proposed project would provide eight tandem parking stalls, as well as three Americans with Disabilities Act-designated parking stalls in the interior of the Pier 31 shed building. The Americans with Disabilities Act-designated parking stalls would be compliant with Federal Accessibility Standards. A new Federal Accessibility Standards-compliant 155-foot vehicle loading zone would be developed along the Embarcadero between the site entrance and the Pier 33 driveway. The loading zone would have one entrance and exit, would be separated from the roadway and bike lane by flexible bollards, and would provide 110 feet of usable curb space, accommodating a queue of five to six vehicles. A similar design is used on the Embarcadero in front of the Exploratorium. The proposed loading zone would remove five standard and one Americans with Disabilities Act-designated parking space from the curbside. The three new Americans with Disabilities Act-designated spaces provided in the Pier 31 bulkhead building would

serve visitor needs at the Pier 31½ site, and this curbside Americans with Disabilities Act-designated space would be relocated to the north, between the Pier 33 driveway and the Bay Street intersection.

The existing Federal Accessibility Standards-compliant drop-off zone for tour buses and persons with disabilities, measuring approximately 45 feet in length, would remain north on the Embarcadero, adjacent to the Pier 35 bulkhead building. Commercial loading would continue to occur inside the Pier 33 and Pier 31 bulkhead buildings with no changes proposed to the existing bulkhead driveways or curb cuts. Visitors on foot would still enter this site from the Embarcadero, between the two bulkhead buildings. However, because the staff parking would be removed from the marginal wharf under the proposed project, the entry, measuring approximately 115 feet, would encompass the full space between the buildings. Additional pedestrian access would be provided through the interior of the Pier 33 bulkhead buildings. The current project driveway, measuring approximately 32 feet, would be closed to vehicles, with the exception of emergency vehicles and after-hours fuel trucks; these exceptions would be permitted through the installation of collapsible bollards along the current driveway.

Fort Baker

It is anticipated that a maximum of ~~roughly~~ 40,000 visitors per year would travel to Fort Baker from Pier 31½ under the proposed project. The ferry service would operate on a limited basis on weekends only and the concessioner would not be permitted to sell tickets at Fort Baker, in an effort to promote pedestrian-only visits to Fort Baker. ~~based on a variety of operational and physical constraints, including limited parking at Fort Baker and the potential to congest roads nearby in Sausalito.~~ All trips would be same-day, roundtrip, departing from and returning to the Pier 31½ site. There would be no alterations of the existing parking near the pier (Figure 9), and no shuttle service would be provided to serve ferry passengers. The proposed pedestrian path would require updating existing pedestrian infrastructure on the pier and the path between Cavallo Point Lodge and the Discovery Museum, as well as constructing an entirely new path, measuring approximately 0.25 mile, between the Discovery Museum and pier. These upgrades would include adding Americans with Disabilities Act-compliant ramps to the Murray Circle sidewalk where it intersects the access road between Murray Circle and McReynolds Road just north of East Road. Ferry operations would use a small portion of the pier on weekends; the majority of the pier would remain open for recreational uses including fishing and sightseeing.

Project Construction

Pier 31½

At Pier 31½, construction would begin in 2019 and end in 2022, with active construction occurring over a period of 10 months. Construction of upgraded berthing infrastructure is expected to occur in 2019, with pile driving occurring from barges lasting approximately 3 days. The gangways and floats would be fabricated off site and floated into place using barges and cranes. Work would occur annually between July 1 to November 30, as described in Section E.13, Biological Resources.

Separate from installation of new berthing infrastructure, interior building and exterior plaza renovations are expected to occur in phases between 2019 and 2022, with precise phasing ultimately confirmed by the

concessioner. Work would occur on the landside using the types of construction equipment described in Table 5.

Fort Baker

At Fort Baker, construction would occur in 2023, with active construction occurring over a period of 11 months. Most of the proposed pier improvements are under-pier activities and would be performed from barges and floats staged under the pier. Pile driving from barges is expected to last 2 to 3 days. The gangway and float would be fabricated off site and floated into place using barges and cranes. Work would occur annually between July 1 to September 30, as described in Section E.13, Biological Resources. Minor improvements to upland areas, such as construction of the pathway, would occur as described above.

Construction Schedule

The construction schedule and construction equipment estimates for Pier 31½ and Fort Baker are presented in Table 5.

TABLE 5
ANTICIPATED CONSTRUCTION SCHEDULE

Task	Actions	Equipment (fuel, horsepower)	No. of pieces	Hours/ day	Duration (days)
Pier 31½: Estimated Start November 2019					
Gangway/ Float Installation	Installing new float(s), gangways, platforms, and piling	Crane Barge (d, 360 hp)	1	8	30 days (6 days for pile driving)
		Tug (d, 1000 hp)	1	2	
		Support Vehicle (g, 385 hp)	2	4	
		Generator (d, 45 hp)	1	6	
		Work Boat (g, 30 hp)	2	2	
Site Demo and Preparation	Miscellaneous site demolition	Excavator (d, 165 hp)	2	8	22 days
		Backhoe (d, 180 hp)	3	8	
		Concrete Industrial Saw (d, 84 hp)	1	6	
		Haul/Dump Truck (d, 445 hp)	2	6	
Site Improvements	Paving/concrete, striping, signage, constructing railings, canopies, and entry portal, and new exterior construction	Backhoe (d, 180 hp)	3	8	66 days
		Paver (d, 200 hp)	1	3	
		Concrete Mixer/Asphalt Truck (d, 445 hp)	2	4	
		Support Vehicle (g, 385 hp)	4	8	
		Delivery Truck (d, 175 hp)	1	2	
		Dump Truck (d, 445 hp)	4	6	
Site Utility Installation	Water, sewer, storm drainage, electrical	Backhoe (d, 180 hp)	3	8	63 days
		Air Compressor, 100 CFM (50 hp)	1	4	
		Support Vehicle (g, 385 hp)	3	8	
		Delivery Truck (d, 175 hp)	1	2	
Deck Repair	Repair/replace pier top	Support Vehicle (g, 385 hp)	2	4	44 days

Task	Actions	Equipment (fuel, horsepower)	No. of pieces	Hours/ day	Duration (days)
	asphalt topping, install new deck and amenities, repair deck edge, and repair deck soffit	Generator (d, 45 hp)	1	6	
		Concrete Industrial Saw (d, 84 hp)	1	6	
		Work Boat (g, 30 hp)	2	6	
Architectural Coating	Interior wall finishing		N/A		23 days
Fort Baker: Estimated Start January 2023					
Pile/Caisson Repair	Cleaning, FRP jacket, grout injection, and hanging work platform installation and removal	Crane Barge (d, 360 hp)	1	4	160
		Tug (d, 1000 hp)	1	2	
		Support Vehicle (g, 385 hp)	2	4	
		Work Boat (g, 30 hp)	2	4	
		Generator (d, 45 hp)	1	6	
Bulkhead Repair	Cleaning, concrete patching with rebar repair	Support Vehicle (g, 385 hp)	2	4	10
		Work Boat (g, 30 hp)	2	6	
		Support Vehicle (g, 385 hp)	2	4	
Deck Repair	Repair/replace pier top asphalt topping, install new deck and amenities, repair deck edge, and repair deck soffit	Generator (d, 45 hp)	1	6	10
		Concrete Industrial Saw (d, 84 hp)	1	6	
		Work Boat (g, 30 hp)	2	6	
Fender Pile Replacement	Replace fender piling and timbers	Excavator/Barge (d, 165 hp)	1	8	20
		Crane Barge (d, 360 hp)	1	8	
		Tug (d, 1000 hp)	1	8	
		Support Vehicle (g, 385 hp)	2	4	
		Work Boat (g, 30 hp)	2	2	
		Delivery Truck (d, 175 hp)	1	2	
Gangway and Float Installation	Installing new float(s), gangways, platforms, and piling	Crane Barge (d, 360 hp)	1	8	30
		Tug (d, 1000 hp)	1	2	
		Support Vehicle (g, 385 hp)	2	4	
		Generator (d, 45 hp)	1	6	
		Work Boat (g, 30 hp)	2	2	
Site Demo & Preparation	Miscellaneous site demolition	Excavator (d, 165 hp)	2	8	10
		Backhoe (d, 180 hp)	3	8	
		Concrete Industrial Saw (d, 84 hp)	1	6	
		Haul/Dump Truck (d, 445 hp)	2	6	
Site Improvements	Construction of pathway, railings, and site amenities	Backhoe (d, 180 hp)	3	8	15
		Paver (d, 200 hp)	1	3	
		Concrete Mixer/Asphalt Truck (d, 445 hp)	2	4	
		Support Vehicle (g, 385 hp)	4	8	

Task	Actions	Equipment (fuel, horsepower)	No. of pieces	Hours/ day	Duration (days)
		Delivery Truck (d, 175 hp)	1	2	
		Dump Truck (d, 445 hp)	4	6	
Pier Utilities	Electrical for pier lighting, and pier and gangway utilities	Backhoe (d, 180 hp)	3	8	10
		Air Compressor, 100 CFM (50 hp)	1	4	
		Support Vehicle (g, 385 hp)	3	8	
		Delivery Truck (d, 175 hp)	1	2	

CFM: cubic feet per minute
d: diesel
FRP: fiber-reinforced polymer
g: gasoline
hp: horsepower
N/A: not applicable

Required Approvals and Permits

The following is a list of approvals and permits required for completion of the proposed project.

Federal Approvals and Permits

- **National Park Service:** Approval under the National Environmental Policy Act
- **U.S. Army Corps of Engineers:** Permits under Section 404 of the Clean Water Act and Section 10 of the River and Harbors Act
- **U.S. Fish and Wildlife Service:** Approval under the Endangered Species Act
- **National Oceanic and Atmospheric Administration; National Marine Fisheries Service:** Approval under the Endangered Species Act and Magnuson-Stevens Fishery Conservation and Management Act

State Approvals and Permits

- **California Office of Historic Preservation:** Approval under Section 106 of the National Historic Preservation Act
- **Regional Water Quality Control Board:** Approval under Section 401 of the Clean Water Act and Porter-Cologne Water Quality Control Act
- **San Francisco Bay Conservation and Development Commission:** Approval under the McAteer-Petris Act and the Coastal Zone Management Act
- **Bay Area Air Quality Management District:** Construction permit

Local Approvals and Permits

- **Port of San Francisco:** Approval of lease to operate at Pier 31½ includes:
  - Issuance of building permit and approval of standard construction best management practices (spill prevention, debris, and stormwater management best management practices)
  - Approval of loading zone and parking modifications

- Approval of a Stormwater Control Plan in compliance with the City's 2016 Stormwater Management Requirements and Design Guidelines

- **San Francisco Department of Health:** Approval of a Dust Control Plan

B. PROJECT SETTING

Regional and Local Setting

Pier 31½

The project site at Pier 31½ is located along the northern end of The Embarcadero, a roadway spanning San Francisco's eastern waterfront. The Pier 31½ site is zoned as a light industrial district, and directly across The Embarcadero is a commercial community business district. The 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 District was listed in the National Register of Historic Places in 2002. The piers along The Embarcadero remain owned and leased by the Port, and are currently home to the Alcatraz ferry embarkation site at Pier 31½ and the Alcatraz Café and Grill at Pier 33, the James R. Herman Cruise Terminal (Pier 27), and the Exploratorium (Pier 15), among other establishments.

All piers along The Embarcadero are owned by the Port. Piers to the north of the Ferry Building (Pier 1) are sequentially labeled by even numbers (Pier 2, Pier 4, etc.), while piers to the south of the Ferry Building are sequentially labeled by odd numbers (Pier 3, Pier 5, etc.). The northeastern portion of The Embarcadero, specifically between piers 7 and 35, has historically been known as a maritime, industrial, and manufacturing area which offers 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, commercial, amusement, and parking uses in this area.

Fort Baker

Fort Baker is a former U.S. Army post located in Marin County at the foot of the Golden Gate Bridge which offers recreational and educational opportunities to visitors. Fort Baker comprises approximately 335 acres, including a core zone of 91 acres surrounding a parade ground and 24 historic military buildings dating from the late nineteenth century. The site also includes the historic pier, historic batteries, open space, and rocky shoreline, and is connected to the Golden Gate National Recreation Area's trail system.[6] The site is managed according to the policies and decisions set forth in the Park Service's *Fort Baker Plan Environmental Impact Statement*.[7]

[6] National Park Service, Fort Baker Brochure, June 2008. Available from https://www.nps.gov/goga/planyourvisit/upload/2008-0910-sb-foba-web.pdf.

[7] National Park Service, *Fort Baker Plan Final Environmental Impact Statement*, October 1999. Available from http://parkplanning.nps.gov/document.cfm?parkID=303&projectID=20244&documentID=20847.

Within Fort Baker is the Cavallo Point Lodge at the Golden Gate, the newest retreat and conference center in the national park system, which provides historic and contemporary guest rooms and associated amenities to visitors. The lodge is also used by the Institute at the Golden Gate, a new program of the Golden Gate National Parks Conservancy, in partnership with the Park Service; dedicated to advancing environmental preservation and global sustainability. The Bay Area Discovery Museum and the Travis Sailing Center are also located at Fort Baker.[8]

Fort Baker is accessible from U.S. Highway 101 by travelling less than one quarter mile on Alexander Avenue, to Bunker Road which descends approximately one quarter mile into the Fort Baker historic post area, encircled by Murray Circle. Moore Road, a two-way roadway, provides access to the Coast Guard Station and the historic pier. East Road borders the eastern edge of Fort Baker, leading to Alexander Avenue and downtown Sausalito, approximately 2.5 miles to the north. Additional information regarding Sausalito is provided in Appendix B.

Other Projects in the Vicinity

Past, present, and reasonably foreseeable future projects occurring in the vicinity of the proposed project could result in cumulative impacts in combination with the proposed project impacts. Cumulative development in the project vicinity (generally within a 0.25-mile radius of the project sites) or development related to the proposed project in scope includes the projects shown in Table 6 that are either under construction or for which the Planning Department has an Environmental Evaluation Application on file.

TABLE 6
CUMULATIVE SCENARIO ACTIONS: PAST, PRESENT, AND FUTURE

Action Name	City Planning Number (if applicable)	Summary
Past Actions		
Marin Headlands and Fort Baker Transportation Infrastructure and Management Plan (Park Service)	N/A	This plan involves improving multimodal connections between Marin Headlands and Fort Baker by improving roadway surfaces and configurations, drainage structures, directional signage, and safety. Phases 1 and 2 have been completed, and included the rehabilitation/reconstruction of Upper Conzelman, Lower Conzelman, McCullough, East, Bunker, Mitchell, Old Bunker, and Field roads, the Alexander Avenue and West Bunker Road intersection, as well as several parking areas, trails, and drainage features. Additional project elements, including car-free events at Fort Baker, traffic control for special events, and paid parking within the Marin Headlands are not currently slated for implementation.[4]
Present Actions		

[8] National Park Service, Fort Baker Brochure, June 2008. Available from https://www.nps.gov/goga/planyourvisit/upload/2008-0910-sb-foba-web.pdf.

Action Name	City Planning Number (if applicable)	Summary
Ongoing Maintenance Dredging of Port Piers (Port)	N/A	The Port conducts regular maintenance dredging of its piers between Fisherman's Wharf and Pier 96. From 2011 to 2014, the maintenance dredging contract 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 contract.[5]
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 29	2017-005787ENV	The project seeks to adapt the interior central and southern portion of the Pier 29 bulkhead and a portion of the adjacent transit shed into a new retail space with food and beverage component.
Pier 43½, The Embarcadero - Red and White Ferry Embarkation Improvements	2017-002244ENV	Golden Gate Scenic Steamship Corporation (dba Red and White Fleet), a 124-year-old San Francisco Excursion tour boat business, seeks a new 30-year lease with the Port of San Francisco. The proposed project entails enhancing its existing business operations and public services by providing a ticket booth facility, passenger queuing and disembarking, vessel landing and berthing, guest photography and photographic sales, a passenger loading and drop off zone, the presentation of educational interpretative displays, retail sales of merchandise, onboard food and beverage services, enhancement of general public circulation within the shoreline corridor, and additional activities necessary for the support of permitted uses.
Downtown San Francisco Ferry Terminal Expansion Project (WETA)	N/A	The Downtown San Francisco Ferry Terminal Expansion Project would include construction of up to three new ferry gates and additional amenities at the Ferry Building's WETA ferry terminal to accommodate existing and future users. These improvements would support WETA projects currently in the planning phase, including providing new ferry service to Richmond, Berkeley, Treasure Island, Hercules, Redwood City, Martinez, and Antioch. Construction began in May 2017, expected to be completed in 2019.[6]
Seawall Lot 322-1 (88 Broadway and 735 Davis Street)	2016-007850ENV	The project involves the proposed construction of two six-story buildings containing affordable family and senior housing. The first floor would provide ground floor units, commercial space, commercial parking, bike parking, and common space/social services for residents' use.
Seawall Lots 323 and 324 (Teatro ZinZanni)	2015-016326ENV	The project proponent proposes the following: 1) the street vacation of portions of Davis and Vallejo streets to combine the two Port-owned lots that are separated due to the presence of the streets; 2) the removal of the existing surface parking lot and pay booths; and 3) the construction of a mixed-use development that includes a theater, a hotel building, and a privately owned public plaza and park. The proposed 40-foot-tall, 28,500-sf theater would be occupied by Teatro ZinZanni and would include 3,510-square-foot historic travelling theater tent. The proposed 40-foot-tall, 155,300-square-foot hotel would include 185 rooms with a ground-floor restaurant/bar and a retail space.
The Seawall Lot 337 and Pier 48 Mixed-Use Project	2013.0208E	The proposed project is envisioned to be a mixed-use development comprising both residential and commercial buildings, as well as several acres of open space. The project includes 8 acres of new parks and open space and approximately 1,500 new rental homes (40% affordable to low and middle-income individuals and families), sea level rise resiliency and adaptation features, historic rehabilitation of Pier 48, and public waterfront access improvements along the Blue Greenway trail. The Final EIR is currently being prepared for the project.

Action Name	City Planning Number (if applicable)	Summary
Reasonably Foreseeable Future Actions		
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.
Pier 19-23 Temporary Flower Mart Relocation	2015-004256ENV	The project involves the improvement and reuse of the existing sheds and bulkhead building located at Piers 19, 19½, and 23 in order to operate a wholesale flower market on a temporary basis, estimated to occur from late 2019 to 2023. The project would include approximately 103,000 sf for wholesale vendor stalls, circulation, and offices; 113,000 sf of parking and loading to accommodate 191 parking spaces; and supporting uses.

1. Woolsey, K., *Build: The Making of a Museum*, February 1, 2013.
2. City and County of San Francisco Planning Department, *The 34th America's Cup, James R. Herman Cruise Terminal and Northeast Wharf Plaza Final Environmental Impact Report*, December 15, 2011.
3. National Park Service, *Fort Baker Plan Final Environmental Impact Statement*, October 1999. Available from http://parkplanning.nps.gov/document.cfm?parkID=303&projectID=20244&documentID=20847.
4. National Park Service, *Marin Headlands and Fort Baker Transportation Infrastructure and Management Plan Record of Decision*, August 11, 2009. Available from https://www.nps.gov/goga/learn/management/upload/MHFB-ROD-Final.pdf.
5. Port of San Francisco, Contract No. 2746 Maintenance Dredging 2011-2015, 2011. Available from http://www.sf-port.org/index.aspx?page=1727.
6. Water Emergency Transportation Authority, San Francisco Ferry Terminal Expansion Project, http://watertransit.org/weta/downtown-san-francisco-ferry-terminal-expansion-project-outreach, accessed October 15, 2013.

DPW: Department of Public Works
EIR: Environmental Impact Report
N/A: not applicable
sf: square feet
SFMTA: San Francisco Metropolitan Transportation Agency
WETA: Water Emergency Transportation Authority
Source: City and County of San Francisco Planning Department, Permits in My Neighborhood, http://sf-planning.org/active-permits-my-neighborhood, accessed July 12, 2017.

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 31½) and Park Service property (Fort Baker). The proposed project 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.

The following section presents federal, local, and regional plans, policies, and goals that are applicable to the proposed project. Potential inconsistencies between the proposed project and applicable plans are also discussed. Whether a project is consistent with particular plans for which a consistency determination is required is decided at the time of project approval by the agency charged with that determination. Land use plans typically contain numerous policies emphasizing differing legislative goals, and an interpretation of consistency requires balancing all relevant policies. The board or commission that enacted a plan or policy and determines the meaning of the policy and whether an individual project satisfies the policy at the time the board considers approval of the project.

As discussed below, the proposed project would not obviously or substantially conflict with any of the plans or policies.

Federal Park Service Plans and Policies

The proposed project is subject to federal plans and policies, namely those that provide oversight of the Park Service, which owns and operates Fort Baker and would operate the Pier 31½ facility via a concessioner. These plans and policies are described in the following paragraphs.

Organic Act of 1916

The Organic Act directs the Park Service to "promote and regulate the use of the Federal areas known as national parks, monuments, and reservations... to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations" (16 USC Chapter 1).

Management of Park Service resources, including the Golden Gate National Recreation Area, is guided by these principles. This policy only applies at Fort Baker.

General Authorities Act of 1970

As mandated by the Organic Act and reaffirmed by the General Authorities Act, management of Park Service resources is guided by the fundamental principal of conserving park resources and values. In addition, these laws require the Park Service to avoid, or to minimize to the greatest extent practicable, adverse impacts on park resources and values. This policy only applies at Fort Baker.

Park Service Management Policies, 2006

The proposed project is subject to the Park's Service's Management Policies and as such, Park Service decision-makers must investigate potential conflicts with proposed park uses and the National Park System's "fundamental purpose" of conserving park resources and values. In keeping with these policies, the Park Service evaluated several alternative project locations in an EIS which identified the proposed project as the preferred alternative. The Final EIS found that the proposed project would protect park resources and values.

National Park Service Concessions Management Improvement Act of 1998

Commercial services may take place within a unit of the National Park System only under certain defined and limited circumstances. Allowable commercial services may be authorized through concession contracts. A competitive selection process is mandated by the 1998 Concessions Act for concession contracts, with criteria for selection of the best proposal set out in the law, itself. The act also generally limits the maximum term of concession contracts to 10 years.

Public Law 92-589

The law calls for park management to utilize the park's resources in a manner that will provide for recreation and educational opportunities, and to preserve the recreation area, as far as possible, in its natural setting, and protect it from development and uses that would destroy the scenic beauty and natural character of the area. This policy only applies at Fort Baker.

Fort Baker Plan

Numerous plan elements have been implemented, including construction and opening of the Cavallo Point Lodge at Golden Gate and improvements to the Bay Area Discovery Museum. The plan identifies the potential for the fishing pier to provide water-based connections to other park sites in the future. The proposed project would not conflict with this land use plan. This policy only applies at Fort Baker.

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 charter approved by the voters in November 1995 requires that the Planning Commission recommend 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 referrals establishing consistency with the General Plan before actions by the Board of Supervisors on a variety of actions.[9] Plan elements relevant to the proposed project are briefly described as follows:

- Air Quality Element: Promotes clean air planning through objectives and policies that ensure compliance with air quality regulations.
- Commerce and Industry Elements: Guides decisions on economic growth and change in San Francisco with the three goals of continued economic vitality, social equity, and environmental quality.
- Urban Design Element: Concerns the physical character and order of San Francisco, and the relationship between people and their environment, including the preservation of landmarks.
- Recreation and Open Space: Ensures a well-maintained, highly utilized and integrated open space and recreational system that meets the long-term needs of San Francisco and Bay Area.
- Environmental Protection Element: Addresses the impact of urbanization on the natural environment.

The proposed project would not obviously or substantially conflict with any goals, policies, or objectives of the General Plan.

Waterfront Land Use Plan[10]

In 1997, the Port adopted the Waterfront Plan to address how and where existing and new land uses will be located along the waterfront over the next 20 years. 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 nonmaritime uses are also identified. This plan is consistent with the Port's public trust responsibilities and the City/County's Northeastern Waterfront Area Plan.[11] As a component to the Waterfront Plan, the Waterfront Design and Access Element was prepared to provide goals, policies, and qualitative standards for future waterfront improvement projects, specifically regarding public access and open space, views, and historical preservation. The plan also provides general architectural criteria for piers, bulkhead sites,

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

[10] Port of San Francisco, *Waterfront Land Use Plan*, adopted 1997 and republished 2004. Available from http://sfport.com/waterfront-land-use-plan-chapters.

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

and seawall lots, as well as some site-specific architectural criteria. The proposed project would not conflict with the Waterfront Land Use Plan.

Port of San Francisco Codes, Guidelines, and Regulations

The Port of San Francisco requires compliance with a number of 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[12]
- 2016 Port Existing Building Code
- San Francisco Public Utilities Commission Construction Best Management Practice Handbook[13]
- San Francisco Public Utilities Commission Construction Site Runoff Control Technical Standards and Guidelines
- City's 2016 Stormwater Management Requirements and Design Guidelines[14]

As applicable, construction and operation at the Pier 31½ site will comply with all regulations.

Northeastern Waterfront Plan

Branching from the General Plan, the City/County's Northeastern Waterfront Plan guides decisions made regarding land use development and urban design specific to San Francisco's northeastern waterfront. The overall goal of this plan is to promote a physical and economic environment along the waterfront that best uses the area's resources and best serves the City/County's community. The proposed project would not conflict with the Northeastern Waterfront Plan.

Regional Plans

In addition to local general plans and related documents, regional environmental, transportation, and land use plans and policies consider the growth and development of the nine-county San Francisco Bay Area. 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. These regional plans are described as follows.

Bay Area 2010 Clean Air Plan

This comprehensive document updates the Bay Area 2005 Ozone Strategy, in accordance with the requirements of the California Clean Air Act, to implement feasible measures to reduce ozone and provide a control strategy to reduce ozone, particulate matter, air toxics, and greenhouse gases

[12] 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.

[13] 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%20Handbook%20Aug%202013.pdf.

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

throughout the region. It is administered by the Bay Area Air Quality Management District. The proposed project would not conflict with the Bay Area 2010 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 Special Area Plan

The Bay Plan[15,16] is the San Francisco Bay Conservation and Development Commission's policy guide that designates 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 Francisco Bay Plan, and the jurisdictional boundary of the San Francisco Bay Conservation and Development Commission, was amended in October 2011 to reflect climate change issues and anticipated sea level rise. Priority uses include ports, water-related industry, airports, wildlife refuges, and water-related recreation. As an extension to the Bay Plan,[17] the San Francisco Bay Conservation and Development Commission worked in concert with the City's Planning Department and the Port to create the Special Area Plan. Adopted in 1975 and amended through February 2010, this plan identifies site-specific policies pertaining to all Port properties along the shoreline 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. While only advisory and not legally enforceable, the guidelines were adopted by the San Francisco Bay Conservation and Development Commission in 2005 and have influenced past recommendations and formal decisions made by the San Francisco Bay Conservation and Development Commission and its Design Review Board. The Park Service is currently

[15] San Francisco Bay Conservation and Development Commission, *San Francisco Waterfront Special Area Plan*, April 1975, as amended through February 2010.

[16] 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.

[17] Ibid.

working with the San Francisco Bay Conservation and Development Commission to complete the Coastal Zone Management Act consistency process and a permit for the proposed project from San Francisco Bay Conservation and Development Commission will also be obtained. There are no apparent inconsistencies with the Bay Plan and the proposed project.

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	☒ Air Quality	☒ Biological Resources
☐ Aesthetics	☐ Greenhouse Gas Emissions	☐ Geology and Soils
☐ Population and Housing	☐ Wind and Shadow	☐ Hydrology and Water Quality
☒ Cultural Resources	☐ Recreation	☐ Hazards/Hazardous Materials
☐ Transportation and Circulation	☐ Utilities and Service Systems	☐ Mineral/Energy Resources
☒ Noise	☐ Public Services	☐ Agricultural and Forest 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." The items checked above in Section D, Summary of Environmental Effects, have been determined to be "Less than Significant with Mitigation Incorporated."

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.). If needed, 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.

Topics:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Not Applicable
1. LAND USE AND 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 division of an established community would typically 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 proposed project site at Pier 31½ is located entirely on Port property, and is currently being used for the same uses as those proposed. Pier 31½ is located within a waterfront tourist district, separated from nearby urban areas primarily made up of commercial uses interspersed with residential units by the Embarcadero roadway and MUNI railway tracks. The closest community is located in Telegraph Hill, which is already divided from the proposed project site by a steep hill. The proposed project features and all construction would occur on site and would not block access to adjacent areas.

Fort Baker is located on a peninsula and on federal land over a mile away from the nearest community. Proposed project construction would be restricted to the wharf and nearshore area, and would not include any additional structures or impediments that would limit access or availability to surrounding communities.

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

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

Land use impacts are considered to be significant if the proposed project would conflict with any plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. Environmental plans and policies are those which directly address environmental issues and/or contain

targets or standards which must be met in order to preserve or improve characteristics of the City's physical environment.

The proposed project site at Pier 31½ is zoned light industrial and is located directly across The Embarcadero from a commercial community business district.[18] All piers along The Embarcadero are owned by the Port. The northeastern portion of The Embarcadero, specifically between piers 7 and 35, has historically been known as a maritime, industrial, and manufacturing area that offers 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, commercial, amusement, and parking uses in this area.

As discussed in Section C, Compatibility with Existing Zoning and Plans, project construction and operation at Pier 31½ and Fort Baker would not obviously or substantially conflict with any adopted environmental plan or policy. The proposed project would be compliant with all relevant environmental regulations, including the Clean Water Act, Endangered Species Act, Bay Plan, and McAteer-Petris Act (refer to Section E.13, Biological Resources, and Section E.15, Hydrology and Water Quality). Therefore, the proposed project would have a less-than-significant impact with regard to conflicts with applicable land use policies, plans, and regulations adopted for the purpose of avoiding or mitigating an environmental effect.

Impact C-LU: The proposed project, in combination with past, present, and reasonably foreseeable future projects in the vicinity of the site, would result in less-than-significant cumulative impacts on land use. (Less than Significant)

The geographic scope of potential cumulative impacts on land use encompasses the project site and nearby vicinity (within a quarter-mile radius of the project site or development related to the proposed project in scope) and includes the following projects that are either under construction or for which the Planning Department has an Environmental Evaluation Application on file (see Table 6 in Section B, Project Setting): ongoing maintenance dredging of Port piers; ongoing routine repair and maintenance of Port facilities; new retail space at Pier 29; the Pier 43½ Red and White ferry facilities; and the construction of a mixed-use development, including a new theater, and parking modifications at Seawall Lots 323 and 3243. There are no known potential projects within a quarter-mile of Fort Baker. As discussed above, the proposed project would have a less-than-significant effect regarding conflicts with applicable land use plans, policies, and regulations. Similarly, the identified cumulative projects would also be required to comply with applicable land use plans, policies, and regulations adopted for the purpose of minimizing an environmental effect. 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. This impact would be less than significant.

[18] City and County of San Francisco, *San Francisco Municipal Code* (current through Ordinance 70-12, File No. 130085), approved April 23, 2013, and effective May 23, 2013. Available from http://www.amlegal.com/library/ca/sfrancisco.shtml.

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?	☐	☐	☒	☐	☐
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 only if it would cause a substantial, demonstrable negative change.

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

A scenic vista is generally considered to be a location from which the public can experience unique and high-quality views, typically from elevated and uninterrupted vantage points that offer panoramic views of great breadth and depth. Scenic vistas may be officially recognized or designated (e.g., within local planning documents or the Caltrans scenic highway program) or they may be informal in nature (e.g., mountain peaks or coastal bluffs). 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.

At Pier 31½, the proposed project includes redevelopment of the Alcatraz Island ferry embarkation facility along the Embarcadero, a popular tourist destination known for its scenic vistas. This site is within and contributes to the Embarcadero National Register Historic District. This site is located between Fisherman's Wharf and other tourist facilities, such as the cruise terminal and the Exploratorium. The site does not have views of Alcatraz Island, but does have views between the piers of San Francisco Bay towards the east. As shown in Figure 11, the project site is visible from Coit Tower in Pioneer Park, a scenic vista. Figure 11 shows Pier 31 to the right (south), Pier 33 to the left (north), the existing embarkation facility canopy, a single dock, and open areas between the two piers. In front of the

project site is The Embarcadero, which has streetcar tracks lined with palm trees running between its two lanes of traffic.



Figure 11
Existing View of Pier 31½ from Coit Tower

As shown in Figure 12, an approximate simulation of the view of Pier 31½ after construction, the proposed project at Pier 31½ would look similar to baseline conditions. Buildings would be the same height with restored historic character and outdoor programming would be integrated into the public waterfront area. The primary noticeable changes would be the addition of a second canopy behind the Pier 31 bulkhead building, a second gangway/dock, and renovated public spaces, including recreational and interpretative opportunities, between the two pier buildings. Parking would be moved inside the shed buildings. The proposed canopies would be located behind buildings and would generally not be visible from the Embarcadero. Therefore, improvements at Pier 31½ would not substantially affect a scenic vista and impacts would be less than significant.

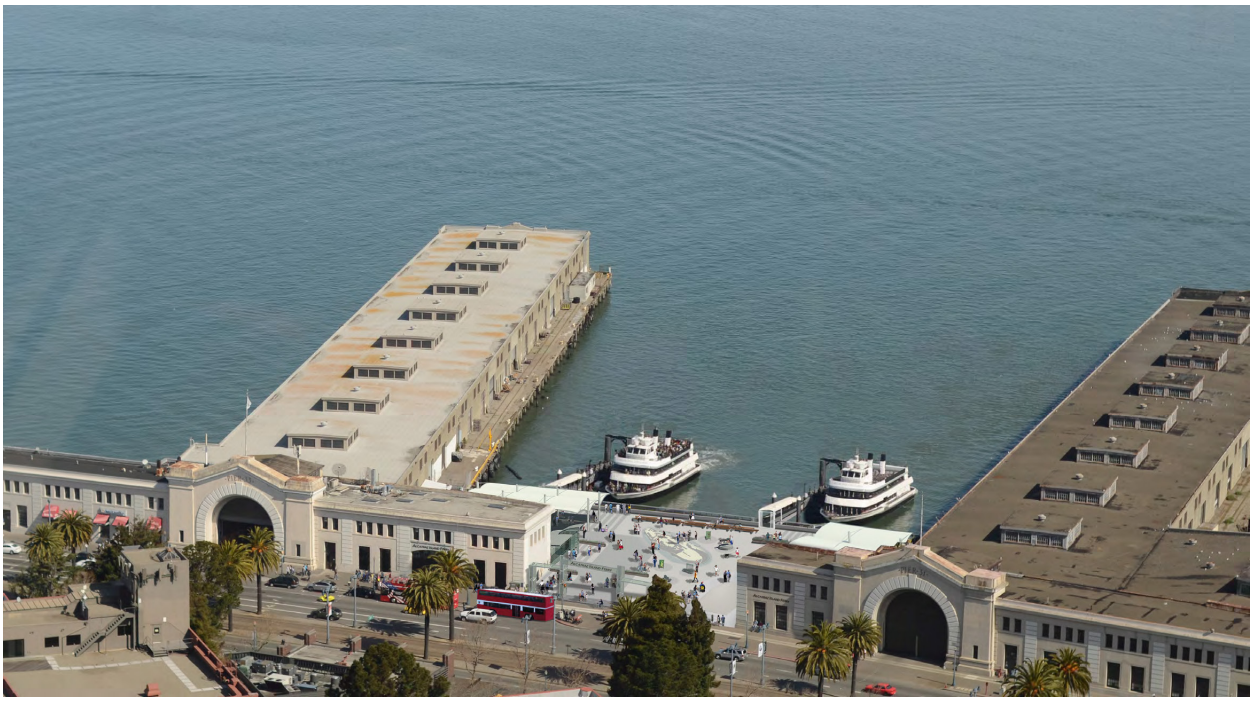


Figure 12
View of Pier 31½ from Coit Tower under the Proposed Project



Figure 13
View of Fort Baker

As shown in Figure 13, views of Fort Baker consist of a concrete pier and open vistas. The proposed project includes upgrades to the existing pier, including addition of a new gangway and improved pedestrian pathway. The pier upgrades would not alter the scenic vista, as most of the improvements would be to the substructure, and therefore, would not be visible. Alterations to the pier would maintain the pier's current appearance and dimensions. Following construction, the pier would look generally as it does today. Operationally, intermittent ferry service to the pier would not alter the scenic vistas of and from Fort Baker, as ferry berthing would be short term and in line with existing maritime uses of the

surrounding area. Therefore, the proposed project would not affect scenic vistas in the area and impacts would be less than significant.

Impact AES-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. (Less than Significant)

Scenic resources are the visible physical features of a landscape and historic structures that contribute to a unique and exemplary visual setting. The section below describes the proposed project's impact on designated scenic resources located in the vicinity of the project sites.

There are no state designated scenic highways in San Francisco.[19] State routes 1 and 80 are identified as eligible for designation as scenic highways, but the Pier 31½ site would not be visible from these highways. The 49-Mile Scenic Drive is a locally designated road created in 1938 by San Francisco's Downtown Association to highlight the city's beauty and to promote it as a tourist destination. This scenic roadway includes portions of The Embarcadero south of the ferry building, but does not include the roadway adjacent to the project site.[20] The urban design element of the San Francisco General Plan rates street areas important to urban design and views and also rates city streets as excellent, good, or average for the quality of their views. The views along The Embarcadero near the project site are designated as having average views.

At Pier 31½, there are no trees, rock outcroppings, vegetation, or other natural features on the site; therefore, alterations to the site would not damage such resources. The alterations to the historic buildings visible from The Embarcadero roadway, mostly to window and door openings in keeping with the historic context, would appear to be relatively minor changes. In addition, the design would provide upgraded public access to on-site water viewpoints, which would expand opportunities for the public to view the piers and the proposed project area as a whole. Therefore, improvements at Pier 31½ would not substantially damage scenic resources and impacts would be less than significant.

There are no state designated scenic highways near Fort Baker.[21] Fort Baker may be considered a scenic resource, as its park-like setting attracts visitors. Fort Baker does include trees and vegetation; however, the proposed construction would be restricted to the existing pier and adjacent upland area. Alterations to the pier would maintain the pier's current appearance and dimensions, with the addition of a new gangway and dock. The proposed trail would not damage any scenic resources. Following construction, the project site would look generally as it does today. Therefore, improvements at Fort Baker would not substantially damage scenic resources and impacts would be less than significant.

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[19] California State Department of Transportation (Caltrans), California Scenic Highway Mapping System, San Francisco County, Available from http://www.dot.ca.gov/hq/LandArch/16_livability/scenic_highways/index.htm.

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

[21] California State Department of Transportation (Caltrans), California Scenic Highway Mapping System, San Francisco County. Available from http://www.dot.ca.gov/hq/LandArch/16_livability/scenic_highways/index.htm.

Impact AES-3: The proposed project would not substantially degrade the existing visual character or quality of the site and its surroundings. (Less than Significant)

At Pier 31½, the existing visual character of the site and its surroundings is predominantly that of the adjacent Pier 31 and 33 bulkhead and transit shed buildings. The bulkhead buildings are timber frame structures clad in stucco that is lightly scored to resemble ashlar masonry; the transit sheds are timber frame buildings with walls of reinforced concrete. The marginal wharf between these two piers contains a ticket booth, queuing areas, displays, and vehicle parking. The project site is part of the Port of San Francisco Embarcadero Historic District, which extends for three miles of waterfront including over 20 piers (see Section A, Project Description, or Section E.4, Cultural Resources, for further discussion).

As shown in in Figure 12, the proposed project would look similar to the existing conditions. Modifications to window and door openings of the bulkhead buildings, proposed canopies, interpretive displays, and renovated public spaces would be compatible with the surrounding historic district with the have little effect on the overall visual character of the site. The only noticeable changes would be the addition of a second canopy behind the Pier 31 bulkhead building, a second gangway/dock, and renovated public spaces between the two pier buildings. Parking would be moved inside the shed buildings. The proposed canopies would be located behind buildings and would generally not be viewed from the Embarcadero. The proposed modifications would not degrade the existing visual character or quality of the site and its surroundings.

At Fort Baker, most of the wharf improvements would be to the substructure and, therefore, would not be visible. Alterations to the pier would maintain the pier's current appearance and dimensions, with the addition of a gangway and floating dock. Following construction, the project site would look generally as it does today, in keeping with the existing character of the waterfront park.

In summary, the proposed project would redevelop existing facilities but would not change the overall character of the existing uses, which are in line with the visual character of the surrounding areas, and would not substantially degrade the existing visual character or quality of the site and its surroundings. Therefore, there would be a less-than-significant impact as a result of the proposed project.

Impact AES-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 proposed project would not introduce new sources of outdoor daytime lighting at either Pier 31½ or Fort Baker. In fact, natural lighting would be employed to a greater extent under the proposed project than with current operations. For example, the new canopies proposed for Pier 31½ would continue to provide shade and cover from inclement weather, but would include glass panels to allow more natural light through than the existing fabric panels. The proposed project would not include new structures that could cause glare. The proposed modifications to the bulkhead buildings at Pier 31½ would use similar sizes and types of windows and doors, resulting in minimal changes from existing conditions. The glass

panels in the new concrete canopy would be embedded and interspersed in the panel and would not introduce a new source of glare. Therefore, the rest of this discussion is focused on nighttime lighting.

The nighttime lighting conditions near Pier 31½ are quite bright due to the urban setting along the piers and the predominant street lighting along The Embarcadero. Along the streetcar tracks, dual lamp fixtures alternate with palm trees. These fixtures illuminate the roadway and streetcar tracks and have small shields. The existing sidewalk fixtures across the street do not employ shields, and thus contribute the greatest amount of light in the vicinity. The existing Alcatraz Landing sign lettering is illuminated, and the sign also has underlights. Within Pier 31½, the ticket booth employs lighting under its overhang. Additional lights are installed near the vessels for security and safety. The vessels themselves are also well-lit for security and safety. Overall, the area is quite bright in the nighttime, with a warmer hue of light near the street and cooler lamp colors within the pier itself.

Under the proposed project at Pier 31½, the level and character of night lighting for security, safety, and identification within the project site would remain unchanged, though lights would be upgraded and relocated, with consideration given to avoiding light pollution of darkened skies. The inclusion of a third ferry-occupied berth would minimally increase the need for security and safety lighting for the additional vessel, gangway, and float. As part of the proposed project at Pier 31½, the Park Service would require that all new and upgraded lighting employ shields over lamps or be located under building/structure overhangs to minimize light pollution of the dark sky, and new lighting for the gangways and floats would employ motion activation sensors after operational hours to minimize the amount of time lamps would be illuminated.

Current nighttime light levels at the Fort Baker pier are low, and the proposed project would minimally increase light levels through the use of security and safety lighting at the new gangway and float and on moored vessels. However, the Fort Baker area is relatively distant from most viewpoints. Similar to Pier 31½, as part of the proposed project at Fort Baker, the Park Service would require that any new lighting located on the gangways and floats would employ light shades and motion activation sensors after operational hours to minimize the amount of time lamps would be illuminated.

For these reasons, the proposed project would not create new sources of substantial light or glare that would adversely affect day or nighttime views in the area. Therefore, impacts would be less than significant.

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

The geographic scope of aesthetic impacts on scenic vistas, scenic resources, and visual character that could be affected by proposed project construction and operation include the following cumulative projects along The Embarcadero waterfront identified in Table 6 (Section B, Project Setting): Pier 29 (new retail/restaurant space); Pier 43½ (Red and White Ferry Embarkation Improvements); Downtown San

Francisco Ferry Terminal Expansion; and Seawall Lots 323 and 324 (Teatro ZinZanni hotel and theater tent).

The proposed project, when combined with other past, present, and reasonably foreseeable projects, could potentially result in significant cumulative impacts on these aesthetic resources if cumulative projects introduced a number of exceedingly large, brightly illuminated or reflective structures in the low-lying shoreline areas that disrupted views of the waterfront area or surrounding scenic vistas, or substantially impaired the visual character of the site and vicinity, a historic district. However, the proposed project and the projects listed above, with the exception of the proposed 40-foot-tall theater and hotel as part of the Seawall Lots 323 and 324 project, would consist of renovations and small structures within Port facilities subject to review for compatibility with the Embarcadero Historic District, and thus would not substantially affect the visual character and scenic resources of the site and vicinity. The proposed Seawall Lots 323 and 324 project is more than 0.5 mile from Pier 31½, and is not visually connected to the project site. None of these projects would block scenic vistas from the surrounding public viewpoints or introduce substantial amounts of light or glare. For these reasons, the proposed project, in combination with past, present, and reasonably foreseeable future projects in the area, would not result in 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 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. Population growth is considered in the context of local and regional plans and population, housing, and employment projections. Generally, a project that induces population

growth is not viewed as having a significant impact on the environment unless this growth is unplanned and results in significant physical impacts on the environment. Thus, the growth and changes in employment and population and potential demand for housing that would occur with implementation of the project would not be adverse physical impacts in themselves. However, the physical changes needed to accommodate project-related improvements may have physical impacts on the environment.

The proposed project does not include the development of residences, new roads, or related infrastructure that would remove an obstacle to growth in the area. While the proposed project would accommodate growth in visitor levels to Alcatraz Island, the proposed project itself is not growth-inducing. Future capacity at the Pier 31½ site is based on the forecasted 20% growth in visitors to the site through 2036.[22] This projected growth is based on general increases in City tourism levels and population growth, as well as on-island improvements such as the Park Service either opening additional locations on Alcatraz Island for visitor use or implementing visitor management strategies that would allow for increased visitation. The growth is not induced by the proposed project; however, the proposed project is intended to accommodate the projected growth. The proposed project would provide a long-term lease for the ferry embarkation site, allowing the project proponent location certainty for investments in site improvements.

The proposed project may result in a slight increase in the number of direct and indirect jobs related to the expansion in visitor services. The potential additional workforce, likely less than 20 employees, could be readily filled by the Bay Area workforce and would not induce substantial population growth that would cause a substantial adverse physical change to the environment.

For these reasons, the proposed project would not directly or indirectly induce substantial population growth, and impacts would be less than significant.

Impact PH-2: The proposed project would not displace a substantial number of existing housing units or people, necessitating the construction of replacement housing. (No Impact)

The proposed project would not displace any housing units or people because the project site is within Port (Pier 31½) and Park Service (Fort Baker) properties, and there is no on-site housing at either the Pier 31½ or Fort Baker project sites; therefore, the proposed project would have no impact.

Impact C-PH: The proposed project would not make a considerable contribution to any potential significant cumulative effects related to population or housing. (Less than Significant)

The *Plan Bay Area*, the current regional transportation plan and Sustainable Communities Strategy adopted by the Metropolitan Transportation Commission and Association of Bay Area Governments in July 2013, contains housing and employment projections for San Francisco through 2040. *Plan Bay Area*

[22] ORCA Consulting, LLC, *America's Cup 34 Spectator Sites on NPS Properties Visitation Estimate and Capacity Assessment Preliminary Report*, December 2011.

projections provide context for the population and housing cumulative analysis. Cumulative development in the project vicinity would result in an intensification of land uses and cumulative increases in the residential and employment populations at the neighborhood, citywide, and regional levels. This cumulative growth is consistent with the projections presented in *Plan Bay Area*. As discussed under Impacts PH-1 and PH-2, the proposed project's contribution to cumulative growth would not be substantial and it would have no contribution to displacement of housing units or people. Therefore, the proposed project in combination with past, present, and reasonably future projects would not result in a significant cumulative impact related to population and housing.

Topics:	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*	*Not Applicable*
4. CULTURAL RESOURCES—Would the proposed 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?	☐	☒	☐	☐	☐

The study area for analysis of cultural resources and tribal cultural resources is known as the Area of Potential Effect, as defined in Section 106 of the National Historic Preservation Act, and its implementing regulations at 36 Code of Federal Regulations 800.4. The Area of Potential Effect is the geographic area or areas within which an undertaking may adversely affect historic properties (36 Code of Federal Regulations 800.16[d]). This is consistent with the CEQA requirement to determine whether a project will cause a substantial adverse change in the significance of a historical resource. The proposed project has undergone separate Section 106 review, and the Area of Potential Effect has been determined in consultation with Native American tribes and the State Historic Preservation Officer. The proposed project would occur within the boundaries of the Port of San Francisco Embarcadero National Historic District and the Fort Baker portion of the Forts Baker, Barry, and Cronkhite National Historic District, both of which are listed in the National Register of Historic Places. Therefore, the study area (Area of Potential Effect) includes the entirety of both districts, because effects to a property within a district could potentially affect the significance of the whole district.

Impact CR-1: The proposed project would not result in 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. (Less than Significant)

Historical resources are those properties that meet the definitions in Section 21084.1 of the CEQA statute and Section 15064.5 of the CEQA Guidelines. Historical resources include properties listed in, or formally determined eligible for listing in, the California Register of Historical Resources or in an adopted local historic register. Historical resources also include resources identified as significant in a local historical resource survey meeting certain criteria. Additionally, properties that are not listed but are otherwise determined to be historically significant, based on substantial evidence, would also be considered historical resources. This section addresses impacts to historical resources of the built environment. A historical resource is materially impaired when a project "demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance."

The proposed project includes alterations to Piers 31 and 33. The bulkhead buildings, transit sheds, and wharfs that comprise the piers are contributing structures to the Port of San Francisco Embarcadero Historic District. The district is historically significant for the time period of 1878 through 1946, in the areas of Government, Commerce, Transportation, Labor, Architecture, Engineering, and Community Planning and Development. Proposed project work would generally restore historic conditions and would follow the Secretary of the Interior's Standards for Rehabilitation of Historic Buildings[23], which provide a framework and guidance for decision-making about work or changes to a historic property. A project meets the Secretary of the Interior's Standards when the overall effect of all work on the property is one of consistency with the property's historic character. Determination that a project meets the Secretary of the Interior's Standards is based on the cumulative effect of all the work in the context of the specific existing conditions, evaluated through the professional review of the State Historic Preservation Office, the Park Service, and the Port of San Francisco. The Port Commission adopted Resolution 04-89 in 2006, which requires that Port staff review projects involving alteration, construction, or demolition within the historic district for consistency with the Secretary of the Interior's Standards.

Table 7 lists the proposed project work and effects to the Port of San Francisco Embarcadero National Historic District.

[23] 36 Code of Federal Regulations 67

TABLE 7
PROJECT EFFECTS ON THE PORT OF SAN FRANCISCO EMBARCADERO NATIONAL HISTORIC DISTRICT

Structure	Elevation	Planned Work	Effect on Historic District
Pier 33 Bulkhead Building	South	Removal of awnings placed in 2012	Removal of the recent awnings will have no effect because they were added after the period of significance and are not historic.
		Replacement of a shallow arch (which originally held a coiling door and was filled in between 1949 and 1985) with a curtain wall and door	Replacement of the arch would restore some of the transparency of the large original coiling door opening. Both changes would enhance the integrity of feeling, association, and design by restoring historic views and the historic appearance of the elevation.
	East	Restoration of two large windows which were filled in between 1949 and 1985	Restoration of the original 1918 windows (now infilled) and removal of two later windows would enhance integrity of feeling and design by restoring the original appearance of the elevation. Restoration work will be in compliance with SOI #6 ("distinctive materials, features, finishes, and construction techniques that characterize a property will be preserved") and #9 ("new additions, exterior alterations or related new construction will not destroy historic materials, features, and spatial relationships that characterize the property").
		Filling in two small windows which were installed post-1949	
	North	Addition of ticket windows at the location of two post-1949 windows at the eastern extent of the elevation.	Conversion of two post-1949 windows (added after the period of significance) to ticket windows would not change any of the historic fabric of the structure, and does not represent a change in the balance or massing of the façade.
		Restoration of windows on the outer end of the façade (currently infilled)	Restoration and the installation of a new glazed opening that is in line with the opening on the south elevation would restore historic views and enhance the integrity of feeling and design by returning the elevation to its appearance during the period of significance. The restored windows will be constructed in compliance with SOI Standards #9.
		Infilling of a post-1949 door, louvre, and window on the inner end of the façade	Infilling of the door, louvre, and window would restore the historic appearance and enhance the integrity of feeling and design by returning the elevation to its appearance during the period of significance.
		Alteration of existing view of the elevation by removal of existing non-permanent features on the marginal wharf (canopies, seating, kiosks, signage, and planters), and replacement with new concrete canopies, signage, seating, and queuing appurtenances	New non-permanent features would not destroy any historic fabric and are reversible. The height, thickness, and the angle of the new canopies were carefully chosen for maximum transparency, so that pedestrians entering the site from the Embarcadero would be presented with the edge of the canopies at a height that reveals the pier shed and bulkhead building beyond. This constitutes a reduction of effect on the view, as compared to the current canopies. The design of the canopies would be contemporary, simple, and industrial in design.

Structure	Elevation	Planned Work	Effect on Historic District
Pier 33 Transit Shed	North	Pinning a post-1949 steel coiling door in open position to allow insertion of a restroom "box" set back into the volume of the bulkhead beyond	The restroom "box" insertion into the non-historic door would not affect the scale or massing of the façade. It would be separate from the historic fabric and reversible in keeping with SOI Standards #10 ("new additions…will be undertaken in such a manner that, if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired").
Pier 31 Bulkhead Building	South	Replacement of an existing door with an accessible door made of appropriate historic materials (such as wood, glass, and concrete)	To minimize effects to integrity of design, workmanship, and materials, the installed doors would use appropriate historic materials (such as wood, glass, and concrete) and scale, and would be visually consistent with other doors on both the Pier 31 and Pier 33 bulkhead buildings. The proposed new openings would be contemporary in construction while matching the proportions and materials of the historic windows, in compliance with SOI Standards #9.
	North	Replacement of one historic double height window with a door	
Pier 31 Transit Shed	North	Two historic coiling doors would be pinned in open position to allow insertion of the restroom "box" into the volume of the bulkhead beyond.	The restroom box addition would be separate from the historic fabric and reversible in keeping with the SOI Standards #9 and #10. The pinning open of the coiling doors would also be reversible in keeping with the SOI Standards #6.
		The non-historic coiling door on the non-historic addition would be pinned open to allow the insertion of a "box" entrance to the café.	The cafe "box" entrance insertion is in the non-contributing addition, and would not affect the scale or massing of the façade.
All Structures	All Elevations Where Work is Proposed	Minor repairs and painting	Repairs would be completed in compliance with the SOI Standards #6, which requires that "distinctive materials, features, finishes, and construction techniques that characterize a property will be preserved."

Note:
SOI: Secretary of the Interior

The proposed project would affect the historic district at Piers 31 and 33. As shown in Table 7, most changes involve the restoration of historic appearance and therefore would be consistent with preservation goals and the Secretary of the Interior's Standards. Work at the Pier 31 bulkhead building includes some alterations that would replace historical doors and windows with new window and door assemblies, but effects would be minimized through adherence to the Secretary of the Interior's Standards, as detailed in Table 7.

The proposed project also includes work in Fort Baker National Historic District. The District is also a Cultural Landscape in the category of designed landscapes, as documented by the Park Service and significant for the coastal defense history of the site.[24] The Fort Baker pier is a contributing property to the

[24] National Park Service, *Cultural Landscape Report for Fort Baker, Golden Gate National Recreation Area*, 2005. Available from http://www.nps.gov/history/history/online_books/foba/clr.pdf.

Forts Baker, Barry, and Cronkhite National Historic District (historical documentation labels it the Mine Wharf). Treatment guidelines in the 2005 Fort Baker Cultural Landscapes Report prioritize the preservation of "work-related industrial development around Horseshoe Cove including breakwater, seawalls, wharves, ramps, and ship repair structures which define the industrial character of the waterfront," and note that "management of the waterfront focuses on redevelopment for recreational use, within the general framework of preservation, of the contributing resources and character of the cultural landscape as a working waterfront." Therefore, retaining and rehabilitating the historic Mine Wharf is consistent with the cultural landscape treatment guidelines. Replacing materials in-kind would preserve the industrial character of the wharf. Further, rehabilitating the wharf would prevent it from falling into disrepair, extending the life of the historic structure. Though some historic elements would be replaced with modern materials, the effect to the structure (and therefore to the historic district) would be consistent with historic preservation goals and the Secretary of the Interior's Standards.

The proposed project has been analyzed under Section 106 and documented in a Finding of Effects letter from the Park Service to the State Historic Preservation Officer.[25] The Park Service determined that the proposed project would have no adverse effects on historic properties. The State Historic Preservation Officer concurred with this determination on August 10, 2017.[26] The City of San Francisco Planning Department has reviewed the proposed project for impacts to historical resources, and prepared a report of their findings. Planning staff "concurs with the Findings of Effect letter prepared by the National Park Service which determined the proposed project will not have a significant impact on the subject property or the Port of San Francisco Embarcadero Historic District and will be in conformance with the Secretary of the Interior's Standards for Rehabilitation."[27]

For these reasons, the proposed project's impacts on historic resources, including the Embarcadero National Historic District and the Forts Baker, Barry, and Cronkhite National Historic District, would be considered less than significant.

Impact CR-2: The proposed project could potentially result in a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5. (Less than Significant with Mitigation)

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 as a unique archaeological

[25] Muldoon, Cicely, U.S. Department of the Interior, National Park Service, Golden Gate Recreation Area, Acting General Superintendent, letter correspondence regarding "Alcatraz Ferry Embarkation Project, Golden Gate National Recreation Area" with Julianne Polanco, State Historic Preservation Officer, Office of Historic Preservation, June 23, 2017.

[26] Polanco, Julianne, State Historic Preservation Officer, Office of Historic Preservation, letter correspondence regarding "Alcatraz Ferry Embarkation Project, Golden Gate National Recreation Area" with Cicely Muldoon, U.S. Department of the Interior, National Park Service, Golden Gate Recreation Area, Acting General Superintendent, August 10, 2017.

[27] San Francisco Planning Department, Historic Resource Evaluation Response, Pier 31 ½ and Pier 33, Case No. 2017-001888ENV, August 31, 2017.

resource.[28] Determining the potential for encountering archaeological resources includes relevant factors such as the location, depth, and amount of excavation proposed, as well as any recorded information on known resources in the area. Ground disturbance would occur in the following areas for the proposed project: in-water at Pier 31½, where 12 new hollow steel piles would be driven; and at Fort Baker, where eight hollow steel piles would be driven at the Mine Wharf and a gravel trail would be constructed in the upland area between the wharf and the Discovery Museum parking area.

Two archaeological sites are recorded in the study area. Because the Area of Potential Effect includes the entire Port of San Francisco Embarcadero Historic District, it includes archaeological site CA-SFR-127H, the mid-Embarcadero Historic Fill site, which is an element of the historic district. However, SFR-127H is 0.65 mile southeast of the project area, and ground disturbance for the proposed project would not occur in the vicinity. The designation CA-MRN-648 has been assigned to a group of 55 structures and archaeological sites in east Fort Baker. Some features are also part of the Forts Baker, Barry, and Cronkhite National Historic District. Many of the archaeological features have not been evaluated for National Register of Historic Places eligibility, and some are likely not associated with the period of significance of Fort Baker.

No archaeological resources have been identified in-water at Pier 31½ or Fort Baker. Both areas are working waterfronts that have been subject to ongoing disturbance of the bay floor as the result of propeller wash, in addition to currents and seismic movement of the sea floor documented in the San Francisco Bay area.[29] A 1998 dive survey near the Mine Wharf at Fort Baker noted only sport fishing and crabbing equipment, as well as broken concrete piles, which are evidence of previous disturbance.[30] Installation of hollow core pilings would not likely encounter any significant, undisturbed archaeological historical resources at either location and would not bring soil to the surface for archaeological inspection. In the upland area of Fort Baker, the gravel trail would extend from the existing road to the Discovery Center. An archaeological survey has been previously conducted in the area,[31] and no features of site CA-MRN-648 or any other archaeological resources were identified along the proposed trail route. Disturbance along the trail route, currently landscaped as lawn, would be surficial and would not be expected to extend into previously undisturbed soils.

[28] A unique archaeological resource is one where "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 available 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])

[29] Marine Design Associates, *Inspection of Fort Baker, Fort Point, and Fort Mason Pier 4, San Francisco, California*, 1998. Report on file at Golden Gate National Recreation Area, San Francisco, California.

[30] Ibid.

[31] Stewart, Suzanne, Jack Meyer, and Michael Newland, *Phase One Investigations for the Fort Baker Archaeological Survey, Golden Gate National Recreation Area, Marin County, California*, 2001. Report on file at the Northwest Information Center, Sonoma State University, Rohnert Park, California.

Based on the above analysis, there is a low potential for uncovering archaeological resources during project construction. The proposed project operation is expected to have no impact on archaeological resources. While unlikely, it is possible that previously unrecorded and buried (or otherwise obscured) archaeological deposits could be discovered during ground disturbing activities. Excavating, grading, and moving heavy construction vehicles and equipment could expose and have impacts on unknown archaeological resources, which would be a significant impact. However, this impact would be reduced to a less-than-significant level with implementation of **Mitigation Measure M-CR-2, Accidental Discovery of Archaeological Resources**. This measure requires that archaeological resources be avoided, and if accidentally discovered, that they be appropriately assessed and treated.

Mitigation Measure M-CR-2: Accidental Discovery of Archaeological Resources

The following mitigation measure is required to avoid any potential adverse effect from the proposed project on accidentally discovered buried or submerged historical resources as defined in CEQA Guidelines Section 15064.5(a) and (c). The project proponent shall distribute the Planning Department archaeological resource "ALERT" sheet to the project prime contractor; any project subcontractor (including demolition, excavation, grading, foundation, pile driving, etc. firms); and any utilities firm involved in soil-disturbing activities within the project site. Prior to any soils disturbing activities being undertaken each contractor is responsible for ensuring that the "ALERT" sheet is circulated to all field personnel including, machine operators, field crew, pile drivers, supervisory personnel, etc. The project proponent shall provide the Environmental Review Officer and the Port of San Francisco with a signed affidavit from the responsible parties (prime contractor, subcontractor(s), and utilities firm) to the Environmental Review Officer confirming that all field personnel have received copies of the "ALERT" Sheet.

Should any indication of an archaeological resource be encountered during any soils disturbing activity of the project, the project Head Foreman and/or project proponent shall immediately notify the Environmental Review Officer and the Port of San Francisco and shall immediately suspend any soils disturbing activities in the vicinity of the discovery until the Environmental Review Officer has determined what additional measures should be undertaken.

If the Environmental Review Officer determines that an archaeological resource may be present within the project site, the project proponent shall retain the services of an archaeological consultant from the pool of qualified archaeological consultants maintained by the Planning Department archaeologist. The archaeological consultant shall advise the Environmental Review Officer and the Port of San Francisco as to whether the discovery is an archaeological resource, retains sufficient integrity, and is of potential scientific/historical/cultural significance. If an archaeological resource is present, the archaeological consultant shall identify and evaluate the archaeological resource. The archaeological consultant shall make a recommendation as to what action, if any, is warranted. Based on this information, the Environmental Review Officer may require, if warranted, specific additional measures to be implemented by the project proponent.

Measures might include: preservation in situ of the archaeological resource; an archaeological monitoring program; or an archaeological testing program. If an archaeological monitoring program or archaeological testing program is required, it shall be consistent with the Environmental Planning division guidelines for such programs. The Environmental Review Officer may also require that the project proponent immediately implement a site security program if the archaeological resource is at risk from vandalism, looting, or other damaging actions.

The project archaeological consultant shall submit a Final Archaeological Resources Report to the Environmental Review Officer and the Port of San Francisco that evaluates the historical significance of any discovered archaeological resource and describes the archaeological and historical research methods employed in the archaeological monitoring/data recovery program(s) undertaken. Information that may put at risk any archaeological resource shall be provided in a separate removable insert within the final report.

Copies of the Draft Final Archaeological Resources Report shall be sent to the Environmental Review Officer for review and approval. Once approved by the Environmental Review Officer, copies of the Final Archaeological Resources Report shall be distributed as follows: the California Archaeological Site Survey Northwest Information Center shall receive one copy, and the Environmental Review Officer shall receive a copy of the transmittal of the Final Archaeological Resources Report to the Northwest Information Center. The Environmental Planning division of the Planning Department shall receive one bound copy; one unbound copy; and one unlocked, searchable PDF copy on CD of the Final Archaeological Resources Report, along with copies of any formal site recordation forms (CA DPR 523 series) and/or documentation for nomination to the National Register of Historic Places/California Register of Historical Resources. In instances of high public interest or interpretive value, the Environmental Review Officer may require a different final report content, format, and distribution than that presented above.

With implementation of **Mitigation Measure M-CR-2, Accidental Discovery of Archaeological Resources**, as described above, the proposed project would have a less-than-significant impact on archaeological resources.

Impact CR-3: The proposed project could potentially disturb human remains, including those interred outside of formal cemeteries. (Less than Significant)

No burials or formal cemeteries have been identified near the area of ground disturbance for the proposed project. Human remains would not be expected in a near-shore, in-water environment; installation of pilings at Fort Baker and Pier 31½ is not expected to encounter human remains. At the proposed trail location at Fort Baker, the landform has been modified and disturbed in the historic era to the full extent of proposed ground disturbance for the trail. The proposed project is not expected to encounter or disturb human remains. Therefore, this impact would be less than significant.

Impact CR-4: The proposed project could potentially result in a substantial adverse change in the significance of a tribal cultural resource as defined in Public Resources Code §21074. (Less than Significant with Mitigation)

CEQA Section 21074.2 requires the lead agency to consider the effects of a project on tribal cultural resources. As defined in 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. Based on discussions with Native American tribal representatives, in San Francisco, prehistoric archaeological resources are presumed to be potential tribal cultural resources. A tribal cultural resource is adversely affected when a project causes a substantial adverse change in the resource's significance. Pursuant to CEQA Section 21080.3.1(d), within 14 days of a determination that an application for a project is complete or a decision by a public agency to undertake a project, the Lead Agency is required to contact the Native American tribes that are culturally or traditionally affiliated with the geographic area in which the proposed project is located. Notified tribes have 30 days to request consultation with the Lead Agency to discuss potential impacts on tribal cultural resources and measures for addressing those impacts. On August 15, 2017, the Planning Department contacted Native American individuals and organizations in the San Francisco area, providing a description of the proposed project and requesting comments on the identification, presence, and significance of tribal cultural resources in the project vicinity. No tribes provided information or requested consultation.

As discussed under Impact CR-2 and Impact CR-3, no archaeological resources or human remains have been identified in the project area, and it is not anticipated that any would be encountered because of the small scale and shallow depth of anticipated ground disturbance. The proposed project is not anticipated to have impacts to archaeological resources or human remains. However, in the unlikely event that archaeological resources or human remains are encountered, they could be identified as tribal cultural resources at the time of discovery or at a later date. Therefore, the potential adverse effects of the proposed project on previously unidentified archaeological resources, discussed under Impact CR-2, also represent a potentially significant impact on tribal cultural resources. Implementation of **Mitigation Measure M-CR-4, Tribal Cultural Resources Interpretive Program**, would reduce potential adverse effects on tribal cultural resources to a less-than-significant level. **Mitigation Measure M-CR-4, Tribal Cultural Resources Interpretive Program,** would require either preservation-in-place of the tribal cultural resources, if determined effective and feasible, or an interpretive program regarding the tribal cultural resources developed in consultation with affiliated Native American tribal representatives.

Mitigation Measure M-CR-4: Tribal Cultural Resources Interpretive Program

If the Environmental Review Officer determines that a significant archaeological resource is present, and if in consultation with the affiliated Native American tribal representatives, the Environmental Review Officer determines that the resource constitutes a tribal cultural resource and that the resource could be adversely affected by the proposed project, the proposed project

shall be redesigned so as to avoid any adverse effect on the significant tribal cultural resource, if feasible. If the Environmental Review Officer, in consultation with the affiliated Native American tribal representatives and the project proponent, determines that preservation-in-place of the tribal cultural resources is not a sufficient or feasible option, the project proponent shall implement an interpretive program of the tribal cultural resources in consultation with affiliated tribal representatives. An interpretive plan produced in consultation with the Environmental Review Officer and affiliated tribal representatives, at a minimum, and approved by the Environmental Review Officer, would be required to guide the interpretive program. The plan shall identify, as appropriate, proposed locations for installations or displays, the proposed content and materials of those displays or installation, the producers or artists of the displays or installation, and a long-term maintenance program. The interpretive program may include artist installations, preferably by local Native American artists, oral histories with local Native Americans, artifacts displays and interpretation, and educational panels or other informational displays. In the event that construction activities disturb unknown archaeological sites that are considered tribal cultural resources, any inadvertent damage would be considered a significant impact.

With implementation of **Mitigation Measures M-CR-2, Accidental Discovery of Archaeological Resources**, and **M-CR-4**, **Tribal Cultural Resources Interpretive Program,** as described above, the proposed project would have a less-than-significant impact on previously unknown tribal cultural resources.

Impact C-CR: The proposed project, in combination with past, present, and reasonably foreseeable future projects in the vicinity, could potentially result in cumulative impacts to cultural resources. (Less than Significant with Mitigation)

The geographic scope of potential cumulative impacts on historic built environment resources encompasses the entirety of the Port of San Francisco Embarcadero National Historic District and the Fort Baker portion of the Forts Baker, Barry, and Cronkhite National Historic District. Cumulative projects in the Embarcadero National Historic District, such as Pier 29 reconstruction, the Pier 43½ Golden Gate Scenic Steamship project, and the Downtown Ferry Terminal Expansion, are not anticipated to cause or contribute to impacts on the historical resource, as these projects would not alter the physical characteristics that convey the district's historical significance. No cumulative projects are identified in the Fort Baker portion of the Forts Baker, Barry, and Cronkhite National Historic District. Accordingly, the proposed project, together with the cumulative development, would have a less-than-significant impact on historic built environment resources.

The geographic scope of potential cumulative impacts on archaeological resources, human remains, and tribal cultural resources encompasses the project site and nearby vicinities. All cumulative projects identified in the proposed project vicinity (see Table 6) are assumed to cause some degree of ground disturbance during construction and thus contribute to a potential cumulative impact on cultural resources.

Background research suggests that the potential to encounter archaeological resources, tribal cultural resources, or human remains would be low; however, the proposed project would have the potential to affect unknown resources should they be present in the project area. In combination with the other identified cumulative projects, the potential for a cumulative impact would be significant without mitigation. With implementation of **Mitigation Measures M-CR-2, Accidental Discovery of Archaeological Resources,** and **M-CR-4, Tribal Cultural Resources Interpretive Program**, the proposed project's contribution to cumulative impacts on archaeological resources, tribal cultural resources, and human remains would be less-than-cumulatively considerable with mitigation (less than significant with mitigation).

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?	☐	☐	☐	☐	☒
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 proposed project is not located within an airport land use plan area or in the vicinity of a private airstrip. Therefore, Topic E.5(c) is not applicable to the proposed project. A transportation study was prepared for the proposed project, which was based in part on the 2013 traffic analysis included in the

Park Service's EIS prepared for the proposed project and updated for current conditions. The following analysis is based on the information provided in the transportation memorandum. [32] Additional analysis regarding transportation and circulation at Fort Baker and Sausalito is provided in Appendix B based on a supplemental transportation study.[33]

Setting

Pier 31½

The proposed project site at Pier 31½ is located on the eastern side of The Embarcadero, bounded by Pier 31 to the south, Pier 33 to the north, and the San Francisco Bay to the east. The Embarcadero, adjacent to the Pier 31½ site, consists of three northbound and two southbound travel lanes, one historic streetcar line in each direction (in the median), northbound and southbound class II bikes lanes, a standard sidewalk on the southbound side, and a multi-use promenade on the northbound side.

The Pier 31½ 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 cross to the promenade directly across from the site at the Bay Street and The Embarcadero intersection or south of the site at the Sansome Street/Chestnut Street and The Embarcadero intersection. In addition to providing pedestrian crossings, these are the two closest vehicle intersections to the site.

Bay Street is a two-way, east-west roadway that connects the site to the North Beach, Russian Hill, and Marina Districts. Chestnut Street and Sansome Street form a "K" intersection with The Embarcadero. Chestnut is a one-way, two-lane street, which directs traffic east, away from The Embarcadero to a dead-end, two blocks away. Sansome is also a one-way, two-lane, northbound street. Although closer to the Bay Street intersection, the proposed project site at Pier 31½ is within reasonable walking distance from either intersection.

Roadway connectivity to San Francisco's interior is limited along this stretch of The Embarcadero, given the topographical barrier created by Telegraph Hill a few blocks southwest of the site. This barrier means that most visitors would travel to the site from either the north or the south, with Bay Street serving as the prominent east-west access option. Employees and select shuttle companies are permitted to either park or pick-up/drop-off in the interior of the site, but all other visitors arriving by car must park at an off-site location and walk. Tour bus parking is provided in front of the Pier 33 bulkhead building.

Transit Network

Table 8 presents the transit options near the Pier 31½ site. Primary public transit access to the site is provided by San Francisco Municipal Railway (Muni) bus and streetcar services. The Historic F Market/Wharf and E Embarcadero streetcars operate in their own right-of-way in the median on The

[32] Fehr & Peers, *Alcatraz Embarkation Facility – Pier 31½ Circulation Study*, San Francisco, CA, December 2017.

[33] Fehr & Peers, *Alcatraz Embarkation Facility – Pier 31½ Circulation Study*, Response to PMND Appeal Transportation Concerns, February 8, 2018.

Embarcadero, following signals that are timed with north- and south-bound traffic. Muni bus lines with service near the site include 82X Levi Express, 8/8X Bayshore Express, 39 Coit Tower and 47 Van Ness. Various ferry service providers operate out of Pier 41 about a quarter-mile north on The Embarcadero. According to the Transportation Study, all ferries from Pier 41 run to the Ferry Building, Alameda, and Oakland during the mid-day on weekdays and all day on the weekends.[34]

TABLE 8
TRANSIT ROUTES, STOPS, AND FREQUENCIES NEAR PIER 31½

Route	Destination(s)	Nearest Stop Location	Service Frequency (minutes)			
			AM	Midday	PM	Saturday
Muni Transit Service						
F Market & Wharves	The Embarcadero, Market Street, Upper Market	Embarcadero/Bay	8	7	7	8
E Embarcadero	4th Street/King Street, Ferry Building, Fisherman's Wharf	Embarcadero/Bay	--	20	16	16
8/8BX Bayshore Express	Balboa Park, Financial District, North Beach	Kearny/North Point	6/6	7/--	7/7	8/--
39 Coit Tower	Coit Tower, Fisherman's Wharf, North Beach	Stockton/North Point	--	20	20	20
47 Van Ness	Fisherman's Wharf, Soma	Powell/Beach	8	9	8	10
82X Levi Express	Levi Plaza, Caltrain	Battery/Filbert	12	--	15	--
Water Emergency Transport Authority (WETA)/SF Bay Ferry & Blue and Gold Fleet						
Various Ferry Lines	Alameda, Oakland, SF Ferry Building	Pier 41	--	45+	--	45+
Golden Gate Transit						
Various GG Bus Lines[1]	Financial District, Van Ness, Embarcadero	Embarcadero/Bay	30	45	30	--

1. Although Golden Gate Transit buses travel near Pier 31½, Golden Gate Transit vehicles are prohibited from picking passengers up in San Francisco in the inbound direction and from dropping passengers off in San Francisco in the outbound direction. Because of this, Golden Gate Transit is not expected to be a key transit connection to the proposed project. Headways shown are the average of 13 Golden Gate Transit routes that stop at Bay Street and Embarcadero.
Source: Fehr & Peers, *Alcatraz Embarkation Facility – Pier 31½ Circulation Study*, San Francisco, California, September 2017.

According to the Transportation Study, all transit lines operate within their capacity utilization threshold in the AM peak hour, and all lines except the F-Market & Wharves operate within the capacity utilization threshold in the PM peak hour. In the PM peak hour, the F-Market & Wharves exceeds the capacity utilization threshold in the PM peak hour in the outbound direction.

Pedestrian and Bicycle Facilities

Existing pedestrian facilities within the vicinity of the Pier 31½ site include sidewalks, crosswalks, curb ramps, pedestrian signals, and streetscape and landscape features (i.e., trees, planters, and street lighting). The multi-use promenade along the east side of The Embarcadero is generally 18 to 25 feet wide.

[34] Fehr & Peers, *Alcatraz Embarkation Facility – Pier 31½ Circulation Study*, San Francisco, CA, September 2017.

Sidewalks on the west side of The Embarcadero are generally 10 feet wide. Pedestrians can cross The Embarcadero at either Bay Street, which is approximately 350 feet north of the Pier 31½ site, or Chestnut Street/Sansome Street, which is 700 feet to the south. Most active uses on The Embarcadero are located on the waterfront (east side) where the majority of pedestrian activity occurs.

Existing pedestrian volumes and conditions were evaluated during field visits to the Pier 31½ site. Less pedestrian activity was observed along The Embarcadero's west side in comparison to activity on the east side promenade. Approximately 150 and 250 people crossed Bay Street during the AM and PM peak hours, respectively. Similar volumes crossed Chestnut Street during the AM and PM peak hours, with 340 crossing Sansome Street in the PM peak hour. The Embarcadero crossing at Bay Street had about 80 more pedestrian crossings in the AM peak hour than The Embarcadero crossing at Sansome, but PM peak hour crossing volumes were about the same (approximately 200) for the two intersections. According to the Transportation Study, although pedestrian volumes are high, pedestrian facilities operate within acceptable crowding levels.

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 31½ site is served by several primary bicycle facilities. A Class II facility runs along The Embarcadero between North Point Street and AT&T Park in the South of Market Area (Soma), 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.

Bicycle parking on the project site is provided in two locations: two large public racks placed on the side of the Pier 33 building; and two large employee racks in the Pier 31 building (inside the enclosed employee parking area). These parking racks were about 90% full during the June 27, 2017, observation site visit conducted for the transportation study, each accommodating anywhere from 10 to 15 bikes at a time. There are seven public u-racks in front of Pier 35 and Pier 33 (within 500 feet of Pier 31½). None of these racks were in use during either site observation period (mid-day and PM). There are also three pedicab stops located along the curb in front of Pier 31½.

During the site observation period, about 210 cyclists were counted traveling northbound (directly in front of the Pier 31½ site) on The Embarcadero in the PM peak hour, while about 100 were counted traveling in the southbound direction. The higher volume of northbound cyclists led to more conflicts

between cyclists and pedestrian loading activities. Most of the northbound cyclists in the PM period were observed to be commuter rather than tourist cyclists, which were more common during the mid-day period. Commuting cyclists typically moved at a quicker speed than tourist cyclists and opted to merge into a travel lane to avoid idling curb activity rather can come to a stop in the bike lane. The summer 2017 expansion of Ford GoBike's regional bikeshare program included a station just south of the Pier 31½ site at The Embarcadero/Sansome Street/Chestnut Street intersection. The station, which has 14 bike docks, is the northernmost station planned at the time of the Transportation Study, with the next closest station located at The Exploratorium at Pier 15.

Parking Conditions

Off-street parking is currently provided on the Pier 31½ site for Park Service and site staff, and is not provided for visitors. There is space for about 15 cars in the on-site parking area on the southeast portion of the site, 12 of which were observed to be occupied at mid-day on a weekday. The informal gate entrance off The Embarcadero northbound is opened and closed by the security guard/information officer for the site. When exiting the site, cars must turn right onto The Embarcadero northbound. Conflicts were not observed between pedestrians and vehicles entering and exiting the parking lot on the day of the site visit; in a few instances, the guard directed pedestrian traffic in order to let a car enter or exit.

There are approximately 1,125 off-street parking spaces in garages and lots within a quarter-mile of the Pier 31½ site. The parking garages in the area are privately-owned, but available to the public. Surface parking in the area is generally managed by the Port of San Francisco, and only represents a small portion of the total off-street parking count. Within a quarter-mile of the site, there are approximately 690 on-street parking spaces. This count includes spaces to the northeast of Telegraph Hill but does not include spaces within a quarter-mile that would require a circuitous route to the site due to topography or discontinuous streets.

Parking is most utilized between 12:00 PM and 3:00 PM during weekdays when, on average, 80 percent of available on-street spaces are occupied. Off-street parking garages are between 50 and 70 percent occupied during business hours (generally 9:00 AM to 6:00 PM), and after 6:00 PM, parking utilization drops to 26 percent. On-street parking in the area is also effectively full between 9:00 AM and 6:00 PM, when utilization is between 80 and 100 percent. Weekend parking utilization is around 50 percent, reflecting the ability to find available parking easily.

Passenger Loading

Field observations were conducted at the Pier 31½ site on a typical weekday during mid-day and PM peak periods while Alcatraz ferry trips were operating. Most passenger loading activity occurred immediately in front of the site, but activity related to the site extended as far north as Pier 35 and as far south as Pier 31. The only existing loading zone near the site is immediately north of the Bay Street intersection, which is in front of the Pier 33 Bulkhead building, approximately 400 feet north of the site entrance. The loading zone (approximately 45 feet long) can accommodate one bus or two cars comfortably. All other curb space between Pier 31 and 35 is dedicated to driveways or metered on-street

parking, which includes one Americans with Disabilities Act-accessible space immediately in front of the site entrance. In addition to vehicle parking spaces, there are two curb spaces designated for pedicabs. These pedicab spaces flank the Americans with Disabilities Act space immediately in front of the site entrance. There is an additional pedicab zone on the promenade sidewalk in front of the site. South of the site driveway is a stretch of red curb extending to the Pier 31 driveway, which is signed as "No stopping anytime."

The majority of pick-ups and drop-offs were performed by either a TNC vehicle (e.g., Uber or Lyft) or taxi (59 percent of all stops). The highest passenger loads came from tour buses (20 percent of stops). Private vehicles also accounted for 18 percent of stops. Shuttles and freight (remaining 3 percent of stops) appeared a few times during site observations, but played a minor role when compared to other vehicle categories.[35]

Despite the curb restrictions, most curb activity occurred immediately in front of the Pier 31½ site, likely due to the door-to-door nature of TNCs and taxis. This led to numerous conflicts with bicycles and automobiles while cars were parked or idling in the bicycle and/or travel lanes. Only on rare occasions did vehicles pull fully into an empty curb parking space. Tour buses typically drove past the site and used the designated loading zone on The Embarcadero north of Bay Street (Figure 14). In the event that two buses arrived at the loading zone simultaneously, however, the second bus was forced to stack in the bicycle lane. As shown in Figure 15, vehicles dropping off and picking up visitors most commonly utilized the area directly fronting the site. This area included the Americans with Disabilities Act parking space (when unoccupied), the tapered curb area, and pedicab zone north of the site driveway, the site driveway, and the red curb zone south of the site.

Pedicab Activity

Pedicabs—typically in the form of a bicycle pulling a two- to three-passenger bench on wheels—are a unique mode of transport along The Embarcadero. They typically travel in the bicycle lane, but pull up onto the promenade to load and unload passengers. Three staging zones are designated for the pedicabs adjacent to the Pier 31½ site: two on the street and one large box marked on the promenade itself. Pedicab drivers were diligent in staying in these boxes while trying to attract passengers. The existing Alcatraz ferry embarkation site was noted to be a popular staging area for the pedicabs drivers, who would often return to the site after dropping passengers off elsewhere along The Embarcadero. The pedicab drivers were observed to be particularly successful at attracting disembarking ferry passengers in the early PM period (4:00 PM to 5:00 PM) and would typically carry two to three passengers. Although pedicab counts were not recorded, pick-up and drop-off volumes appeared higher than private vehicle activity but lower than TNC and taxi activity, and were noted to be an important factor in the passenger loading activity for the site.

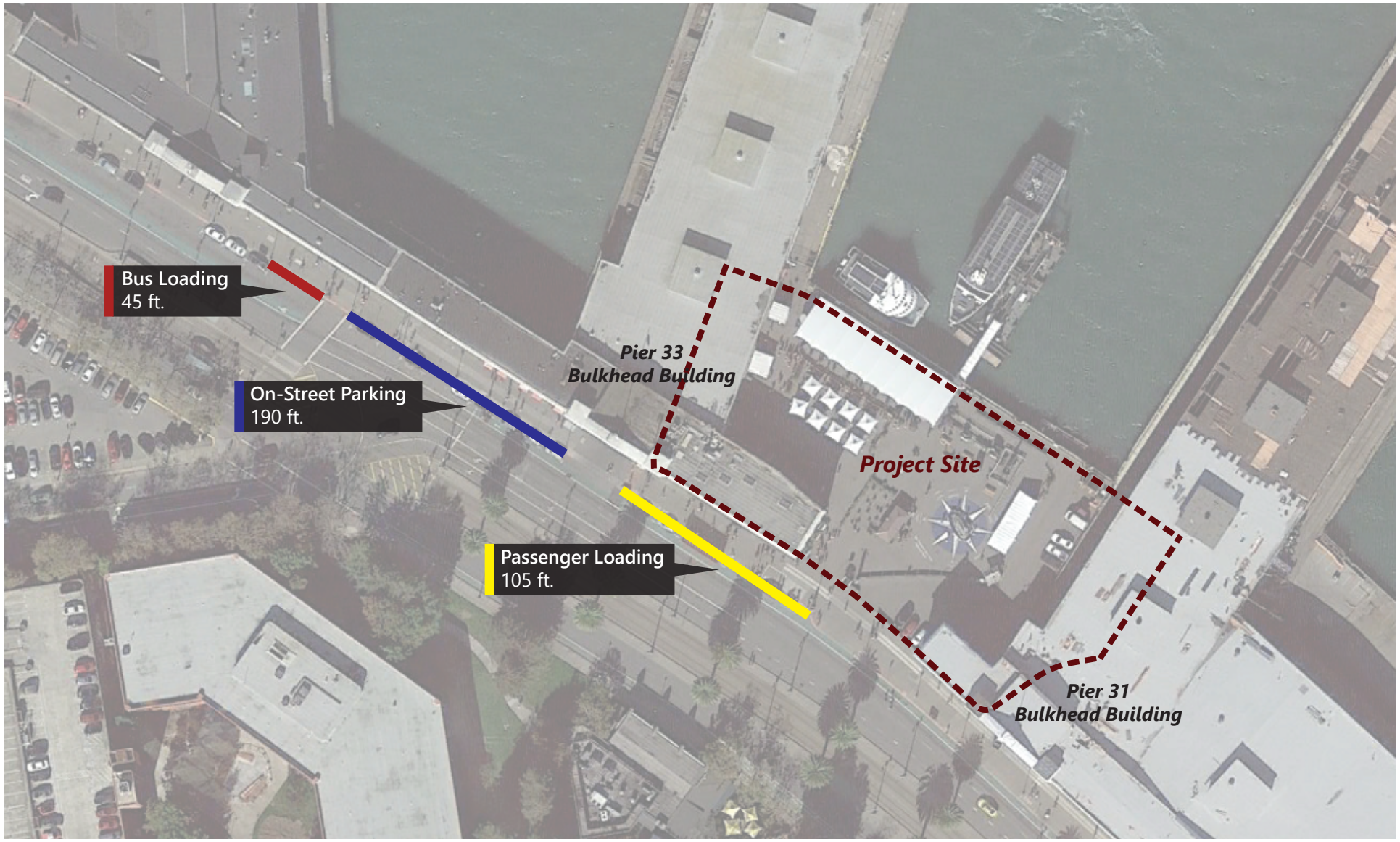
[35] More shuttles visited the site to load or unload passengers than were recorded in the curb activity log. This is due to the fact that certain shuttle companies were permitted to enter the on-site parking lot via the site driveway.

Commercial/Freight Loading

Commercial loading at the Pier 31½ site occurs primarily in the on-site parking area. However, at the time of site observations, two commercial loading instances occurred. In the first instance, the truck parked in the bike lane and remained there for approximately 15 minutes. The second truck found an open parking spot along the curb and pulled fully out of the bike lane; it remained in the spot for 20 minutes. It was unclear whether either of these deliveries were received by the Pier 31½ site or some other neighboring business. Fuel loading for the ferries occurs in the pedestrian plaza after hours when there are no pedestrians in the plaza and pedestrian activity is low on the sidewalk. Waste and recycling collection for facility occurs in the Pier 33 shed building in the early morning.

Emergency Services and Access

Emergency vehicles typically use The Embarcadero northbound to access the Pier 31½ site. 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. Further, in cases of heavy congestion, emergency vehicles could use the center transit-only lanes used by the F-Market and Wharves and the E-Embarcadero streetcars. The San Francisco Fire Department stations closest to the Pier 31½ site are Station 28 (1814 Stockton Street at Greenwich Street, 0.6 mile away from the site) and Station 13 (530 Sansome Street at Washington Street, 0.8 mile away from the site).



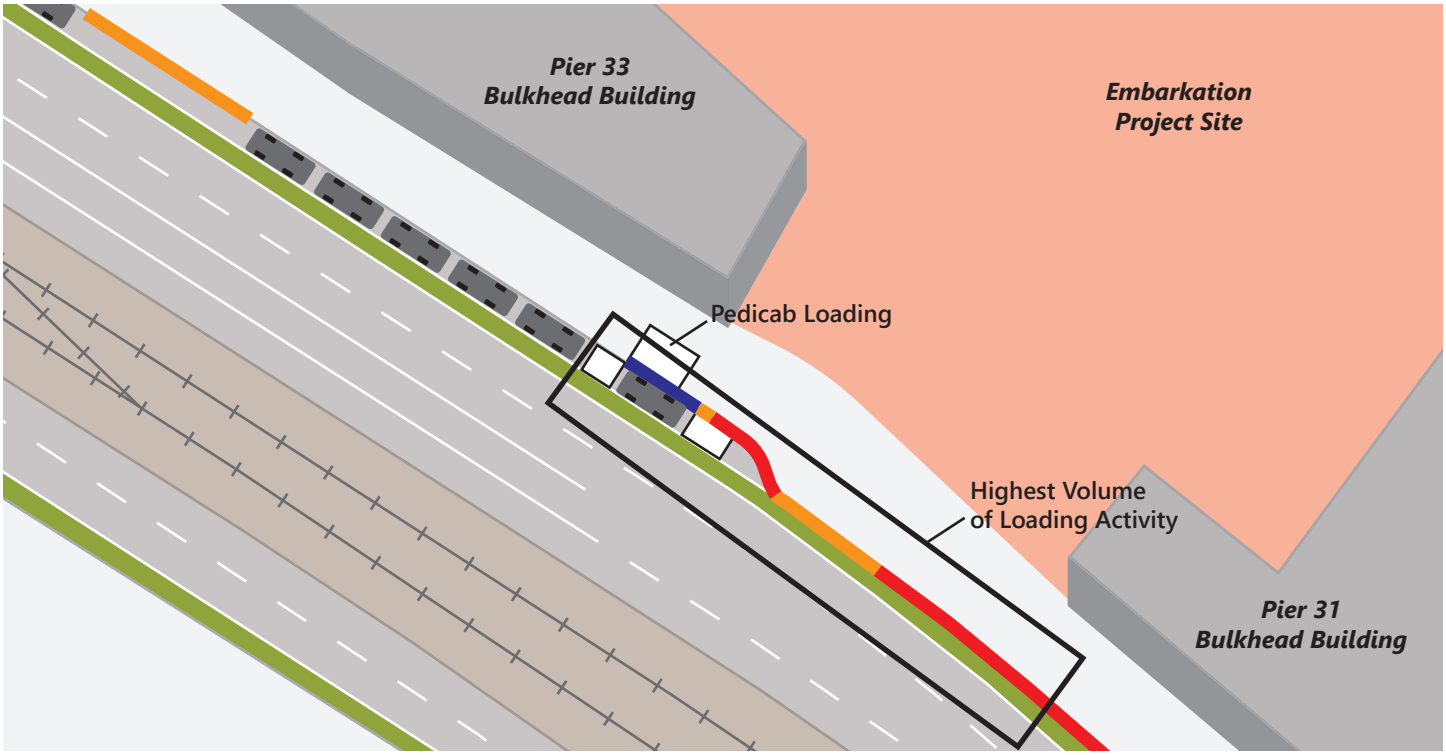
SOURCE: Fehr & Peers

Case No. 2017.000188ENV: Alcatraz Ferry Embarkation Project

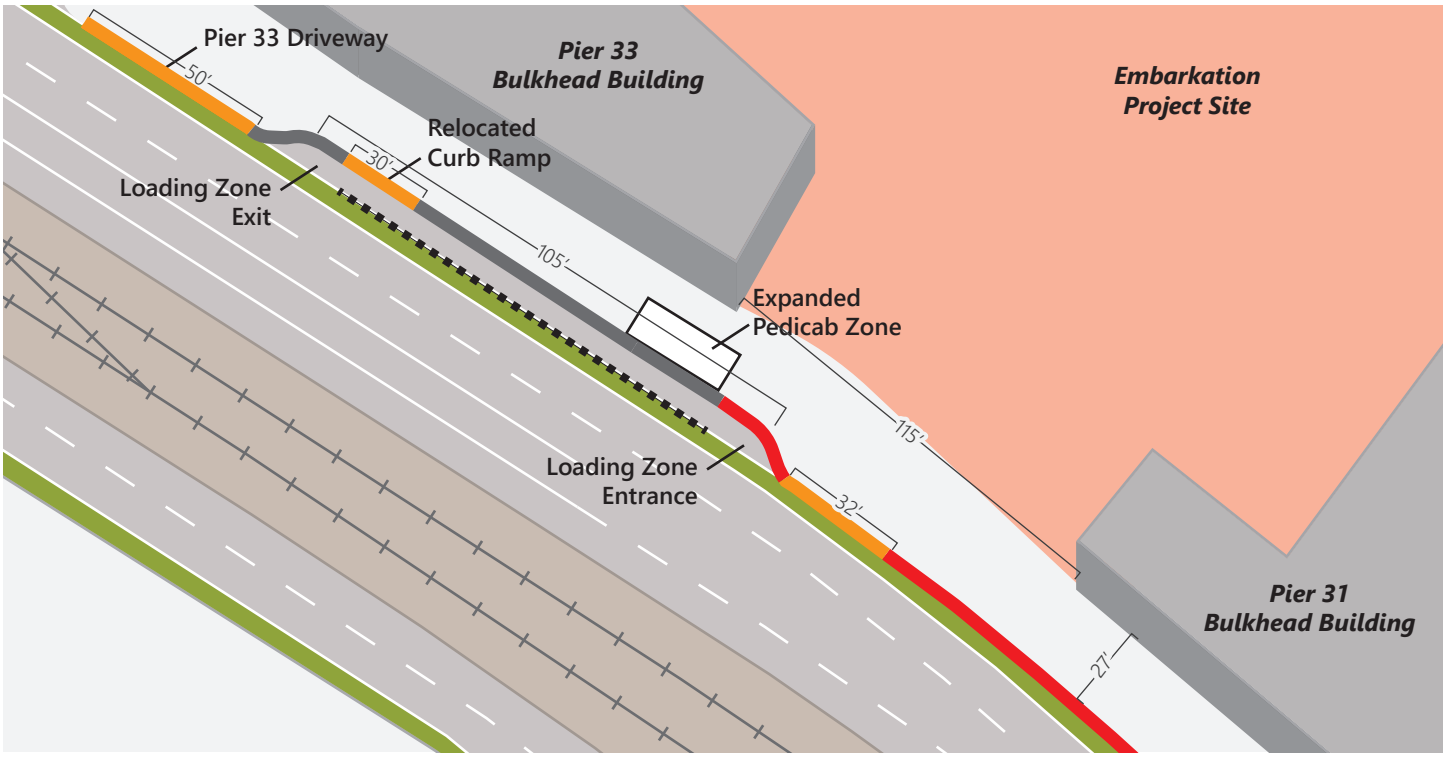
Figure 14

Project Site Vicinity Curb Usage

Existing Northbound Curb Configuration



Proposed Project Northbound Curb Configuration



SOURCE: Fehr & Peers

Case No. 2017.000188ENV: Alcatraz Ferry Embarkation Project

Figure 15

Existing and Proposed Project Northbound Curb Configuration

Fort Baker

Fort Baker is a 335-acre federal park located immediately north of the Golden Gate Bridge. The park consists of historic buildings clustered around a main parade ground, a sheltered harbor protected by a jetty, and trails and forested areas. As discussed in Section A, Project Description, the ferry service would operate on a limited basis on weekends only and the concessioner would not be permitted to sell tickets at Fort Baker. All trips would be roundtrip, departing from and returning to the Pier 31½ site. There would be no alterations of the existing parking near the pier, and no shuttle service would be provided to serve ferry passengers. The proposed project would not result in change to roadways or visitors accessing the park by auto, transit, or bicycle. Therefore, the setting discussion is limited to the pedestrian resources.

High-visibility pedestrian amenities exist surrounding the Bay Area Discovery Museum parking lot, loading zone, and entrance. All sidewalks around the parking lot have multiple ramp access points with warning pads, and brightly striped crosswalks form clear pedestrian pathways through the parking lanes to the museum entrance. These elements continue into the gravel parking area at the southern end of the lot.

A paved, separated pathway travels the length of the Parade Grounds along Center Road and provides a travel route to the pier and waterfront from either the Cavallo Point facilities or the museum. The paved pathway continues around the southern edge of the Parade Grounds, but does not connect to the pier. The pedestrian connection between the pier and Center Road requires crossing grass, an unmarked intersection, and walking along the road. An informal dirt path exists along the east side of Moore Road between Center Road and Sommerville Road.

Existing pedestrian infrastructure and pathways at Fort Baker were assessed on July 12, 2017, between 9:00 AM and 11:00 AM. Conditions were observed on Center Road, Moore Road, the pier, Sommerville Road, Murray Circle, East Road, and around the Bay Area Discovery Museum and parking lot. During observations, there was a steady, but low-volume flow of vehicles into and out of the museum parking lot. This was likely due to summer camp loading and unloading. There was very little vehicle or pedestrian activity outside of the museum parking lot. Pedestrian activity outside of the museum parking lot was estimated at 15 to 20 visitors over the course of 2 hours.

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 the 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 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 zones vary in size from single city blocks in the downtown core, multiple blocks in outer neighborhoods, to even larger zones in historically industrial areas like the Hunters Point Shipyard.

The San Francisco County 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. SF-CHAMP uses a synthetic population, which is a set of individual actors that represents the Bay Area's actual population, who make simulated travel decisions for a complete day. The Transportation Authority uses tour-based analysis for office and residential uses, which examines the entire chain of trips over the course of a day, not just trips to and from the project. For retail uses, the Transportation Authority uses trip-based analysis, which counts VMT from individual trips to and from the project (as opposed to entire chain of trips). A trip-based approach, as opposed to a tour-based approach, is necessary for retail projects because a tour is likely to consist of trips stopping in multiple locations, and the summarizing of tour VMT to each location would over-estimate VMT.[36,37]

For the purposes of VMT analysis, retail VMT is used as a proxy for other similar developments (such as the tourist activity). For retail development, regional average daily work-related VMT per employee is 7.3. Table 9 includes the transportation analysis zone (TAZ) in which the proposed project site is located, TAZ 854.

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

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

TABLE 9
DAILY VEHICLE MILES TRAVELED – EXISTING CONDITIONS

Land Use	Bay Area		TAZ 854
	Regional Average	Regional Average Minus 15%	
Employment (Retail)	14.9	12.6	7.3

Source: San Francisco Transportation Information Map, http://sftransportationmap.org/, accessed October 2017.

Travel Demand

Trip Generation

Daily and peak hour person trip generation forecasts for the proposed project sites at Pier 31½ and Fort Baker were developed based on the existing and expected visitors to the island and embarkation site. The existing Alcatraz ferry embarkation site currently has about 5,460 touring visitors (i.e., ticketed passengers taking the ferry to the island) and 700 non-touring visitors on a peak day of the year (i.e., visitors that travel to the embarkation site but do not board a ferry to Alcatraz Island). Typically, the non-touring visitors consist of visitors that do not have pre-purchased tickets and cannot be accommodated because ferries are sold out.

In general, visitation peak is controlled by the capacity of Alcatraz Island, and not necessarily the number of ferries that arrive and depart from the embarkation site. After planned long-term enhancements are made on-island to more efficiently manage visitor flow (not part of the proposed project), the Park Service expects that approximately 20 percent more visitors can be accommodated on a peak day (i.e., about 6,600 daily Alcatraz Island visitors). Similarly, the number of non-touring visitors is expected to increase in the long term, from approximately 700 to 800 per day.[38] Enhancements to landside facilities at the Pier 31½ embarkation site as part of the proposed project are expected to more comfortably accommodate the increased number of visitors, but they are not essential to the growth, which would occur with or without the enhancements to the embarkation facility.

Under the proposed project, the embarkation facility would contain an additional berth that would operate additional ferry service to Fort Baker as well as offer interpretive cruises around the bay. Ferry service to Fort Baker would be limited to two ferries per day and occur on weekends only. For the purposes of the transportation study, the Fort Baker ferry service was included in the weekday travel demand estimates in order to present a conservative "peak day" analysis. The peak day person trip generation under near-term and long-term conditions are summarized in Table 10.

[38] URS, *Draft Final Alcatraz Ferry Embarkation and Education Site Feasibility Study*, NPS PMIS GOGA 77160, Document No. 641/107703, May 2011.

TABLE 10
EXISTING AND FUTURE DAILY PERSON TRIPS TO THE ALCATRAZ EMBARKATION SITE

Near-Term			
	Existing	Proposed Project	Net New Person Trips
Alcatraz Tour Visitors	5,460	5,460	0
Non-Alcatraz Tour Visitors	700	1,090	390
Total	**6,160**	**6,550**	**390**
Long-Term (2035)			
	No Project	Proposed Project	Net New Person Trips
Alcatraz Tour Visitors	6,600	6,600	0
Non-Alcatraz Tour Visitors	800	1,190	390
Total	**7,400**	**7,790**	**390**

Source: Fehr & Peers, *Alcatraz Embarkation Facility – Pier 31½ Circulation Study*, San Francisco, CA, December 2017, and URS, *Draft Final Alcatraz Ferry Embarkation and Education Site Feasibility Study*, NPS PMIS GOGA 77160, Document No. 641/107703, May 2011.

Person trip generation for peak hours is driven largely by ferry departures and arrivals that occur during the peak hours, as well as the visitor arrival patterns discussed in the *Draft Embarkation Facility Space Planning Model-Results* study.[39] The study provided information on the typical visitor arrival time before a ferry leaves the dock, length of stay after disembarking from a ferry, and the number of non-island tour visitors expected to be at the site during a typical hour throughout the day. Much of the changes proposed by the proposed project are designed to better accommodate future increased levels of visitation that will occur regardless of the proposed project. Thus, travel demand associated with increases in visitorship to Alcatraz Island is not considered part of the proposed project. The existing and future peak hour person trips to the primary Alcatraz ferry embarkation site are presented in Table 11.

TABLE 11
EXISTING AND FUTURE PEAK HOUR PERSON TRIPS TO THE ALCATRAZ EMBARKATION SITE

	Inbound Person Trips		**Outbound Person Trips**	
	Near-Term	**Long-Term (2035)**	**Near-Term**	**Long-Term (2035)**
No Project Conditions				
AM Peak Hour	1,200	1,440	0	0
PM Peak Hour	600	720	1,050	1,260
Proposed Project Conditions				
AM Peak Hour	1,270	1,510	0	0
PM Peak Hour	640	760	1,110	1,320

Source: Fehr & Peers, *Alcatraz Embarkation Facility – Pier 31½ Circulation Study*, San Francisco, CA, December 2017.

[39]ORCA, *Draft Embarkation Facility Space Planning Model-Results*, 2011.

Mode split was based on a large survey effort conducted by Fehr & Peers in July 2012. The response rate was very high, with over 800 completed surveys at Pier 31½. Mode of travel was recorded in the survey and presents a robust mode split that was applied proportionally to the existing trip generation as well as the 6 percent predicted increase in visitors (see Table 10). The resulting net new trips and total person trips are shown in Table 12. To convert person trips to vehicle trips, an average vehicle occupancy of 3.9 was derived from the survey data and applied to the Taxi and Car+Walk modes. For tour buses, an average vehicle occupancy of 40 was assumed, based on the split between full size tour buses and smaller shuttle-style buses. The net new and total vehicle trips is presented in Table 13.

TABLE 12
PERSON TRIPS BY MODE

Mode	Net New Project Trips			Total Trips		
	Inbound	Outbound	Total	Inbound	Outbound	Total
AM Peak Hour (8-9 AM)						
Walk/Bike	17	0	17	306	0	306
Tour Bus	3	0	3	64	0	64
Taxi	8	0	8	140	0	140
Other Public Transit	11	0	11	204	0	204
F-Line	12	0	12	217	0	217
Car + Walk	19	0	19	344	0	344
Total Person Trips	70	0	70	1,275	0	1,275
PM Peak Hour (5-6 PM)						
Walk/Bike	10	14	24	153	268	421
Tour Bus	2	3	5	32	56	88
Taxi	4	7	11	70	123	193
Other Public Transit	6	10	16	102	179	281
F-Line	7	10	17	109	190	299
Car + Walk	11	16	27	172	301	473
Total Person Trips	40	60	100	638	1,117	1,755

Source: Fehr & Peers, *Alcatraz Embarkation Facility – Pier 31½ Circulation Study*, San Francisco, CA, December 2017.

TABLE 13
VEHICLE TRIPS BY MODE[1]

Mode	Net New Project Trips			Total Trips		
	Inbound	Outbound	Total	Inbound	Outbound	Total
AM Peak Hour (8-9 AM)						
Tour Bus	--[2]	0	--	2	0	2
Taxi	2	0	2	36	0	36
Car + Walk	5	0	5	89	0	89
Total Vehicle Trips	7	0	7	127	0	127
PM Peak Hour (5-6 PM)						
Tour Bus	--[2]	--[2]	--[2]	1	2	3
Taxi	1	2	3	18	32	50
Car + Walk	3	4	7	45	77	122
Total Vehicle Trips	4	6	10	64	111	175

1. In order to convert person trips to vehicle trips, the following occupancy assumptions were made: for tour buses, it was assumed that all tour buses were full, for an average occupancy of 40 visitors. For car and taxi arrivals, an average vehicle occupancy of 3.9 was used, which was derived from the survey effort results.
2. New trips would be accommodated by existing buses.
Source: Fehr & Peers, *Alcatraz Embarkation Facility – Pier 31½ Circulation Study*, San Francisco, CA, December 2017.

Impact TR-1: The proposed project would not cause substantial additional Vehicle Miles Traveled or substantially induce automobile travel. (Less than Significant)

Vehicle Miles Traveled Analysis

As mentioned previously, existing average daily VMT per employee for retail uses in TAZ 854 is 7.9 miles. This is 47 percent below the existing regional average daily VMT per capita of 14.9. Given that the project site is located in an area where existing VMT is more than 15 percent below the existing regional average, the proposed project's bar/lounge use would meet the Map-Based Screening for Retail and Residential Projects criterion and would not result in substantial additional VMT, and impacts would be less than significant. The project site also meets the Proximity to Transit Stations screening criterion, which indicates that the proposed project's retail uses would not cause substantial additional VMT.

The proposed project would generate 10 net new PM peak-hour vehicle trips that would travel through surrounding intersections. These 10 PM peak-hour vehicle trips represent a small portion of the overall number of PM peak-hour vehicle trips that pass through the Embarcadero and nearby roadways. The proposed project's daily and PM peak-hour vehicle trips would not substantially increase traffic volumes at nearby intersections such that new traffic hazards would be created.

The State Office of Planning and Research's proposed transportation impact guidelines include a list of transportation project types that would not likely lead to a substantial or measurable increase in VMT. As a transit project, the proposed Fort Baker ferry service would not result in a substantial increase in VMT.

For these reasons, the proposed project would result in less-than-significant traffic impacts, 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 Impacts

Prior to construction, the project proponent 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, disposal of excavated materials, 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. In addition to the regulations in the Blue Book, the contractor would be responsible for complying with all city, state and federal codes, rules, and regulations.

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.

All construction-related activity would enter the site from the project site driveway on The Embarcadero. Most trucks would approach the site from I-80 W or US-101 N, by using Embarcadero northbound. Trucks over 3 tons are restricted in much of the Marina and North Beach districts, including Bay Street from Laguna Street to Columbus Avenue. These restrictions make for a circuitous route from US-101 S that would discourage construction trucks from approaching the site from the north or west.

During construction of the proposed project, portions of Pier 31½ would be closed to visitors, although overall ferry service to Alcatraz Island is expected to remain open during the construction period. Closure of portions of Pier 31½ during construction may result in additional localized crowding for pedestrians, especially when ferries are loading and unloading.

At Fort Baker, all construction related activity is expected to be staged on the site itself and out of the roadway or pedestrian right-of-way. Most construction activity at the Fort Baker site would take place around the pier on barges and floats.

For the reasons noted above, the proposed project's construction impacts related to transportation would be less than significant.

Passenger Loading

Under existing conditions at Pier 31½, passenger loading on the Embarcadero northbound occurs primarily outside of the designated loading zone. Tour buses are the only vehicle type to consistently utilize the loading zone, while most other vehicle types (for-hire vehicles, private automobiles, and shuttles) queue in the pedicab parking spots, bicycle lane, or vehicle lane directly fronting the site, blocking pedicab, cyclist, and/or automobile travel.

The increase in maximum passenger loading demand due to the proposed project was estimated by scaling up the existing maximum passenger loading demand (15 and 9 vehicles in the peak 15-minutes in the mid-day and PM peak hours, respectively) by 6 percent, or the expected increase in daily visitors, as shown in Table 10. Each vehicle stopped for approximately 1 minute or less to load or unload passengers. Table 14 presents the existing maximum passenger loading demand and the estimated demand under the proposed project. As shown in Table 10, the proposed project would increase the number of visitors by 6 percent. Assuming additional visitors use modes of travel in the same proportion as under existing conditions, the peak loading demand in the mid-day peak hour would increase from 15 to 16 vehicles. The peak loading demand in the PM peak hour would increase from 9 to 10 vehicles. The proposed loading zone would be able to accommodate five to six vehicles at a time, which is two to three more vehicles than was ever observed loading simultaneously under existing conditions. For this reason, and given the very small increase in loading demand under the proposed project, it is anticipated that that new loading zone would be able to accommodate peak loading demand. Therefore, the impacts of the proposed project would be less than significant.

TABLE 14
PEAK 15-MINUTE PASSENGER LOADING ZONE ACTIVITY

	Existing	Net New Loading	Total
Mid-day Peak 15 minutes (11:00 AM – 11:15 PM)[1]	15	1	16
PM Peak 15 minutes (4:15 PM – 4:30 PM)[2]	9	1[3]	10

1. The maximum passenger loading demand for the Mid-day peak hour currently occurs at 11:00 AM.
2. The maximum passenger loading demand for the PM peak hour currently occurs at 4:15 PM.
3. Vehicles are rounded to nearest whole number.

Source: Fehr & Peers, *Alcatraz Embarkation Facility – Pier 31½ Circulation Study*, San Francisco, CA, September 2017.

Because the proposed weekend ferry service to Fort Baker would only accommodate round-trip passengers ticketed at Pier 31½, all new visitors are anticipated to arrive via the ferry. The proposed project activities at Fort Baker involve no substantial changes to the roadway network and are ~~not~~ anticipated to generate ~~any~~ only a nominal number of new vehicle trips on the local roadways that may result if ferry passengers utilized a for-hire vehicle service, such as taxis, Uber or Lyft.[40] Pick-up or drop-

[40] Fehr & Peers, *Alcatraz Embarkation Facility – Pier 31½ Circulation Study*, Response to PMND Appeal Transportation Concerns, February 8, 2018. According to a conservative scenario analyzed in this study, if half of all ferry passengers travelled by vehicle outside Fort Baker, each ferry trip could result in approximately 30 vehicle trips.

off would likely be dispersed over the day and spread over multiple destinations within Fort Baker. Therefore, ~~the vehicle and circulation impacts at~~ the Fort Baker site could accommodate passenger loading demand and impacts ~~and vicinity~~ would also be less than significant.

Commercial Loading

At the Pier 31½ site, the proposed project would relocate commercial loading from the existing service parking lot on the marginal wharf to the interior of the Pier 31 and Pier 33 shed buildings, however, commercial loading demand would remain the same. Although the number of commercial vehicles may stay the same as today, they would be consolidated from three potential conflict points (driveways) with pedestrians to two potential conflict points. It would also move commercial loading activity away from the main pedestrian entrance, where pedestrians are likely to congregate. Fuel loading for the ferries would continue to occur in the pedestrian plaza after hours, when there would be no pedestrians in the plaza and pedestrian activity on the sidewalk would be low. Commercial loading activity under the proposed project is not expected to create conflicts with other modes of transportation. The proposed project would make no adjustments to the commercial loading at Fort Baker. Therefore, the proposed project's impacts on commercial loading would be less than significant.

Parking

As part of the 2012 on-site survey conducted at Pier 31½, parking-specific questions were asked to help determine where people park and where they may park in the future. Visitors who drove or carpooled were asked where they parked and estimates of total parking demand and parking location were developed from survey responses. Based on mode split data, the estimated parking demand increase associated with new visitors to Pier 31½ is just under 30 vehicles per day on weekdays and weekend days over the course of an entire day. This increase is in addition to the existing parking demand associated with the Pier 31½ facility, and is primarily associated with the addition of a third ferry berth. Parking estimates by time of day are shown in Table 15 for new visitors to Pier 31½.

TABLE 15
NET INCREASE IN PARKING DEMAND AT PIER 31½

	Week Day	Weekend Days
9:00 AM – 12:00 PM	8	8
12:00 PM – 3:00 PM	8	8
3:00 PM – 6:00 PM	8	8
6:00 PM – 9:00 PM	3	3
Daily Net Increase in Demand	26	27

Source: Fehr & Peers, *Alcatraz Embarkation Facility – Pier 31½ Circulation Study*, San Francisco, CA, September 2017.

Under the proposed project, off-street parking for staff would be relocated into the interior of the Pier 31 shed building. Eight tandem parking spaces and four Americans with Disabilities Act-accessible spaces

would be provided. The Americans with Disabilities Act-accessible spaces would be available to staff as well as visitors. A total of eight unrestricted spaces is a reduction from the current staff parking supply and would not accommodate the staff parking demand observed during the June 2017 site visit. During the mid-day period, 12 staff vehicles were parked in the on-site lot. The unmet staff parking demand would either move to off-site lots or shift to another mode of travel. In the event that these staff continue to drive, their parking needs could be accommodated by the observed supply in nearby lots.

As shown in Table 15, the proposed project would increase parking demand by approximately eight spaces during the peak utilization period (12:00PM – 3:00PM). The 2013 EIS found that there are 1,125 off-street and 690 on-street parking spots within 0.25 mile of Pier 31½. During the peak utilization period parking was, on average, 80 percent occupied. Spot checks performed by Fehr & Peers in June 2017 of on-street and off-street parking showed that parking conditions have not substantially changed since the 2013 analysis. Given parking supply and observed utilization rates, it appears that the added visitor and staff parking demand could be accommodated by parking facilities within 0.25 mile.

Because no ferry ticket sales would take place at Fort Baker, there is no anticipated increase in parking demand at the site. All new visitors would arrive at the site via the ferry. Therefore, impacts related to parking would be less than significant.

A number of recommendations have been identified to improve safety for passengers, drivers, and cyclists at the Pier 31½ site. These include **Improvement Measures I-TR-2a, Provide Information on Active Transportation and Transit Routes to/from the Pier 31½ Site,** and **I-TR-2b, Install Multimodal Wayfinding Kiosk and Signage at the Pier 31½ Site**, as described below.

Improvement Measure I-TR-2a: Provide Information on Active Transportation and Transit Routes to/from the Pier 31½ Site

The project proponent will require the concessioner to provide information regarding pedestrian, bicycle, and transit travel to/from the embarkation site to both employees and in advance to visitors. This may include maps designating preferred pedestrian, bicycle or transit routes to/from the site, maps indicating where City-provided bicycle facilities or transit stops are present, and time estimates for walking or biking to common destinations, such as BART stations, Union Square, Pier 39, or other tourist destinations. This information would be presented on tickets and information websites, as well as distributed via mail or email to all ticketed visitors.

Improvement Measure I-TR-2b: Install Multimodal Wayfinding Kiosk and Signage at the Pier 31½ Site

The project proponent will add a multimodal wayfinding kiosk that may include maps, signs, or digital displays to provide visitors information on various travel options and times. The kiosk will be located near the site entrance/exit to the Pier 31½ site. In addition to a centralized kiosk, signage

could be placed at the site entrance with directional arrows indicating walk times to nearby destinations or transit stops.

Implementation of **Improvement Measures I-TR-2a, Provide Information on Active Transportation and Transit Routes to/from the Pier 31½ Site**, and **I-TR-2b, Install Multimodal Wayfinding Kiosk and Signage at the Pier 31½ Site**, would encourage staff and visitors to carpool, take transit, bicycle, and walk by providing additional information on these modes. This would reduce the number of people driving to access the site and alleviate effects on parking demand, loading demand, and bicyclist safety. Thus, if implemented, these improvement measures would further reduce the proposed project's less-than-significant impacts.

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. (Less than Significant)

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 either the Pier 31½ or Fort Baker sites, 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, and would reduce the use of the existing driveway in front of the project site. Therefore, the proposed project would have a less-than-significant 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)

Emergency access would remain unchanged from existing conditions; emergency vehicles would continue to access the Pier 31½ site from The Embarcadero, with the ability to drive onto the pedestrian plaza if necessary. Changes to the Fort Baker site would make no alterations to existing emergency vehicle access to the site or vicinity. Improvements to the Fort Baker pier would improve emergency access to the site from the water. 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. (Less than Significant)

Public Transit

According to transportation analysis conducted for the Park Service's EIS for the proposed project prior to the introduction of the E Embarcadero streetcar line, all transit lines serving the study area and the Downtown Screenlines operate within the 85 percent capacity utilization threshold in the weekday AM peak hour. However, in the weekday PM peak hour, the F Market & Wharves operate above the threshold in the outbound direction (i.e., away from the Pier 31½ site). Based on 2017 field work by Fehr

& Peers (subsequent to the introduction of the E Embarcadero historic streetcar), similar patterns were observed for the E Embarcadero as for the F Market & Wharves. The growth in transit ridership associated with the proposed project (compared to current conditions) would be less than 1 percent of the capacity of the transit line. The historic streetcars run in an exclusive right-of-way and would experience no delay due to new project-related trips. No transit impacts are anticipated as a result of the project~~pedestrian~~ improvements at Fort Baker. Therefore, the proposed project would have a less-than-significant impact on transit capacity and delay.

Pedestrians

The proposed project would improve the pedestrian realm at the Pier 31½ site by eliminating frequent vehicular access/egress to the 15 on-site parking spaces from the site driveway. Although these entrance and exit movements are only moving to the Pier 31 driveway, and not being eliminated, the proposed arrangement reduces the number of active driveways, thereby also reducing the number of pedestrian conflict points with automobiles. Furthermore, vehicular driveway activity would be moved away from the main pedestrian plaza entrance, where pedestrians are likely to congregate.

The proposed project would further improve the pedestrian realm by creating a more spacious and welcoming pedestrian experience with enhanced exhibits and seating at Pier 31½ open to all members of the public, in addition to ticket-holding visitors. This includes converting the existing on-site parking into additional pedestrian space. Nearly all net new trips, regardless of mode, end as walking trips into the Pier 31½ site. Given the modest increase in new trips generated by the proposed project (Table 13) and the excess capacity of the sidewalk, pedestrian crowding is not expected to be severe or cause any hazards. The amount of new pedestrian activity generated by passenger loading activity is not expected to present substantial new conflicts, and would occur on the Embarcadero, which has sufficient space for this activity. Furthermore, the proposed project would not interfere with Americans with Disabilities Act accessibility to the site and adjoining areas. Existing Americans with Disabilities Act-compliant curb ramps are being retained, and three Americans with Disabilities Act-designated parking spaces would be added inside the Pier 31 bulkhead building. The existing curbside Americans with Disabilities Act-designated parking space, which would be converted to a loading zone as part of the proposed project, would be relocated to the curbside parking area just north of the Pier 33 bulkhead building.

At Fort Baker, the proposed project would greatly enhance pedestrian connectivity, especially Americans with Disabilities Act-compliant pedestrian connections. At present, there are no formal pedestrian paths connecting the pier with the Bay Area Discovery Museum or Cavallo Point Hotel and Conference Center. The proposed project would create a formal pedestrian path between the pier and the museum loading zone, enabling pedestrians of all abilities to make the trip. The proposed project would also install Americans with Disabilities Act-compliant curb ramps at the access road intersection just north of East Road between Murray Circle and McReynolds Road, allowing direct Americans with Disabilities Act access from the pier to the Cavallo Point Lodge and Conference Center.

For the reasons noted above, the proposed project would have a less-than-significant impact on pedestrian conditions.

Bicycle Conditions

The proposed project would relocate the existing bicycle racks into the Pier 31 shed building. No changes are proposed to bicycle travel lanes along The Embarcadero adjacent to the site, and removal of the site driveway would reduce the number of driveway conflict points between bicycles and automobiles. The proposed project is not expected to substantially increase overall traffic levels along nearby streets such that it could create potentially hazardous conditions for bicyclists or interfere with bicycle access or circulation to the site and adjoining areas. The small increase in bicyclists (17 AM peak hour and 24 PM peak hour walk/bike trips), along with a modest increase in other modes of access, is not expected to result in potentially hazardous conditions or interfere with bicyclist accessibility to the park.

The addition of the bollard-separated loading zone is expected to reduce potential conflicts between loading vehicles and northbound bicyclists. Passenger loading vehicles would have a designated space outside of the bicycle lane, and potential conflict points between bicyclists and loading vehicles would be reduced from the entire site frontage to the entry and exit of the new passenger loading zone. Bicycle conditions at Fort Baker are not anticipated to change with the proposed project, as there would be no changes to roadways. The proposed project would not generate any new bicycle trips at the Fort Baker site, because ferry passengers will not be permitted to bring bicycles on board ferries from Pier 31½ and rental bicycles are not available at the site, and none are planned. Potential nominal increases in vehicular traffic associated with for-hire vehicles serving ferry passengers would not result in substantial conflicts with bicycles. Bicycle conditions in Sausalito are discussed in Appendix B for informational purposes.

Therefore, the proposed project's impacts on bicycle conditions would be less than significant.

Impact C-TR-1: The proposed project, in combination of past, present, and reasonably foreseeable future projects, would not result in a considerable contribution to cumulative regional VMT. (Less than Significant)

VMT, by its very nature, is largely a cumulative impact. The VMT associated with past, present, and future projects contribute to physical secondary environmental impacts. It is likely that no single project by itself would be sufficient in size to prevent the region or state from meeting its VMT reduction goals. Instead, a project's individual VMT contributes to cumulative VMT impacts. The VMT and induced automobile travel project-level thresholds are based on levels at which new projects are not anticipated to conflict with state and regional long-term greenhouse gas emission reduction targets and statewide VMT per capita reduction targets set for 2020. Therefore, because the proposed project would not exceed the project-level thresholds for VMT and induced automobile travel (Impact TR-1), the proposed project would not result in a cumulatively considerable contribution to VMT impacts.

Furthermore, as shown in Table 16, the projected 2040 average daily VMT per employee for retail uses in TAZ 854 is 7.0 miles. This is approximately 59 percent below the projected 2040 regional average daily

VMT per employee of 14.6. Given that the project site is located in an area where VMT is more than 15 percent below the projected 2040 regional average, the proposed project would not contribute considerably to any substantial cumulative increase in VMT.

TABLE 16
DAILY VEHICLE MILES TRAVELED – YEAR 2040 CONDITIONS

Land Use	Bay Area		TAZ 854
	Regional Average	Regional Average Minus 15%	
Employment (Retail)	14.6	12.4	7.0

Source: San Francisco Transportation Information Map, http://sftransportationmap.org/, accessed May 2017.

Impact C-TR-2: 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 the analysis of cumulative traffic impacts is the local roadways and transit system within the Pier 31½ vicinity.

Construction

Project-related construction activities 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 project anticipated to potentially result in nearby construction activity at Pier 31½ is the Embarcadero Enhancement Project, which does not yet have a construction schedule or plan available to the public. It will be important for the project proponent 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. There are no known current or future projects at Fort Baker that would result in nearby construction. Given current information, cumulative construction impacts are anticipated to be less than significant.

Passenger Loading

Loading activity at the Pier 31½ site is expected to increase with long-term increases to capacity on Alcatraz Island (associated with on-island facilities and visitor management), which are unrelated to the proposed project. This increased loading activity would be accommodated by the new loading zone, which provides increased capacity of 200 percent above existing demand levels. The combination of the long-term on-island capacity increases plus proposed project enhancements would increase demand by 26 percent (6 percent with proposed project and 20 percent with long-term on-island capacity increases). Bicycle and loading conflict points would be greatly minimized with the proposed loading zone design. Also, with future implementation of the Embarcadero Enhancement Project, which would separate bicyclists from the vehicular right-of-way, bicycle and passenger loading conflict points would be further reduced, if not entirely eliminated. No land use, development, or transportation projects are anticipated

to change cumulative conditions at Fort Baker. For these reasons, the cumulative impacts on passenger loading would be considered less than significant.

Commercial Loading Impacts

No changes are anticipated for commercial loading at Pier 31½ or Fort Baker. The only cumulative project that could potentially contribute to commercial loading impacts would be the Embarcadero Enhancement Project. With implementation of The Embarcadero Enhancement Project, driveway access to the Pier 31 and Pier 33 sheds is expected to be retained. Commercial loading at the Pier 31½ site associated with the proposed project under cumulative conditions would not create potentially hazardous traffic conditions or significant delays affecting traffic, transit, bicycles, or pedestrians. No land use, development, or transportation projects are anticipated to change cumulative conditions at Fort Baker. Therefore, the impact of the proposed project and other cumulative developments on loading conditions would be less than significant.

Transit Impacts

Under cumulative conditions, it is expected that transit demand would rise due to long-term growth in the vicinity of Pier 31½ and the region. The E and F Muni lines run directly in front of the Pier 31½ site and are the closest transit stations serving the proposed project; therefore, this capacity discussion focuses on these two lines. The E and F Muni lines fall under the Northeast screenline, which is projected to run at 72 percent capacity utilization during the PM peak under cumulative conditions, based on the latest figures for the downtown transit screenlines.[41] The contribution of transit riders by the proposed project to the northeast screenline is not expected to reach the 85 percent capacity utilization threshold. Furthermore, cumulative conditions would not cause a substantial increase in delays or operating costs such that significant adverse impacts on transit service levels would occur. The E and F Muni lines would continue to run in the designated median right-of-way, where cumulative increases to vehicle and pedestrian traffic would have little impact to transit operations. No land use, development, or transportation projects are anticipated to change cumulative conditions at Fort Baker. Therefore, the cumulative impacts to transit are anticipated to be less than significant.

Pedestrian Impacts

Under cumulative conditions, pedestrian volumes are expected to increase at Pier 31½ due to long-term growth in the vicinity of the proposed project and the region. Although some pedestrian congestion could form due to the increase in pedestrians in the Pier 31½ area, the contribution to this congestion by the proposed project would be minimal. Because land uses are anticipated to change very little in the immediate vicinity, it is unlikely that pedestrian volumes would increase substantially over baseline levels. The proposed project, cumulative transportation network, and land use changes would not result in substantial overcrowding on public sidewalks, create potentially hazardous conditions for pedestrians, or otherwise interfere with pedestrian accessibility to the site and adjoining areas. No land use,

[41] San Francisco Planning Department, *Transit Data for Transportation Impact Studies*, May 2015.

development, or transportation projects are anticipated to change cumulative conditions at Fort Baker. Therefore, the cumulative impact of the proposed project would be less than significant.

Bicycle Impacts

In the vicinity of the Pier 31½ site, cumulative bicycle projects include the Embarcadero Enhancement Project, the Battery Street bike lane, and the Ford GoBike expansion. These projects would enhance the environment for cyclists and pedestrians, potentially increasing the number of bicyclists in the project vicinity. The Embarcadero Enhancement Project is anticipated to have the most direct impact on the Pier 31½ site. By separating cyclists from pedestrians, parked vehicles, and moving vehicles along the Embarcadero, the area would become safer and more efficient. The bicycle/auto conflict points associated with passenger loading for the Pier 31½ site would likely be alleviated, if not entirely resolved, by designated bicycle lanes on the Embarcadero. These improvements would encourage more bicycle and pedestrian travel to the site, possibly reducing transit, driving, or drop-off mode shares for the project site in the long term. Very little land use-related mode shift to bicycles is anticipated under cumulative conditions because land use in the area will remain largely consistent with current conditions. When combined with the proposed project, the transportation network changes described above would not create potentially hazardous conditions for bicyclists or otherwise substantially interfere with bicycle accessibility to the site or adjoining areas.

The proposed project would not substantially affect bicycle conditions at Fort Baker, and so would not contribute to cumulative effects. No land use, development, or transportation projects are anticipated to change cumulative conditions at Fort Baker.

Therefore, the cumulative impact of the proposed project and surrounding projects would be less than significant.

Parking Impacts

Parking demand around the Pier 31½ site is expected to increase with long-term increases to capacity on Alcatraz Island and other long-term development in the area. However, the increased parking demand resulting from the proposed project would not be considerable, and cumulative parking demand would not result in a substantial parking deficit that could create potentially hazardous conditions affecting traffic, transit, bicycles, or pedestrians. Land use in the area is expected to change very little in the future and would therefore place no significant additional strain on the existing parking supply. The proposed project is not expected to influence parking at Fort Baker, and so would not contribute to cumulative effects. No land use, development, or transportation projects are anticipated to change cumulative conditions at Fort Baker. For these reasons, the cumulative parking impacts would be less than significant.

Emergency Vehicle Impacts

No changes are anticipated for emergency vehicle access or site access under the cumulative conditions. Roadway congestion is expected to increase due to long-term growth in the vicinity of the proposed

project and the region at both sites, which could cause delays for emergency vehicles in traversing the street network. This delay, however, would not result in inadequate emergency access that would significantly affect emergency access. Furthermore, the increased congestion resulting from the proposed project would be a small portion of this increase, and therefore, the impacts would be less than significant.

Topics:	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*	*Not Applicable*
6. NOISE—Would the project:					
a) Result in 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) Result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☒	☐	☐	☐
c) Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐	☐
d) Result in 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 proposed project sites at Pier 31½ and Fort Baker are not within an airport land use plan area, nor are they in the vicinity of a private airstrip. Therefore, Topics 5(e) and 5(f) are not applicable.

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)

Applicable Noise Standards

Construction

San Francisco Noise Ordinance. Article 29 of the San Francisco Police Code[42] gives authority to the City to regulate unnecessary, excessive, and offensive noise. Under this ordinance, ambient sound is defined as the lowest repeating sound level within a 10-minute time period (at a minimum), and considered to be no less than 35 decibels (A-weighted; dBA) within interior residences and 45 dBA in all other locations. Regarding construction noise, Section 2907 prohibits such equipment that emits noise in excess of 80 dBA at 100 feet. However, impact tools and equipment (e.g., pile drivers, pavement breakers, and jackhammers) are exempt from this regulation, provided that they are affixed with approved noise-reducing shields or shrouds.

Marin County Noise Ordinance. Sections 6.70.030(5) and 6.70.040 of the Marin County Noise Ordinance address noise from construction activities. Pertinent to the proposed project, Marin County requires that loud noise-generating construction-related equipment only be operated Monday through Friday between 8:00 a.m. and 5:00 p.m.

Operations

San Francisco General Plan. The Environmental Protection Element of the San Francisco General Plan contains Land Use Compatibility Guidelines for Community Noise. 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 uses for the proposed project correspond to the "Commercial" land use category as it represents a private operation on public (Port) land. For this land use category, the maximum "satisfactory, with no special insulation requirements" exterior noise levels are approximately 77 dBA (L_{dn} [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 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

[42] City and County of San Francisco, *San Francisco Noise Ordinance*, 2008. Available from http://www.noisefree.org/cityord/san-francisco.pdf.

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.

San Francisco Noise Ordinance (Article 29 of the Police Code). Regarding operational noise, Article 29 of the San Francisco Police Code, Section 2909(c), 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 10 dBA above the local ambient sound level at a distance of 25 feet or more on public property, unless the machine or device is being operated to serve or maintain the property. 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."

Pier 31½

Existing Conditions

Pier 31½ is located in a commercial zone within The Embarcadero, a highly-urbanized stretch along the waterfront that supports heavy pedestrian, bicycle, and automobile traffic. It is surrounded landward to the west by several commercial and office buildings, as well as cafés and restaurants. While land uses in the project site vicinity do not generate a substantial amount of noise, high traffic volumes along the surrounding streets result in a relatively loud noise environment. The closest residential zone (specifically, a high-density combined commercial/residential zone) is located one block away at the corner of Chestnut and Sansome streets. Ambient noise levels in the project vicinity are typical of noise levels found in San Francisco, which are dominated by vehicular traffic, including, cars, Muni streetcars and buses, and emergency vehicles. Based on data collected from the noise monitoring surveys conducted for the EIS, ambient noise levels at this site range from 56 to 68 dBA. The peak L_{max} recorded was 89 dBA, and the L_{min} was 46 dBA.[43]

Some land uses (and associated users) are considered more sensitive to ambient noise levels than others. In general, occupants of residences, schools, daycare centers, hospitals, schools, places of worship, and nursing homes are considered to be sensitive receptors. The closest sensitive receptors are residences located approximately 540 feet southwest of the project site. There are no additional receptors within 900 feet of the Pier 31½ site.

[43] National Park Service, *Alcatraz Ferry Embarkation Final Environmental Impact Statement*, January 2017. Available from https://parkplanning.nps.gov/document.cfm?parkID=303&projectID=41352&documentID=77056.

Noise from Project Construction

Construction of the proposed project is expected to occur in phases, estimated to begin in late 2019 and conclude in 2021. Construction of upgraded berthing infrastructure is expected to occur in 2019, with pile driving occurring from barges lasting approximately 3 days. Interior building and exterior plaza renovations are expected to occur in phases between 2019 and 2022, with precise phasing ultimately confirmed by the concessioner. Work will occur on the landside using the types of construction equipment described in Table 5 (Section A, Project Description). The construction schedule is anticipated to be 8 hours per day, 5 days per week. Table 17 lists the typical noise levels of proposed construction equipment.

TABLE 17
TYPICAL NOISE LEVEL OF PROPOSED CONSTRUCTION EQUIPMENT

Equipment	Noise Level (dBA)[1]	
	At 50 feet	At 100 feet
Saw	76	70
Backhoe	80	74
Air Compressor	81	75
Generator	81	75
Mobile Crane	83	77
Grader	85	79
Truck	88	82
Paver	89	83
Pile Driver, Vibratory	96	90
Pile Driver, Impact	101	95

dBA: decibels, A-weighted

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}[44] 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.[45]

[44] The 1-hour L_{eq} (or L_{eq}[1h]) represents the equivalent steady-state sound level that, in 1 hour, would contain the same acoustical energy.

Table 18 presents noise levels anticipated during construction of the proposed project at Pier 31½. The noise levels were estimated using the Federal Highway Administration Roadway Construction Noise Model (initialized with construction equipment specified) for the loudest construction phases with and without pile driving (i.e., gangway/float installation for the former and site demolition and preparation for the latter). The Roadway Construction Noise Model provides reference values (at 50 feet from the source) for the maximum sound levels (L_{max}) for each piece of equipment operating per phase. Noise levels are then adjusted to account for distance (i.e., lowered by 6 dBA with each doubling of distance between the equipment and the affected receptor) and added (using the rules of decibel addition) for each piece of equipment operating per phase to obtain the average total noise level (L_{eq}) at each receptor.

TABLE 18
CONSTRUCTION NOISE AT PIER 31½

Affected Receptor	Sensitive Receptors: Nearest Residential Zone	Other Receptors: Business Across Street
Distance from Outer Boundary of Receptor to Outer Boundary of Site (feet)	**540**	**120**
Existing Daytime Background Noise Level without Project (dBA, L_{eq})	**63**	**63**
During Pile Driving		
Modeled Maximum (L_{max}) Construction Noise Level (dBA)	80.8	93.7
Modeled Average Construction Noise Level (dBA, L_{eq})	73.9	86.8
Noise Ordinance Threshold	SFDPW-Certified Maximum Noise Attenuation	
Exceeds Threshold?	No	No
During Loudest Non-Pile-Driving (Non-Impact) Phase		
Predicted Maximum (L_{max}) Construction Noise Level (dBA)	69.1	82
Predicted Average Construction Noise Level (dBA, L_{dn})	63.8	76.7
Noise Ordinance Threshold	Any construction equipment L_{max} > 80 dBA at 100 feet	
Exceeds Threshold?	No	Yes

dBA: decibels, A-weighted
Ldn: average day/night equivalent sound level
Leq: equivalent continuous sound level
Lmax: maximum sound level
SFDPW: San Francisco Department of Public Works

As shown in Table 18, noise from construction of the proposed project at Pier 31½ from non-impact equipment would not exceed 80 dBA at 100 feet or increase ambient noise levels by 10 dBA at the closest sensitive receptor. Therefore, non-impact noise would not exceed noise ordinance limits. Pile driving

[45] An increase of 10 dBA would represent a perceived doubling of noise above existing conditions, a potentially substantial temporary or periodic increase in ambient noise levels in the project vicinity.

would exceed the 80-dBA threshold but is considered an impact tool and therefore is exempt from noise ordinance limits, provided that such equipment is affixed with approved noise-reducing shields or shroud. Therefore, impacts are considered less than significant. While not significant under CEQA, construction noise has the potential to affect nearby businesses within 120 feet of construction. To ensure construction noise is minimized, the project proponent will implement **Improvement Measure I-NO-1, Construction Noise Minimization Plan for Pier 31½**.

Improvement Measure I-NO-1: Construction Noise Minimization Plan for Pier 31½

The project proponent shall develop a construction noise minimization plan that requires the following:

- Construction contractors shall specify noise-reducing construction practices and measures that will be employed to reduce construction noise from pile driving and construction activities. The practices and measures specified by the project proponent will be reviewed and approved by the City prior to the issuance of building permits. Practices and measures that can be used to limit noise include but are not limited to those listed below:
  - Avoid simultaneous use of equipment that exceeds 90 dBA, particularly impact and vibratory pile drivers
  - Install noise mufflers to stationary equipment and impact tools that are no less effective than those provided by the manufacturer
  - Use construction equipment with low noise emission ratings
  - Locate equipment, materials, and staging areas as far as practicable from sensitive receptors
  - Install barriers around particularly loud activities at the construction site to eliminate the line of sight between the source of noise and nearby sensitive receptors, which could reduce noise up to 10 dBA based on the configuration of the site and equipment used.[46]
  - Prohibit unnecessary idling of vehicles or equipment
  - Require applicable construction-related vehicles or equipment to use designated truck routes to access the proposed project site
  - Restrict construction activities between 7:00 AM to 8:00 PM Monday through Saturday

[46] The Federal Highway Administration's *Roadway Construction Noise Model Users' Guide* gives the following "rules of thumb" for estimating noise attenuation of barriers at construction sites:
3 dBA - if a noise barrier or other obstruction (like a dirt mound) just barely breaks the line-of- sight between the noise source and the receptor;
5 dBA - if the noise source is partly enclosed OR shielded with a barrier with some gaps located close to the source;
8 dBA - if the noise source is completely enclosed OR completely shielded with a solid barrier located close to the source;
10 dBA - if the noise source is completely enclosed AND completely shielded with a solid barrier located close to the source;
15 dBA - if a building stands between the noise source and receptor and completely shields the noise source.

Noise from Operations

In general, peak visitation is controlled by the capacity of Alcatraz Island, and not necessarily the number of ferries that arrive and depart from the embarkation site. Under the proposed project, the embarkation facility would contain an additional berth that would operate additional ferry service to Fort Baker as well as offer interpretive cruises around the bay. Ferry service to Fort Baker would be limited to two ferries per day and occur on weekends only. Currently, 27 peak day ferry trips are operated per day for travel to Alcatraz Island and other locations from Pier 31½. Under the proposed project, ferry trips would increase to 29 peak day trips for an increase of two ferry trips per day. Noise surveys conducted for the EIS determined that the existing ambient noise levels at Pier 31½ range between 56 to 68 dBA. The Land Use Compatibility Chart provides criteria to assess compatibility of a proposed project with the existing noise environment. The operational significance threshold for this setting would be an increase of more than 5 dBA. Based on the limited number of new ferry trips, the proposed project is not expected to increase noise levels by 5 dBA.

As discussed in Section E.5, Transportation and Circulation, there are currently 6,160 daily person trips over a variety of modes (including walking, cars, public transportation, and tour buses) to the Pier 31½ site. The proposed project would result in 390 new daily trips. Given this minor increase and the existing noise environment, increased operations at Pier 31½ resulting from the proposed project would result in a negligible increase in noise and vibration within the surrounding area, and impacts would be considered less than significant.

Fort Baker

Existing Conditions

The Fort Baker pier is currently used for fishing and other recreational activities. Based on the Fort Baker Plan, ambient noise levels in the area range between 55 to 60 dBA, with "the western end of the site [having] more ambient urban noise from traffic along U.S. Highway 101."[47,48] The closest residence is approximately 1,500 feet north of the project site and there are no other sensitive receptors within 900 feet of the project site. Receptors in the area include the Bay Area Discovery Museum and the U.S. Coast Guard Station; however, neither of those receptors are considered sensitive.

Noise from Project Construction

Table 19 presents noise levels anticipated during construction of the proposed project at Fort Baker at the closest receptors.

[47] National Park Service, *Fort Baker Plan Final Environmental Impact Statement*, October 1999. Available from http://parkplanning.nps.gov/document.cfm?parkID=303&projectID=20244&documentID=20847.

[48] Conditions in the Fort Baker area are consistent with the levels identified in the plan as the user group has switched from active military operations to less intense recreational uses such as picnicking, hiking, and fishing.

TABLE 19
CONSTRUCTION NOISE AT FORT BAKER

Affected Receptor	USCG Station	Bay Area Discovery Museum
Distance from Outer Boundary of Receptor to Outer Boundary of Site (feet)	600	1,150
Existing Daytime Background Noise Level without Project (dBA, L_{eq})	55	55
During Pile Driving		
Predicted Maximum (L_{max}) Construction Noise Level (dBA)	79.7	74.0
Predicted Average Construction Noise Level (dBA, L_{dn})	72.8	67.1
Noise Ordinance Threshold	N/A	
Exceeds Threshold?	No	No
During Loudest Non-Pile-Driving Phase (Site Demolition)		
Predicted Maximum (L_{max}) Construction Noise Level (dBA)	68	62.3
Predicted Average Construction Noise Level (dBA, L_{dn})	62.7	57.1
Noise Ordinance Threshold	Work restricted to daytime hours	
Exceeds Threshold?	No	No

dBA: decibels, A-weighted
L_{dn}: average day/night equivalent sound level
L_{eq}: equivalent continuous sound level
L_{max}: maximum sound level
SFDPW: San Francisco Department of Public Works
USCG: U.S. Coast Guard

As shown in Table 19, noise from construction of the proposed project at Fort Baker would not exceed ordinance limits and would not impact sensitive receptors. Therefore, impacts would be considered less than significant, and mitigation is not required.

Noise from Project Operations

The proposed project would provide a ferry landing for new future occasional ferry embarkation service. As such, the current noise and vibration levels at this location and within the surrounding area may be affected by changes proposed by long-term operation at this site. However, the service would be occasional and intermittent, with a maximum of two ferries per weekend day.

TABLE 20
OPERATIONAL NOISE FROM FORT BAKER LIMITED FERRY SERVICE

Receptor	Recreational Use Area	USCG Station	Bay Area Discovery Museum
Land Use Category	3	3	3
Distance from Outer Boundary of Receptor to Closest Proposed Ferry Berth (feet)	160	800	1,290
Existing Noise Level without Project	55	55	55

Receptor	Recreational Use Area	USCG Station	Bay Area Discovery Museum
(dBA, L_{dn})			
Predicted Noise Level Contribution from Project	45	28	23
Predicted Noise Level with Project (dBA, L_{dn})	55	55	55
Total Noise Level Increase (Existing vs. Predicted; dBA)	0	0	0
Criteria for Moderate Impact (dBA)	60	60	60
Criteria for Severe Impact (dBA)	66	66	66
Impact?	None	None	None

dBA: decibels, A-weighted
L_{max}: maximum sound level
L_{dn}: average day/night equivalent sound level
USCG: U.S. Coast Guard

Based on the results presented in Table 20, receptors in the vicinity of the Fort Baker pier are not anticipated to be impacted by long-term operation of the proposed project. All predicted noise levels would remain below Federal Transit Administration criteria for commercial uses. For the reasons stated above, operational impacts resulting from the proposed project would be less than significant.

Impact NO-2: The proposed project could expose persons or structures to or generate excessive groundborne vibration or groundborne noise levels. (Less than Significant with Mitigation)

Groundborne noise is noise which is experienced inside a building or structure from vibrations produced outside of the building and transmitted as ground vibration between the source and receiver. The San Francisco Municipal Code does not address vibration. Regarding vibration impacts during construction, the Federal Transit Administration suggests a peak particle velocity level of 0.12 inches per second[49] or lower be maintained at buildings extremely susceptible to vibration damage (i.e., historic buildings such as those on the project site). Based on the peak particle velocity levels of the proposed construction equipment, the Federal Transit Administration's criteria for even the most fragile of buildings would be anticipated to be maintained so long as these buildings are 80 feet or more from the vibration source or site's outer boundary. Table 21 shows the distance from the Pier 31½ project site to receptors in the area that may be affected by vibration.

TABLE 21
VIBRATION RECEPTORS IN THE VICINITY OF PIER 31½

Receptor	Distance from Site (feet)[1]
Historic Pier 29 Building	340
Historic Pier 31 and 33 Bulkhead Buildings	0
Businesses directly across the street from Pier 31½	120
Residences at the corner of Chestnut and Sansome streets	540

1. Per Federal Transit Administration guidance, distance was measured from the outer boundary of the receptors to the outer boundary of the Pier 31½ site.

dBA: decibels, A-weighted
VdB: vibration velocity decibels

Typical vibration levels from various types of construction equipment at 25 feet are listed in Table 22; some of these are similar to the equipment proposed to be used for the proposed project. Table 23 includes information on the vibratory damage potential at different buildings.

[49] Federal Transit Administration, *Transit Noise and Vibration Impact Assessment*, September 2013.

TABLE 22
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
Small Bulldozer	0.012	0.003	0.001	0.000
Jackhammer	0.138	0.035	0.012	0.004
Loaded Trucks	0.300	0.076	0.027	0.010
Large Bulldozer	0.352	0.089	0.031	0.011
Pile Driver, Vibratory	0.672	0.170	0.060	0.021
Pile Driver, Impact	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 ($[25/D]^{1.5}$).

TABLE 23
GUIDELINE VIBRATION DAMAGE POTENTIAL THRESHOLD CRITERIA

Structure and Condition	Maximum Peak Particle Velocity (inches/second)	
	Transient Sources	Continuous/Frequent Intermittent Sources
Extremely fragile historic buildings, ruins, ancient monuments	0.12	0.08
Fragile buildings	0.2	0.1
Historic and some old buildings	0.5	0.25
Older residential structures	0.5	0.3
New residential structures	1	0.5
Modern industrial/commercial buildings	2	0.5

Transient sources create a single isolated vibration event, such as blasting or drop balls. Continuous/frequent, intermittent sources include impact pile drivers, pogo stick compactors stick compactors, crack and seat equipment, vibratory pile drivers, and vibratory compaction equipment.
Source: Federal Transit Administration, *Transit Noise and Vibration Impact Assessment*, September 2013.

Regarding the proposed project work at Pier 31½ and in accordance with the Federal Transit Administration guidance stated above, vibration impacts at off-site receptors are not anticipated, as the closest off-site receptor to this site is 120 feet away. However, as noted in Table 23, the historic bulkhead buildings could be impacted by vibration, considering that construction activities are likely to occur in and around the buildings (essentially 0 feet from the vibration source or the building's outer boundary). This impact would be considered potentially significant. **Mitigation Measure M-NO-2, Conduct Vibration Monitoring at Pier 31½**, would be implemented to reduce impacts. Active monitoring would detect vibration near action levels and require the contractor to cease the use of large earth-moving equipment and to institute equipment controls to reduce vibration levels, thereby reducing the potential for effects on the building.

Mitigation Measure M-NO-2: Conduct Vibration Monitoring at Pier 31½

The project proponent would require that a qualified professional evaluate the subject structure(s) prior to the pile driving to assess their susceptibility to vibration impacts and provide pre-construction bracing if warranted. Based on the results of the evaluation, the professional shall develop a vibration control plan. The plan would include set of site-specific vibration attenuation measures that would be implemented under the supervision of a qualified acoustical consultant during the project construction. These attenuation measures would include as feasible, in consideration of technical and structural requirements and conditions, implementing "quiet" pile driving technology, such as predrilling piles, and using sonic pile drivers. During construction, the construction contractor will conduct vibration monitoring when construction activities occur within 50 feet of the historic Pier 31 and 33 bulkhead buildings. If monitoring indicates that peak particle velocity caused by construction activities is approaching 0.12 inches per second, construction activities would be halted and a plan would be developed to reduce vibration. Other effective strategies, such as use of smaller construction equipment in close proximity to buildings, may also be required to the extent necessary to achieve a peak particle velocity vibration level at bulkhead buildings of less than the level of 0.12 inches per second.

With the implementation of **M-NO-2**, **Conduct Vibration Monitoring at Pier 31½**, vibration impacts on historic structures at the Pier 31½ site would be considered less than significant.

Using the same Federal Transit Administration guidance and considering that the closest building to the outer boundary of the Fort Baker project site is more than 400 feet away, no significant vibration impacts are anticipated at Fort Baker. Impacts would be considered less than significant and mitigation is not required.

Impact C-NO: The proposed project would not make a considerable contribution to potential cumulative significant noise impacts. (Less than Significant)

The geographic scope of potential cumulative noise impacts encompasses the project sites and immediate vicinities. Construction of the proposed project could result in temporary noise and vibration increases; however, no significant impact would result from the proposed project. Cumulative noise increases in the site vicinity could occur if there are concurrent construction activities in the site vicinity. Cumulative projects listed in Table 6 could overlap, to some extent, with construction of the proposed project. There are no known projects under development within 0.25 mile of Fort Baker. Of the projects listed in Table 6, only the Pier 29 reconstruction, 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. In general, compliance with applicable noise ordinance requirements would maintain the noise impact from proposed project construction at a less-than-significant level. Project construction-related noise and vibration would not substantially increase ambient noise levels at locations greater than a few hundred feet from the project sites. As such, construction noise and vibration effects associated with the proposed project are not anticipated to

combine with those associated with other proposed and ongoing projects located near the project sites, and cumulative construction-related noise and vibration impacts would be less than significant.

Project-related stationary source noise from ferry operations would not substantially increase ambient noise levels at locations greater than a few hundred feet from the project site. A number of other ferry projects are currently under development in the Pier 31½ area; however, they are outside the 0.25-mile boundary and separated from the Pier 31½ area by buildings and structures that would minimize sound movement. There are no known projects under development within 0.25 mile of Fort Baker. Consequently, cumulative noise impacts from stationary noise sources would be less than significant.

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?	☐	☐	☒	☐	☐

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[50] or unclassified for most criteria air pollutants with the exception of ozone, $PM_{2.5}$, and PM_{10}, for which these pollutants are designated as non-attainment for either the state or 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.[51]

Land use projects may contribute to regional criteria air pollutants during the construction and operational phases of a project. Table 24 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, contribute substantially to an air quality violation, or result in a cumulatively considerable net increase in criteria air pollutants within the air basin.

[50] "Attainment" status refers to those regions that are meeting federal and/or state standards for a specified criteria pollutant. "Non-attainment" 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.

[51] Bay Area Air Quality Management District, *California Environmental Quality Act Air Quality Guidelines*, May 2017, p. 2-1.

TABLE 24
CRITERIA AIR POLLUTANT SIGNIFICANCE THRESHOLDS

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

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

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 (NO_x). 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 NO_x, the offset emissions level is an annual average of 10 tons per year (or 54 pounds per day).[52] 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 NO_x 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 NO_x emissions. Due to the temporary nature of construction activities, only the average daily thresholds are applicable to construction phase emissions.

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

Particulate Matter (PM_{10} and $PM_{2.5}$).[53] 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.[54] 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.

Fugitive Dust. Fugitive dust emissions are typically generated during construction phases. Studies have shown that the application of best management practices at construction sites significantly control fugitive dust[55] and individual measures have been shown to reduce fugitive dust by anywhere from 30 to 90 percent.[56] The air district has identified a number of best management practices to control fugitive dust emissions from construction activities.[57] The City's Construction Dust Control Ordinance (ordinance 176-08, effective July 30, 2008) requires a number of measures to control fugitive dust, and the best management practices employed in compliance with the ordinance are an effective strategy for controlling construction-related fugitive dust.

Other Criteria 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. 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 that could result from development projects, development projects would

[53] 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.

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

[55] Western Regional Air Partnership, *WRAP Fugitive Dust Handbook*, September 7, 2006. Available from http://www.wrapair.org/forums/dejf/fdh/content/FDHandbook_Rev_06.pdf.

[56] Bay Area Air Quality Management District, *CEQA Air Quality Guidelines*, May 2017, p. D-47.

[57] Ibid.

not result in a cumulatively considerable net increase in CO or SO_2 emissions, and 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.[58]

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.[59] Therefore, assessments of air pollutant exposure to residents typically result in the greatest adverse health outcomes of all population groups.

Exposures 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.[60] 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

[58] 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.

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

[60] 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.

demonstrating cancer effects in humans.[61] 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 31½, 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.[62] 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,[63] 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.[64]

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 $\mu g/m^3$, with evidence strongly supporting a standard within the range of 12 to 11 $\mu g/m^3$.[65] The Air Pollutant Exposure Zone for San Francisco is based on the health protective $PM_{2.5}$ standard of 11 $\mu g/m^3$, as supported by the U.S.

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

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

[63] 54 Federal Register 38044, September 14, 1989.

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

[65] 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.

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.

Proximity to Freeways. According to the California air 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,[66] parcels that are within 500 feet of freeways are included in the Air Pollutant Exposure Zone.

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.[67]

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.

Construction Air Quality Impacts

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

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)

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[66] 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.

[67] 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.

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 tailpipe emissions). Emissions of ozone precursors and PM are primarily a result of the combustion of fuel from on-road and off-road vehicles. However, ROGs are also emitted from activities that involve painting, other types of architectural coatings, or asphalt paving.

The proposed project would include both in-water and land-based construction at Pier 31½ and Fort Baker, including the use of diesel powered construction equipment. At Pier 31½, construction would begin in 2019 and end in 2022, with active construction occurring over a period of 10 months. At Fort Baker, construction would occur in 2023, with active construction occurring over a period of 11 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 available 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 $\mu g/m^3$ in the San Francisco Bay Area would prevent between 200 and 1,300 premature deaths.[68]

Pier 31½

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

[68] 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.

waive this requirement for activities on sites less than 0.5 acre that are unlikely to result in any visible wind-blown dust.

For projects over 0.5 acre, the Dust Control Ordinance requires that the project proponent submit a Dust Control Plan for approval by the San Francisco Department of Public Health. The Port will not issue a building permit without written notification from the Director of Public Health that the applicant has a site-specific Dust Control Plan, unless the Director waives the requirement. Interior-only tenant improvement projects that are over 0.5 acre in size that will not produce exterior visible dust are exempt from the site-specific Dust Control Plan requirement. In addition to the Dust Control Ordinance, County- and City-led projects must follow specific department guidance which incorporates the City's dust control requirements. For the Port, these dust control ordinances are codified under Section 106A.3.2.3, Construction Dust Control.

Construction at Pier 31½ has the potential to generate low levels of fugitive dust. Work on the Pier 31 and 33 bulkhead buildings would be to the building interiors, which would reduce exposure to fugitive dust, but movement of construction equipment and repaving may expose sensitive receptors to fugitive dust. The closest sensitive receptor is a residence located 540 feet southwest of the site. Repaving would occur over approximately 0.9 acre. Therefore, a dust control plan will be developed for the Pier 31½ project site. The dust control plan will incorporate dust control ordinance consistent with the Port's requirements. The project proponent and the contractor responsible for construction activities at the project site would be required to use the practices described below to control construction dust on the site or other practices that result in equivalent dust control that are acceptable to the director:

- Water all active construction areas sufficiently to prevent dust from becoming airborne. Increased watering frequency may be necessary whenever wind speeds exceed 15 miles per hour.
- Provide as much water as necessary to control dust (without creating run-off) in any area of land clearing, earth movement, excavation, drilling, and other dust-generating activity.
- During excavation and dirt-moving activities, wet sweep or vacuum the streets, sidewalks, paths, and intersections where work is in progress at the end of the workday.
- Cover any inactive (no disturbance for more than 7 days) stockpiles greater than 10 cubic yards or 500 square feet of excavated materials, backfill material, import material, gravel, sand, road base, and soil with a 10 mil (0.01 inch) polyethylene plastic or equivalent tarp and brace it down or use other equivalent soil stabilization techniques.
- Use dust enclosures, curtains, and dust collectors as necessary to control dust in the excavation area.

The site-specific Dust Control Plan would also require the project proponent to: submit a map to the Director of Public Health showing all sensitive receptors within 1,000 feet of the site; wet down areas of soil at least three times per day; provide an analysis of wind direction and install upwind and downwind particulate dust monitors; record particulate monitoring results; hire an independent third-party to conduct inspections and keep a record of those inspections; establish shut-down conditions based on

wind, soil migration, etc.; establish a hotline for surrounding community members who may be potentially affected by project-related dust; limit the area subject to construction activities at any one time; install dust curtains and windbreaks on the property lines, as necessary; limit the amount of soil in hauling trucks to the size of the truck bed and securing with a tarpaulin; enforce a 15-mph speed limit for vehicles entering and exiting construction areas; sweep affected streets with water sweepers at the end of the day; install and utilize wheel washers to clean truck tires; terminate construction activities when winds exceed 25-mph; apply soil stabilizers to inactive areas; and sweep off adjacent streets to reduce particulate emissions. The project proponent would be required to designate an individual to monitor compliance with these dust control requirements. With compliance with the dust control ordinance, project construction impacts related to exposure to fugitive dust emissions would be less than significant.

Fort Baker

Construction of the path at Fort Baker has the potential to result in dust. However, because the closest sensitive receptors are located well over 1,000 feet away from construction and construction would incorporate applicable air district construction best management practices, sensitive receptors would not be affected by fugitive dust. Studies have shown that the application of best management practices at construction sites controls fugitive dust significantly, and individual measures have been shown to reduce fugitive dust by anywhere from 30 to 90 percent. For fugitive dust, the air district does not have numerical thresholds; a project is considered less than significant for fugitive dust if it complies with the air district's construction best management practices. Because the construction contract would require compliance with the air district's construction best management practices related to dust control, potential dust-related air quality impacts from construction at Fort Baker would be less than significant.

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. Land-based construction-related criteria air pollutants generated by the proposed project were quantified using the California Emissions Estimator Model (CalEEMod). Marine-based (tugboats and work boats) construction-related criteria air pollutants generated by the proposed project were quantified using the California Air Resources Board harbor craft emissions inventory[69] and U.S. Environmental Protection Agency marine engine standards. Both land-based and marine-based emissions are provided in the *Air Quality and Greenhouse Gas Technical Report*.[70] The CalEEMod model was developed, including default data (emission factors, meteorology, etc.), in collaboration with California air district staff. Default assumptions were used where project-specific information was unknown.

[69] California Air Resources Board, *California Harbor Craft Emissions Inventory Database*, 2010.

[70] Anchor QEA, *Air Quality and Greenhouse Gas Technical Report*, Alcatraz Ferry Embarkation Project, Case No. 2017-000188ENV, December 2017.

Construction of the proposed project would occur over an approximately 21-month period between 2019 and 2023, and the construction schedule is anticipated to be 8 hours per day, 5 days per week. Emissions were converted from tons per year to pounds per day using the estimated construction duration of 504 total working days. As shown in Table 25, proposed project construction emissions would be below the threshold of significance for all criteria pollutants.

TABLE 25
CONSTRUCTION EMISSIONS (AVERAGE POUNDS PER DAY), PIER 31½ AND FORT BAKER

	NO_X	Exhaust PM_{10}	Exhaust $PM_{2.5}$	ROG
Pier 31½ Construction 2019				
Construction Equipment and On-road Vehicles	10.0	0.4	0.4	1.1
Marine Sources	15.4	0.5	0.5	1.7
Total 2019	**25.3**	**0.9**	**0.9**	**2.8**
Significance Criteria	54	82	54	54
Significant?	No	No	No	No
Pier 31½ Construction 2020				
Construction Equipment and On-road Vehicles	13.8	0.5	0.4	1.2
Marine Sources	0.0	0.0	0.0	0.0
Total 2020	**13.8**	**0.5**	**0.4**	**1.2**
Significance Criteria	54	82	54	54
Significant?	No	No	No	No
Pier 31½ Construction 2021				
Construction Equipment and On-road Vehicles	6.9	0.3	0.2	4.4
Marine Sources	0.7	0.0	0.0	0.1
Total 2021	**7.6**	**0.3**	**0.3**	**4.5**
Significance Criteria	54	82	54	54
Significant?	No	No	No	No
Fort Baker Construction 2023				
Construction Equipment and On-road Vehicles	5.0	0.2	0.2	0.6
Marine Sources	14.3	0.4	0.4	1.8
Total 2023	**19.3**	**0.6**	**0.6**	**2.4**
Significance Criteria	54	82	54	54
Significant?	No	No	No	No

Notes:
Emissions may not add precisely due to rounding.
NO_X: oxides of nitrogen
PM_{10}: particulate matter, diameter <10 microns
$PM_{2.5}$: particulate matter, diameter <2.5 microns
ROG: reactive organic gases

As shown, emissions at both locations would be less than significant. Therefore, construction-related emissions would not violate air quality standards or contribute significantly to an existing or projected air quality violation and impacts would be less than significant.

The proposed project was the subject of an EIS prepared by the Park Service[71], which included a number of construction air quality impact reduction measures. The following measures from the EIS are included in the Record of Decision and therefore will be applied to construction of the proposed project as **Improvement Measures I-AQ-1a, Use Cleaner Construction Equipment,** and **I-AQ-1b, Use Cleaner Engines on Tugboats**:

> **Improvement Measure I-AQ-1a: Use Cleaner Construction Equipment**
>
> The project proponent shall develop a plan demonstrating that the off-road equipment (more than 50 horsepower) to be used in the construction project (i.e., owned, leased, and subcontractor vehicles) would achieve a project wide fleet-average 20 percent nitrogen oxide (NOx) reduction and 45 percent particulate matter (PM) reduction compared to the most recent California Air Resources Board fleet average. Acceptable options for reducing emissions include the use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, add-on devices such as particulate filters, and/or other options as such become available.
>
> **Improvement Measure I-AQ-1b: Use Cleaner Engines on Tugboats**
>
> The project proponent shall use tugboats with Tier 4 propulsion engines and Tier 3 auxiliary engines.

Table 26 presents the results of construction emissions following the implementation of **Improvement Measures I-AQ-1a, Use Cleaner Construction Equipment,** and **I-AQ-1b, Use Cleaner Engines on Tugboats**. As shown, the proposed project's less-than-significant impacts would be further reduced.

[71] National Park Service, 2017. *Alcatraz Ferry Embarkation Environmental Impact Statement*. January 2017. Available from: https://parkplanning.nps.gov/document.cfm?parkID=303&projectID=41352&documentID=77056.

TABLE 26
CONSTRUCTION EMISSIONS (AVERAGE POUNDS PER DAY),
PIER 31½ AND FORT BAKER WITH IMPROVEMENT MEASURES

	NO_X	Exhaust PM_{10}	Exhaust $PM_{2.5}$	ROG
Pier 31½ Construction 2019				
Construction Equipment and On-road Vehicles	8	0.2	0.2	1.1
Marine Sources	7.1	0.5	0.5	1.4
Total 2019	15.1	0.8	0.7	2.5
Significance Criteria	54	82	54	54
Significant?	No	No	No	No
Pier 31½ Construction 2020				
Construction Equipment and On-road Vehicles	11	0.3	0.2	1.2
Marine Sources	0	0	0	0
Total 2020	11	0.3	0.2	1.2
Significance Criteria	54	82	54	54
Significant?	No	No	No	No
Pier 31½ Construction 2021				
Construction Equipment and On-road Vehicles	5.5	0.1	0.1	4.4
Marine Sources	0.7	0	0	0.1
Total 2021	6.2	0.2	0.2	4.5
Significance Criteria	54	82	54	54
Significant?	No	No	No	No
Fort Baker Construction 2023				
Construction Equipment and On-road Vehicles	4	0.1	0.1	0.6
Marine Sources	7.5	0.4	0.4	1.5
Total 2023	11.6	0.5	0.5	2
Significance Criteria	54	82	54	54
Significant?	No	No	No	No

Notes:
Emissions may not add precisely due to rounding.
NO_X: oxides of nitrogen
PM_{10}: particulate matter, diameter <10 microns
$PM_{2.5}$: particulate matter, diameter <2.5 microns
ROG: reactive organic gases

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)

Pier 31½ is located within the Air Pollutant Exposure Zone, as described above. The closest sensitive land uses near the Pier 31½ site are residences along Sansome Street, located approximately 540 feet southwest of the site. The closest sensitive land uses near the Fort Baker site are residences along Murray Circle, located approximately 700 feet northwest of the site and over 1,400 feet northwest of in-water construction.

Off-road construction equipment is a large contributor to particulate matter emissions, of which diesel particulate matter is a major component. In California, although emissions associated with off-road equipment have declined and are projected to continue to decline with implementation of the U.S. Environmental Protection Agency's engine requirements for new off-road engines and the California Air Resources Board's requirements for in-use off-road equipment. Specifically, both the U.S. Environmental Protection Agency and California 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 are 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 U.S. Environmental Protection Agency estimates that by implementing the federal Tier 4 standards, NO_x and particulate matter emissions will be greatly reduced.[72] For example, the California Air Resources Board's 2011 emissions inventory predicts a particulate matter emissions decrease of nearly 80 percent in 2029, the last projected year in the inventory, from 2010 emissions and predicts an average annual decrease of 4 percent from 2010 emissions.[73]

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

[72] U.S. Environmental Protection Agency, *Clean Air Nonroad Diesel Rule: Fact Sheet*, May 2004.

[73] California Air Resources Board, *In-Use Off-Road Equipment, 2011 Inventory Model*, cited August 21, 2017. Available from http://www.arb.ca.gov/msei/categories.htm#inuse_or_category.

with the temporary and highly variable nature of construction activities. This results in difficulties with producing accurate estimates of health risk."[74]

Therefore, project-level analyses of construction activities have a tendency to produce overestimated assessments of 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. An air quality technical report was prepared that quantified emissions for both construction and operation of the proposed project.[75] Health impacts associated with the proposed project construction were evaluated qualitatively by comparing the proposed project's diesel particulate matter and $PM_{2.5}$ emissions to those of the Third Street Bridge Rehabilitation Project, a project of similar scale for which a detailed health risk assessment was performed and emissions of toxic air contaminants were determined not to pose a significant health risk for the maximum exposed sensitive receptors.[76] In general, an evaluation of health impacts is based on projected emissions, locations of sensitive receptors, and meteorological conditions in the project vicinity. Because the proposed project's construction emissions would be less than that of the Third Street Bridge Rehabilitation project and the closest sensitive receptors would be located at a greater distance, it was determined that a health risk assessment was not necessary to conclude that the potential health risks resulting from project construction at Pier 31½ would be less than significant.[77] At Fort Baker, potential health risks would be even lower, due to the shorter duration of construction activities and the greater distance to sensitive receptors.

For these reasons, the proposed project would not expose sensitive receptors to substantial health risks and impacts would be less than significant.

Operational Air Quality Impacts

Land use projects typically result in emissions of criteria air pollutants and toxic air contaminants primarily from an increase in motor vehicle trips. However, land use projects may also result in emissions of criteria air pollutants and toxic air contaminants from combustion of natural gas, landscape maintenance, use of consumer products, and architectural coating. The following addresses air quality impacts resulting from operation of the proposed project.

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

[75] Anchor QEA, *Air Quality and Greenhouse Gas Technical Report*, Alcatraz Ferry Embarkation Project, Case No. 2017-000188ENV, December 2017.

[76] Taha Environmental Planners, *Third Street Bridge Rehabilitation Project Air Quality and Greenhouse Gas Technical Memorandum*, Planning Department Case No. 2015-009647ENV, April 17, 2017.

[77] Anchor QEA, Memorandum re: Health Risk Assessment for the Alcatraz Ferry Embarkation Project, Case No. 2017-000188ENV, November 13, 2017.

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)

As discussed above in Impact AQ-1, the air district, in its *CEQA Air Quality Guidelines*, 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 project would generate criteria pollutant emissions associated with ferry and vehicle traffic (mobile sources), on-site area sources (i.e., natural gas combustion for space and water heating, and combustion of other fuels by building and grounds maintenance equipment), energy usage, and testing of a backup diesel generator. Land-based operational-related criteria air pollutants generated by the proposed project were quantified using CalEEMod. Ferry emissions were calculated using the California Air Resources Board harbor craft emissions inventory and U.S. Environmental Protection Agency emission standards. Both land-based and marine-based operational emissions are provided in the *Alcatraz Embarkation Air Quality and GHG Study*.[78] Default assumptions were used where project-specific information was unknown. The analysis also assumed incorporation of the Park Service's requirements for clean ferries, as discussed in Section A, Project Description. These conditions will require that: 1) all ferries use U.S. Environmental Protection Agency Tier 3 engines or better within 2 years of the effective date of the concessioner agreement; 2) ferries use clean fuel; and 3) ferries meet strict idling limits. These conditions would decrease ferry emissions and offset the activity increase. The conditions will be required as part of the concession contract by the Park Service and are therefore an enforceable part of the proposed project.

The annual and average daily emissions associated with operation of the proposed project (incorporating the project conditions discussed above) are shown in Tables 27 and 28, which also include the City's thresholds of significance. The proposed operations would result in cleaner ferry engines and therefore less ROG, PM_{10}, and $PM_{2.5}$ emissions than were emitted under baseline conditions.

TABLE 27
ANNUAL OPERATIONAL EMISSIONS, PIER 31½ AND FORT BAKER (TONS/YEAR)

	ROG	NO_X	Exhaust PM_{10}	Exhaust $PM_{2.5}$
Baseline 2016 (tons/year)				
Area	0.03	0	0	0
Vehicles	0.23	1.05	0.01	0.01
Stationary	0.01	0.04	0	0

[78] Anchor QEA, *Air Quality and Greenhouse Gas Technical Report*, Alcatraz Ferry Embarkation Project, Case No. 2017-000188ENV, December 2017.

	ROG	NO_X	Exhaust PM_{10}	Exhaust $PM_{2.5}$
Ferries	0.2	2.33	0.26	0.24
2016 Total	**0.47**	**3.41**	**0.28**	**0.25**
Project Annual (tons/year)				
Area	0.03	0	0	0
Vehicles	0.17	1.41	0.02	0.01
Stationary	0.01	0.04	0	0
Ferries	0.25	2.8	0.32	0.28
Total	0.46	4.25	0.34	0.3
CEQA Baseline	0.47	3.41	0.28	0.25
Project minus Baseline	**-0.02**	**0.84**	**0.06**	**0.05**
Threshold	10	10	15	10
Significant?	No	No	No	No
2026 Annual (tons/year)				
Area	0.03	0	0	0
Vehicles	0.12	1.02	0.01	0.01
Stationary	0.01	0.04	0	0
Ferries	0.21	2.49	0.19	0.17
2026 Total	0.37	3.54	0.2	0.18
CEQA Baseline	0.47	3.41	0.28	0.25
Project minus Baseline	**-0.11**	**0.13**	**-0.07**	**-0.07**
Threshold	10	10	15	10
Significant?	No	No	No	No
2035 Annual (tons/year)				
Area	0.03	0	0	0
Vehicles	0.07	0.77	0.01	0
Stationary	0.01	0.04	0	0
Ferries	0.21	2.49	0.19	0.17
2035 Total	0.32	3.29	0.2	0.18
CEQA Baseline	0.47	3.41	0.28	0.25
Project minus Baseline	**-0.15**	**-0.12**	**-0.08**	**-0.07**
Threshold	10	10	15	10
Significant?	No	No	No	No

Notes:
Project emissions reflect the increment between future emissions and the 2016 baseline emissions.
lbs/day: pounds per day
NO_X: oxides of nitrogen
PM: particulate matter
ROG: reactive organic gases
tpy: tons per year
Sources: Bay Area Air Quality Management District, *CEQA Air Quality Guidelines*, pp. 6-8, May 2011.;
Anchor QEA, *Air Quality and Greenhouse Gas Technical Report*, Alcatraz Ferry Embarkation Project, Case No. 2017-000188ENV, December 2017.

TABLE 28
DAILY OPERATIONAL EMISSIONS, PIER 31½ AND FORT BAKER (POUNDS/DAY)

	ROG	NOx	Exhaust PM_{10}	Exhaust $PM_{2.5}$
CEQA Baseline (2016)				
Area	0.15	0	0	0
Vehicles	1.25	5.76	0.06	0.06
Stationary	0.07	0.2	0.01	0.01
Ferries	1.11	12.74	1.45	1.29
Total	2.59	18.7	1.52	1.36
2021 Average Daily				
Area	0.15	0	0	0
Vehicles	0.93	7.72	0.09	0.08
Stationary	0.07	0.2	0.01	0.01
Ferries	1.34	15.37	1.75	1.56
2021 Total	2.5	23.29	1.84	1.65
CEQA Baseline	2.59	18.7	1.52	1.36
CEQA Increment	**-0.09**	**4.58**	**0.32**	**0.29**
Threshold	54	54	82	54
Significant?	No	No	No	No
2024 Average Daily				
Area	0.15	0	0	0
Vehicles	0.75	6.44	0.07	0.07
Stationary	0.07	0.2	0.01	0.01
Ferries	1.34	15.37	1.75	1.56
2024 Total	2.31	22.01	1.83	1.63
CEQA Baseline	2.59	18.7	1.52	1.36
CEQA Increment	**-0.28**	**3.3**	**0.31**	**0.28**
Threshold	54	54	82	54
Significant?	No	No	No	No
2026 Average Daily				
Area	0.15	0	0	0
Vehicles	0.64	5.58	0.06	0.05
Stationary	0.07	0.2	0.01	0.01
Ferries	1.15	13.64	1.05	0.93
2026 Total	2.01	19.42	1.11	0.99
CEQA Baseline	2.59	18.7	1.52	1.36
CEQA Increment	**-0.58**	**0.72**	**-0.41**	**-0.36**
Threshold	54	54	82	54
Significant?	No	No	No	No
2035 Average Daily				
Area	0.15	0	0	0

	ROG	NO_x	Exhaust PM_{10}	Exhaust $PM_{2.5}$
Vehicles	0.37	4.21	0.03	0.03
Stationary	0.07	0.2	0.01	0.01
Ferries	1.15	13.64	1.05	0.93
2035 Total	1.74	18.05	1.08	0.97
CEQA Baseline	2.59	18.7	1.52	1.36
CEQA Increment	**-0.84**	**-0.65**	**-0.44**	**-0.39**
Threshold	54	54	82	54
Significant?	No	No	No	No

NO_x: oxides of nitrogen
PM: particulate matter
ROG: reactive organic gases

As shown in Tables 27 and 28, the proposed project would not exceed any of the significance thresholds for criteria air pollutants, and would result in less-than-significant impacts with respect to criteria air pollutants.

Impact AQ-4: The proposed project operations would generate toxic air contaminants, including diesel particulate matter, exposing sensitive receptors to substantial air pollutant concentrations. (Less than Significant with Mitigation)

As discussed above, the Pier 31½ site is located in proximity to sensitive land uses and within the Air Pollutant Exposure Zone. The closest sensitive land uses near the Pier 31½ site are residences along Sansome Street, located approximately 540 feet southwest of the site. The closest sensitive land uses near the Fort Baker site are residences along Murray Circle, located approximately 700 feet northwest of the site and over 1,400 feet northwest of in-water construction.

Health effects of project operational emissions were assessed qualitatively based on projected emissions, locations of sensitive receptors, and meteorological conditions in the project vicinity.[79] Proposed project operational emissions would not expose sensitive receptors to substantial air pollutant concentrations for the following reasons:

- Operational emissions associated with the proposed project would, for the most part, occur over water and as such be located away from human receptors. Ninety-five percent of projected operational emissions would result from ferry operations. Of this, less than 10 percent would be due to ferries operating at berth. In other words, more than 90 percent of projected operational emissions would occur in the water and away from on-land receptors. Further, the prevailing wind direction is from the west, away from sensitive receptors.
- Operational emissions would be greater than the 2016 baseline only during the first 5 years of proposed project operation. Table 28 shows that the incremental difference (project minus

[79] Anchor QEA, Memorandum re: Health Risk Assessment for the Alcatraz Ferry Embarkation Project, November 13, 2017.

baseline) would be approximately 0.3 pound per day of PM_{10} and $PM_{2.5}$. This increase would primarily be due to the increase in ferry activity in the first 5 years of proposed project operation. Starting in 2026, the Park Service will require that all ferries use U.S. Environmental Protection Agency Tier 3 engines or better. This requirement would decrease ferry emissions and offset the activity increase such that daily emissions starting in 2026 would be below the 2016 baseline.

- Greater separation distances generally contribute to a lower health risk. The California Air Resources Board holds that, in general, impacts from exposures to diesel particulate matter decline by approximately 90 percent at 300 to 500 feet from the emissions source. Sensitive receptors would be located approximately 540 feet from Pier 31½.

Vehicle trips associated with the project would be well below the air district's thresholds. 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 these sources be excluded from the environmental analysis. The proposed project's 672 vehicle trips (all generated at Pier 31½) would be well below this level and would be distributed among the local roadway network.

The proposed project would also include a backup emergency generator at Pier 31½. Emergency generators are regulated by the air district through their New Source Review (Regulation 2, Rule 5) permitting process. The project proponent 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 would limit 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 31½**, would be implemented to reduce impacts.

Mitigation Measure M-AQ-4: Best Available Control Technology for Diesel Generators at Pier 31½

The project proponent 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 proponent 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 31½**, 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*. The *2017 Clean Air Plan* is a road map that demonstrates how the San Francisco Bay Area will achieve compliance with the state ozone standards as expeditiously as practicable and how the region will reduce the transport of ozone and ozone precursors to neighboring air basins. In determining consistency with the 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'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.

The compact development of the proposed project and high availability of viable transportation options ensure that visitors could bicycle, walk, and ride transit to and from the project site instead of taking trips via private automobile. While Fort Baker is less accessible than Pier 31½, visitors to Fort Baker as part of the proposed project would access the park from Pier 31½, as ticket sales would not be available at Fort Baker (i.e., all passengers would originate from Pier 31½; new passengers would not be able to board the ferry at Fort Baker for a trip to Pier 31½). These features ensure that the proposed project would avoid substantial growth in automobile trips and vehicle miles traveled. The proposed project's anticipated 672 net new daily vehicle trips would result in a negligible increase in air pollutant emissions. Furthermore, the proposed project would be generally consistent with the San Francisco General Plan, as discussed in Section E.5, Transportation and Circulation. Transportation control measures that are identified in the *2017 Clean Air Plan* are implemented by the *San Francisco General Plan* and the Planning Code, for example, through the City's Transit First Policy, bicycle parking requirements, and transit impact development fees. Compliance with these requirements would ensure the proposed project includes relevant transportation control measures specified 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.

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 would develop and operation of an improved ferry embarkation site to support Alcatraz Island and Fort Baker visitors in a dense, walkable urban area near a concentration of regional and local transit service. 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*.

For the reasons described above, 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. 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. Observation indicates that the project site is not substantially affected by sources of odors, including

existing ferry operations.[80] During operation, odors would mainly come from diesel powered ferry engines. However, as the proposed project would be subject to strict ferry idling emissions and most of the ferry's operation would be over water, such operations would therefore not create a significant source of new odors. Additionally, Park Service requirements for clean engines will minimize odors as ferry engines run more efficiently and emit less exhaust. Therefore, odor impacts would be less than significant.

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)

As discussed above, 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.[81] 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 be considered to result in a cumulatively considerable contribution to regional air quality impacts.

As discussed above, 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 adversely affected by air quality which has the potential to contribute to cumulative air quality impacts. However, the proposed project would implement Tier 4 engines in accordance with **Improvement Measure I-AQ-1a, Use Cleaner Construction Equipment**, and **I-AQ-1b, Use Cleaner Engines on Tugboats**, thereby reducing construction period emissions by up to 90 percent, and adhere to Park Service ferry requirements, which would reduce ferry emissions below baseline levels. **Mitigation Measure M-AQ-4, Best Available Control Technology for Diesel Generators at Pier 31½**, 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. Therefore, the proposed project would not contribute considerably to cumulative air quality impacts.

[80] Observations based on Anchor QEA staff site visit.

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

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, San Francisco has prepared *Strategies to Address Greenhouse Gas Emissions in San Francisco,*[82] which presents a comprehensive assessment of policies, programs, and ordinances that collectively represent San Francisco's qualified greenhouse gas reduction strategy in compliance with the CEQA guidelines. These greenhouse gas reduction actions have resulted in a 28 percent reduction in greenhouse gas emissions in 2015 compared to 1990 levels,[83] 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).[84]

[82] San Francisco Planning Department, *Strategies to Address Greenhouse Gas Emissions in San Francisco,* 2017. Available from http://sf-planning.org/strategies-address-greenhouse-gas-emissions.

[83] San Francisco Department of the Environment, *San Francisco's Carbon Footprint.* Available from https://sfenvironment.org/carbon-footprint, accessed July 19, 2017.

[84] 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.

The Port of San Francisco prepared a *Climate Action Plan*[85] 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*[86] 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.

Given that 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[87,88], order B-30-15,[89,90,91] and Senate Bill 32,[92,93] the City's greenhouse gas reduction goals are consistent with order S-3-05, order B-30-15, Assembly Bill 32, Senate Bill 32 and the 2017 Clean Air Plan. Therefore, proposed projects that are consistent with the City's 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

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[85] 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.

[86] 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.

[87] 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.

[88] 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 [$MTCO_2E$]); by 2020, reduce emissions to 1990 levels (approximately 427 million $MTCO_2E$); and by 2050 reduce emissions to 80 percent below 1990 levels (approximately 85 million $MTCO_2E$). 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.

[89] 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.

[90] 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 $MTCO_2E$).

[91] 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.

[92] 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.

[93] 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 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.

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 and ferry 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.

As discussed in the Project Description, the proposed project would increase the number of annual ferry trips, expand visitor facilities, and result in limited new vehicle trips at Pier 31½. Therefore, the proposed project would contribute to annual long-term increases in greenhouse gases as a result of increased ferry and vehicle trips (mobile sources) and commercial operations that result in an increase in energy use, water use, wastewater treatment, and solid waste disposal. Construction activities at both Pier 31½ and Fort Baker would also result in temporary increases in greenhouse gas emissions. The proposed project's greenhouse gas emissions are presented in Table 29.

TABLE 29
GREENHOUSE GAS EMISSIONS AT PIER 31½ AND FORT BAKER

Year	CO_2E (mty)
Construction	
Pier 31½ Construction 2019	28
Pier 31½ Construction 2020	79
Pier 31½ Construction 2021	104
Fort Baker Construction 2023	344
Operation	
2016 CEQA Baseline	1,924
2026 Total	2157
2026 CEQA Increment (Project minus baseline)	**232**
2035 Total	2115
2035 CEQA Increment (Project minus baseline)	**191**

Notes:
Pier 31½ construction emissions reflect City of San Francisco's Clean Construction Ordinance.
Operational emissions reflect the increment between future emissions and the 2016 baseline emissions and include ferry upgrades as project conditions.
CEQA: California Environmental Quality Act
CO_2E: carbon dioxide equivalent
mty: metric tons per year
Source: Anchor QEA, *Air Quality and Greenhouse Gas Technical Report*, Alcatraz Ferry Embarkation Project, Case No. 2017-000188ENV, December 2017.

While greenhouse gas emissions are cumulative in nature, the emissions originating within the City's limits would be subject to different regulations than those outside. Construction would occur at both Pier 31½ and Fort Baker. Mobile source emissions, which represent the bulk of operational greenhouse gas emissions, would, however, all originate from the Pier 31½ site; there would be no new ferry trips or vehicle trips originating from Fort Baker as a result of the proposed project. Therefore, construction at Pier 31½ and the majority of proposed project operations would be subject to regulations adopted to reduce greenhouse gas emissions as identified in the City's greenhouse gas reduction strategy.

Pier 31½

As discussed below, compliance with the applicable regulations would reduce greenhouse gas emissions at Pier 31½ related to transportation, energy use, and waste disposal. 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 emissions.[94] 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[95] and reducing the energy required to produce new materials. Thus, the proposed project components at Pier 31½ were determined to be consistent with San Francisco's greenhouse gas reduction strategy.[96]

The project proponent 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

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

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

[96] San Francisco Planning Department, *Greenhouse Gas Analysis: Compliance Checklist for Alcatraz Ferry Embarkation Project*, November 22, 2017.

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.

Fort Baker

Fort Baker greenhouse gas emissions would be subject to air district thresholds. In May 2017, the air district released new CEQA thresholds, including a greenhouse gas threshold.[97] For land use development projects, the threshold is compliance with a qualified Greenhouse Gas Reduction Strategy or annual emissions less than 1,100 metric tons per year of CO_2. Land use development projects include residential, commercial, industrial, and public land uses and facilities. As shown in Table 29, greenhouse gas emissions at Fort Baker would be well under the 1,100 metric tons per year threshold.

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?	☐	☐	☒	☐	☐

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

At the Pier 31½ site, the proposed project would construct two new canopies to replace the existing single canopy and provide improved weather protection to visitors. One canopy would cover the primary visitor queuing area, and the other would cover a secondary queuing area and cluster of outdoor tables

[97] Bay Area Air Quality Management District, *Bay Area Air Quality Management District 2017 CEQA Guidelines Update*, May 2017. Available from http://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en.

closer to the food service and restrooms. The site is relatively enclosed by the adjacent Pier 31 and 33 sheds and bulkhead buildings. No height or bulk changes to the existing Pier 31 or 33 buildings are proposed as part of the proposed project. The canopies would slope in height (see Figure 12), and would range from 5 to 15 feet lower in elevation than the adjacent pier buildings. For these reasons, these canopies would have little effect on wind patterns in the vicinity of the site. Other changes to the site, such as informational displays and seating, would not be expected to affect wind patterns due to their low height. The proposed project would not install structures or remove trees at the Fort Baker site. 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)

The proposed project would involve construction of two canopies (one new net canopy) to cover visitor queuing and eating areas at the Pier 31½ site. The two canopies would cover a relatively small portion of the site, and the remainder of the outdoor site would be open areas. The canopies would not cause new shadows that would negatively affect the use and enjoyment of the outdoor public areas. The proposed project would not install any structures that would cause new shadows at the Fort Baker site. For these reasons, impacts from creating 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 highly localized. The geographic scope of potential cumulative wind and shadow impacts on public areas is limited to public areas in the vicinity of the proposed project sites. There are no potential cumulative projects in the vicinity of the proposed project sites listed in Table 6 that could affect wind and shadow. Therefore, the proposed project, in combination with other reasonably foreseeable projects, would not result in significant cumulative wind and shadow impacts.

Topics:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Not Applicable
10. RECREATION—Would the project:					
a) 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) 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 or the deterioration of such facilities. (Less than Significant)

A project could increase the use of existing neighborhood and regional parks or other recreational facilities either through population growth, which would increase the overall number of recreational facility users, or by closure of an existing recreational facility, which would displace recreational users to other similar parks or recreational facilities.

The proposed project site at Pier 31½ is located within a tourist district near an existing urban area primarily made up of commercial uses. The area does not contain park facilities, but includes a number of public spaces and recreational facilities related to maritime use, including the existing Alcatraz ferry embarkation site. As discussed in Section E.3, Population and Housing, even without the proposed project, visitation levels to Pier 31½ are expected to increase in future years as a result of management improvements to increase Alcatraz Island's visitation capacity and a projected increase in tourism in San Francisco. Furthermore, the Park Service is planning for additional capacity to support other interpretative tours, including limited service to Fort Baker. The proposed project improvements would serve to better accommodate those visitors and facilitate visitor loading and unloading, which would reduce possible crowding in the common areas around Pier 31½. There is one park facility within a 0.25-mile radius, the Chestnut and Kearny Open Space; however, this area serves as a natural open space, not as a visitor attraction.

The proposed project would periodically increase visitors to Fort Baker and the Marin Headlands at levels that can be accommodated by existing facilities. Providing limited ferry service between Fort Baker and the primary embarkation site would improve connectivity between and visitor knowledge of the Golden Gate National Recreation Area parklands outside of Alcatraz Island. Visitors arriving by ferry from the primary embarkation site are not expected to leave Fort Baker and nearby parklands so they would not cause an increase in the use of existing parks and recreational facilities in the area. However, even if a portion of ferry passengers visited recreational facilities outside the Golden Gate National Recreation Area, such as those in downtown Sausalito, the increase in use would not be substantial.

Therefore, the proposed project would not result in a substantial increase in the use of existing parks and recreational facilities, or the deterioration of such facilities within the proposed project area, and impacts would be less than significant.

Impact RE-2: The proposed project includes 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)

The proposed project involves the redevelopment of an existing commercial and recreational facility. Improved public amenities at Pier 31½ would include a new ticketing queue and infrastructure, café seating, interpretive displays, a civic plaza, and boat staging. Remodel of the bulkhead buildings would allow for expansion of the basic visitor service program functional area (including a small food service, interpretive retail, restrooms, and operations), and would provide additional and improved orientation and exhibit opportunities for visitors and non-visitors. Additional periodic ferry services to Fort Baker would improve connectivity to and visitor knowledge of the Golden Gate National Recreation Area parklands outside of Alcatraz Island, and would not degrade existing parklands.

The resource topics impact analyses in this Initial Study assess whether the construction and expansion of these existing open space and recreational facilities—the proposed project—would have an adverse physical effect on the environment. Through implementation of the mitigation measures summarized in Section F, Mitigation Measures and Improvement Measures, the proposed project would result in less-than-significant impacts on the environment. Implementation of the improvement measures summarized in that section would further reduce the proposed project's less-than-significant impacts.

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 an intensification of land uses and a cumulative increase in the demand for recreational facilities and resources, including additional demand for Park Service resources. The City has accounted for such growth as part of the Recreation and Open Space Element of the *San Francisco General Plan*. 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. There are no known projects under development within 0.25 mile of Fort Baker. At both the Pier 31½ and Fort Baker sites, the proposed project would help alleviate crowding and enhance recreational activities. 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.

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. (Less than Significant)

Under existing site operations, wastewater generated by restaurants and restrooms at the Pier 31½ site, sewage from Alcatraz Island (via an onshore pump station), as well as greywater and sewage onboard the ferries, are directed to the San Francisco Public Utilities Commission combined sewer system. Wastewater in the combined sewer system is conveyed to one of three treatment plants in San Francisco: the Oceanside Plant; the Southeast Plant; and the North Point Facility. The Oceanside and Southeast plants operate continuously, while the North Point Facility operates only when it rains. Following treatment, effluent is discharged into either the bay or the Pacific Ocean. Treated solids become biosolids for land application. During prolonged storm events resulting in rainfall that exceeds the system's capacity, water is discharged either into the bay or the Pacific Ocean through one of 36 discharge points.

The proposed project at the Pier 31½ site would not introduce new potential wastewater sources that would substantially change the quality of discharges to the sewer system. Ferries would continue to discharge directly to the system using onboard pumps, similar to baseline conditions. The proposed project would marginally increase demand on restrooms and other wastewater generating facilities, including through the increase in ferry service, although any potential increases in wastewater flows would be offset by new and upgraded water efficient facilities, such as low flow toilets, in compliance with applicable regulations.

Under baseline conditions, sewage from Alcatraz Island is offloaded from barges via pump at Pier 31½. This operation would be discontinued, with sewage offloading moving to another approved facility, which would result in a reduction in discharge to the combined sewer system at Pier 31½.

At the Fort Baker site, portable restrooms maintained by the Park Service are provided to accommodate visitors, and there are no amenities requiring water or wastewater service. Portable restrooms would continue to be maintained under the proposed project; no permanent restrooms are proposed as part of the proposed project. In addition, there would be no pump-out facilities for ferries at Fort Baker. For these reasons, the proposed project would not exceed the wastewater treatment requirements of the applicable Regional Water Quality Control Board, and this impact 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 (Less than Significant)

At the Pier 31½ site, amenities requiring water and wastewater service include restrooms and restaurants. Water and wastewater hookups are also provided to ferries operating on site. The proposed project may include water and sewer lateral connections to existing Port or San Francisco Public Utilities Commission infrastructure on or adjacent to the project site. At the Fort Baker site, portable restrooms maintained by the Park Service are provided to accommodate visitors, and no new amenities are planned for the ferry service that would require water or wastewater service. Given the presence of adequate existing water and wastewater treatment infrastructure, and the proposed project's limited 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 impacts would be less than significant.

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. (Less than Significant)

Stormwater runoff from the Pier 31½ site exterior areas is discharged directly into the bay. The proposed project would improve the existing on-site stormwater drainage system to accommodate the proposed improvements and provide lateral connections to the San Francisco Public Utilities Commission combined sewer system, if required. Improvements to the collection and treatment of stormwater would

be evaluated through development of a Stormwater Control Plan in compliance with the City's 2016 Stormwater Management Requirements and Design Guidelines.[98] Although the proposed project includes resurfacing at Pier 31½, the entirety of the existing site is developed with impervious surfaces. Therefore, the proposed resurfacing would not increase the volume of stormwater runoff.

At Fort Baker, stormwater is currently conveyed via a trunkline system consisting of catch basins, pipes, and concrete-lined swales. Stormwater is gathered and conveyed via gravity flow to four major storm drain outfalls along the seawall at Horseshoe Bay.[99] The proposed gravel trail would have a negligible effect on impervious surfaces and no new storm water drainage facilities or expansion of existing facilities serving Fort Baker would be required.

For these reasons, the proposed project would have less-than-significant impacts 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 San Francisco Public Utilities Commission provides water to the Pier 31½ 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*.[100] 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. Study water demand estimates are made in consideration of expected growth in business and industry.

The proposed project may result in a slight increase in operational demand for water supply-dependent services at the Pier 31½ site, which could be accommodated through existing water supplies. Although the increased numbers of visitors to the site would marginally increase demand on water supply-dependent services such as restrooms, the effect on water supply demand would be negligible.

Providing limited ferry service to Fort Baker would have no effect on water supply demands, as visitors would be accommodated by existing or additional portable restrooms. No new amenities are being constructed as part of the proposed project other than the pier improvements, dock, and the trail.

In consideration of the proposed project's anticipated water demands and the study water demand predictions, the proposed project would have a less-than-significant impact on existing water supply entitlements and resources.

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

[99] National Park Service, *Fort Baker Plan Final Environmental Impact Statement*, October 1999. Available from http://parkplanning.nps.gov/document.cfm?parkID=303&projectID=20244&documentID=20847.

[100] 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.

Impact UT-5: The proposed project would not 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. (Less than Significant)

As described under Impact UT-1, both the Pier 31½ and Fort Baker sites are adequately served by existing wastewater infrastructure. At the Pier 31½ site, the effect of increased visitation on wastewater generation would be diminished by complying with applicable regulations, including plans to modernize existing facilities. For the Fort Baker site, wastewater treatment requirements by visitors using the limited ferry service would be accommodated by existing or additional portable restrooms to be maintained by the Park Service. Therefore, there would be a less-than-significant impact on wastewater treatment providers' ability to accommodate the proposed project and existing commitments.

Impact UT-6: 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 31½, are provided by Recology San Francisco. As of late 2016, solid waste that cannot be recycled, composted, or reused is disposed of at Recology's Hay Road Landfill in Vacaville. Bay Cities Refuse provides solid waste collection within unincorporated southern Marin, including Fort Baker. The majority of solid waste in Marin County is sent to Redwood Sanitary Landfill. The county recently approved an expansion of the landfill to allow operation through 2024.[101] The average annual use and average annual capacities of Hay Road and Redwood Sanitary landfills are presented in Table 30.

TABLE 30
HAY ROAD AND REDWOOD SANITARY LANDFILLS THROUGHPUT AND CAPACITY

Activity	Average Annual Throughput (tons per year)	Average Annual Capacity (tons per year)
Hay Road Landfill		
Beneficial Reuse	250 to 499	50,000 to 99,999
Solid Waste Disposal (Landfill)	250,000 to 374,999	750,000 to 999,999
Redwood Sanitary Landfill		
Beneficial Reuse	250 to 499	50,000 to 99,999
Solid Waste Disposal (Landfill)	250,000 to 374,999	750,000 to 999,999

Source: California Department of Resources Recycling and Recovery, Facility Information Toolbox (FacIT), Facility Operations: Recology Hay Road Landfill, Inc. (B + J Landfill), 2017.

[101] Marin County Community Development Agency, *Marin Countywide Plan Geology, Mineral Resources and Hazardous Materials Technical Background Report*, November 2005. Available from http://www.marincounty.org/~/media/files/departments/cd/planning/currentplanning/publications/county-wide-plan/background-reports/geology_background_report.pdf.

As shown in Table 30, Hay Road and Redwood Sanitary landfills are operating well below their average annual capacity. Projections for the region and state also show sufficient existing landfill capacity. 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 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."[102]

While the proposed project operations may slightly increase solid waste generation above existing levels, landfills serving the area have sufficient capacity to accommodate this change. Existing landfills also have sufficient capacity to accommodate debris generated during demolition and construction. Therefore, there would be a less-than-significant impact related to exceeding landfill capacities.

Impact UT-7: 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 31½ and Fort Baker sites. Proposed project operations at Pier 31½ 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, compostables, and trash, thereby minimizing solid waste disposal and maximizing recycling. Construction at Pier 31½ 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. Solid waste collection would continue to be managed by the Park Service at the Fort Baker site. 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 and Marin counties. A number of landfills are located within 100 miles that could be used by the cumulative projects listed in Table 6, as well as by a wide variety of additional users. The proposed project would result in less-than-significant impacts on water and wastewater service providers and landfill capacity.

[102] California Department of Resources Recycling and Recovery, *State of Disposal in California*, 2016.

The proposed project, along with other cumulative projects, would incrementally increase demand on utilities and service systems at both sites, but not beyond levels anticipated and planned for by public service providers in existing service management plan areas. Most of 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-3, 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. Impacts would be less than significant.

Topics:	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*	*Not Applicable*
12. PUBLIC SERVICES— Would the project:					
a) Result in substantial adverse physical impacts associated with the provision of, or the 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 public services such as fire protection, police protection, schools, parks, or other services?	☐	☐	☒	☐	☐

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. (Less than Significant)

The existing and proposed Alcatraz embarkation facility at Pier 31½ receives fire protection and emergency medical services from the San Francisco Fire Department's Fire Station 28 located at 1814 Stockton Street, approximately 0.35 mile from the site, and police protection services from the San Francisco Police Department's Central Station located at 766 Vallejo Street, approximately 0.7 mile southeast of the site. As discussed in Section E.3, Population and Housing, the proposed project would not result in population changes or increased housing needs. While designed to accommodate projected growth in tourism to San Francisco, the proposed project itself would not be growth-inducing. Regardless, the projected growth in visitors to the site would not substantially increase the demand for police protection, fire protection, schools, parks, or other services.

The proposed project site at Fort Baker would continue to be served by the Southern Marin Fire Protection District, U.S. Park Police, Park Service Rangers, and the U.S. Coast Guard. Providing limited ferry service to Fort Baker is expected to result in a negligible increase in demand for these services. Any

increased demand for public services associated with this component of the proposed project is expected to be minimal and adequately served by existing services.

For the reasons noted above, the impacts of the proposed project on public services would be less than significant.

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 Impact)

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. In addition, for those cumulative projects that may increase the demand for public services in the vicinity of the Pier 31½ proposed project site, the City has enacted development impact fees to expand services, any of which that would require physical upgrades would also be subject to individual CEQA analysis. There are no known projects under development within 0.25 mile of Fort Baker. 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 public services.

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?	☐	☐	☐	☐	☒

Topics:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Not Applicable
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 31½ site includes the shoreline along the northeastern San Francisco waterfront, while the Fort Baker site includes the shoreline along the southern waterfront of Marin County. The study area related to underwater sound pressure (noise) impacts includes the in-water area that could be affected by noise during pile driving, which was estimated through bioacoustics noise modeling conducted during the Endangered Species Act consultation with the National Marine Fisheries Service as memorialized in the Biological Opinion prepared for the proposed project[103],[104]. This distance is inclusive of areas where pile driving may result in increased turbidity.

General Habitat Conditions

Aquatic habitat at the Pier 31½ and Fort Baker study areas are representative of species assemblages at pier locations throughout the Central Bay, and includes benthic fauna, encrusting organisms, aquatic vegetation, planktonic organisms, fish, and marine mammals. Marine habitats along the northeastern San Francisco waterfront include intertidal, subtidal, and open water.

The study area at Pier 31½ is developed with piers and hard armoring. Marine habitats and associated communities present in these areas include artificial intertidal structures (e.g., pilings and seawalls),

[103] National Marine Fisheries Service, Endangered Species Act Section 7(a)(2) Biological Opinion and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Response for the Alcatraz Ferry Embarkation Project (NPS File No. L76 [GOGA-PL]), October 3, 2017.

[104] National Park Service, Response to Non-Concurrence Letter and Request for Additional Information for the Alcatraz Ferry Embarkation Project, National Marine Fisheries Service WCR-2016-5894L76, March 3, 2017.

substrate and benthos, and open water. No natural undisturbed shorelines exist in the vicinity of the Pier 31½ site.

The study area at Fort Baker primarily includes the existing pier structure, which provides habitat to encrusting organisms within the intertidal zone, and adjacent open waters. Neighboring Horseshoe Bay also contains sandy-gravel beaches and rocky intertidal habitats, and an offshore population of eelgrass.[105,106]

Special Aquatic Sites

Certain waters of the United States that are recognized as having unique ecological value have been designated "special aquatic sites." This includes sanctuaries and refuges, mudflats, wetlands, vegetated shallows, eelgrass bed, coral reefs, and riffle and pool complexes. Special aquatic sites may be afforded additional protection or consideration under federal regulations. Within the Central Bay, two unique natural communities are considered special aquatic sites: eelgrass beds and native oyster beds.

Eelgrass has been afforded special management considerations by the California Department of Fish and Wildlife, U.S. Fish and Wildlife Service, National Marine Fisheries Service, U.S. Environmental Protection Agency, San Francisco Bay Conservation and Development Commission, and the Golden Gate Audubon Society. The National Marine Fisheries Service considers eelgrass beds to be a habitat area of particular concern. Eelgrass commonly inhabits shallow, soft-bottom substrates of bays and estuaries throughout the California coast. Eelgrass beds often accrete sediments and function ecologically as substrate for epifauna and nursery habitat for juvenile fish. In the bay, eelgrass provides unique biological environments for spawning Pacific herring, and serves as a nursery area for many valued species of fish, including Pacific herring, halibut (*Hippoglossus* spp.), and English sole. Comprehensive eelgrass surveys of the bay were completed as part of a Bay-wide programmatic essential fish habitat consultation for the San Francisco Bay Long-term Management Strategy Program for maintenance dredging. Surveys throughout the bay are also conducted regularly by the California Department of Fish and Wildlife (last updated in 2016). Specific to the shoreline at Fort Baker, eelgrass surveys were completed to support the 1999 Fort Baker Plan Final Environmental Impact Statement. Eelgrass has not been observed at the Pier 31½ site, but was observed within the eastern and northeastern perimeter of Horseshoe Bay approximately 1000-feet from the pier at Fort Baker (Figure 16).[107,108,109]

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[105] 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.

[106] National Park Service, *Fort Baker Plan Final Environmental Impact Statement*, October 1999. Available from http://parkplanning.nps.gov/document.cfm?parkID=303&projectID=20244&documentID=20847.

[107] 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.

[108] National Park Service, *Fort Baker Plan Final Environmental Impact Statement*, October 1999. Available from http://parkplanning.nps.gov/document.cfm?parkID=303&projectID=20244&documentID=20847.

Native oyster beds are composed of living Olympia oysters (*Ostrea conchaphila*) and remnant beds composed of dead shell material. Oyster beds form in the subtidal zone, typically bordered by mudflats at higher elevations and eelgrass beds at lower elevations. No live subtidal Olympia oyster beds have been documented at the Pier 31½ or Fort Baker sites in the bay, and neither site has been identified as a priority native oyster restoration site.[110] Native oysters have been reported to inhabit intertidal wharf pilings on Port piers, and may be found on pilings within the study area.[111]

Essential Fish Habitat

Essential fish habitat is defined as the specific habitat essential for each life stage of federally-managed species. The Central Bay, including the project sites, is designated essential fish habitat for assorted fish species managed under the Coastal Pelagic, Pacific Groundfish, and Pacific Coast Salmon Fishery Management Plans. The Pacific Coast Groundfish Fishery Management Plan manages at least 89 species over a large, ecologically diverse area covering the entire West Coast of the continental United States; 15 species managed under this Fishery Management Plan have species distributions within the Central Bay. The Coastal Pelagic Species Fishery Management Plan includes five species, three of which have known species distributions in the Central Bay. In addition, the Pacific Coast Salmon Fishery Management Plan includes Chinook salmon and coho salmon, and identifies the entire Bay as essential fish habitat.[112] Species for which essential fish habitat has been designated that are likely to exist in the study area are listed in Table 31.

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[109] 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).

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

[111] San Francisco Planning Department, *The 34th America's Cup, James R. Herman Cruise Terminal and Northeast Wharf Plaza Final Environmental Impact Report*, December 15, 2011.

[112] The Pacific Fishery Management Council and National Marine Fisheries Service, *Final Environmental Assessment and Regulatory Impact Review: Pacific Coast Salmon Plan Amendment 18: Incorporating Revisions to Pacific Salmon Essential Fish Habitat*, September 2014. Available from http://www.westcoast.fisheries.noaa.gov/publications/habitat/essential_fish_habitat/bc95_final_ea_rir_am_18_fonsi__appendices.pdf.



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SOURCE: National Park Service

0 200 Feet

Figure 16
Eelgrass Mapped in Horseshoe Bay

TABLE 31
SPECIES WITH DESIGNATED ESSENTIAL FISH HABITAT WITHIN THE IMMEDIATE PROJECT AREA

Common Name	Scientific Name
Pacific Groundfish Fishery Management Plan	
English sole	*Parophrys vetulus*
Starry flounder	*Platichthys stellatus*
Brown rockfish	*Sebastes auriculatus*
Pacific sanddab	*Citharichthys sordidus*
Lingcod	*Ophiodon elongatus*
Sand sole	*Psettichthys melanostictus*
Leopard shark	*Triakis semifasciata*
Spiny dogfish	*Squalus acanthias*
Big skate	*Raja* ssp.
Pacific whiting (hake)	*Merluccius productus*
Kelp greenling	*Hexagrammos decagrammus*
Soupfin shark	*Galeorhinus galeus*
Curlfin sole	*Pleuronichthys decurrens*
Bocaccio	*Sebastes paucispinis*
Cabezon	*Scorpaenichthys marmoratus*
Coastal Pelagic Fishery Management Plan	
Northern anchovy	*Engraulis mordax*
Jack mackerel	*Trachurus symmetricus*
Pacific sardine	*Sardinops sagax*
Pacific Coast Salmon Fishery Management Plan	
Chinook salmon	*Oncorhynchus tshawytscha*
Coho salmon	*Oncorhynchus kisutch*

Source: National Marine Fisheries Service, *Fisheries Management Plan Species Distributions in San Francisco, San Pablo, and Suisun Bays*, 2001. Available from http://swr.nmfs.noaa.gov/hcd/loclist.htm.

Special Status Species

The California Natural Diversity Database identifies 13 federal Endangered Species Act- or California Endangered Species Act-listed marine species (species listed as candidate special concern, threatened, or endangered pursuant to the Endangered Species Act or the California Endangered Species Act) with recorded occurrences in the vicinity of the study area.[113] These species are listed in Appendix A. Several marine species may be reasonably expected to inhabit the study area based on the presence of suitable habitat. Endangered Species Act- and California Endangered Species Act-listed species with a moderate

[113] California Department of Fish and Wildlife, California Natural Diversity Database and U.S. Fish and Wildlife Service database search of project and surrounding quadrangles: San Francisco North, San Rafael, San Quentin, Richmond, Point Bonita, Oakland West, Hunters Point, and San Francisco South, 2017.

to high potential to inhabit the study area or with critical habitat or essential fish habitat that they depend on in the study area are discussed in further detail as follows.

Chinook salmon. Three Chinook salmon evolutionarily significant units migrate through the northern and central portions of the bay: Sacramento River winter-run, Central Valley spring-run, and Central Valley fall/late fall-run.[114] Each evolutionarily significant unit is considered a distinct race and has been given its own management status: the Sacramento River evolutionarily significant unit is state and federally listed as endangered; the Central Valley spring-run is state and federally listed as threatened; and the Central Valley fall/late fall-run is a state and federal species of concern.[115]

Sacramento River winter-run Chinook salmon migrate and spawn from mid-December to August along the Sacramento River, up to Keswick Dam in Shasta County. Adult winter-run Chinook salmon can be found in the bay in November and December. Central Valley spring-run Chinook salmon have a similar life history, but begin spawning migration to the Delta in late winter to spring. Adults are found in the bay during the migratory period in the spring, and juveniles have the potential to inhabit the bay in the fall, winter, and spring. Critical habitat for Sacramento River winter-run Chinook and Central Valley spring-run Chinook salmon includes all waters of the bay north of the Bay Bridge.[116] Adult Central Valley fall-run/late fall-run Chinook salmon begin their migration toward their spawning grounds in June, with a peak in September. They spawn in the Delta in December and January. Juvenile salmon potentially inhabit the bay in the late winter through summer. There is no critical habitat designated for this species.

Coho salmon. Coho salmon are listed as threatened under the Endangered Species Act and endangered under the California Endangered Species Act. Adult coho migrate through the bay after late fall or winter heavy rains to spawn in the Delta. Juvenile coho potentially inhabit the bay in the spring, summer, and fall and may be present in the Central Bay. Critical habitat for Central California Coast coho salmon within the bay includes all waters of the Central Bay north of the Bay Bridge.[117]

Steelhead trout. Individuals from two steelhead evolutionarily significant units can be found in the bay: central California coast steelhead and Central Valley steelhead. Both evolutionarily significant units are federally listed as threatened, and central California coast steelhead are also a species of special concern.

Central Valley steelhead migrate between the ocean and the Delta and its tributaries via the San Francisco and San Pablo bays. Upstream migration occurs in the winter, with peak spawning occurring from

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[114] California Department of Fish and Game, *Delta Outflow Effects on the Abundance and Distribution of San Francisco Bay Fishes and Invertebrates, 1980-1985*, 1987. Available from http://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/wq_control_plans/1995wqcp/admin_records/part05/304.pdf.

[115] California Department of Fish and Wildlife, CDFW Resource Management Entry for Chinook Salmon, http://www.dfg.ca.gov/fish/Resources/Chinook/, accessed November 25, 2013.

[116] The Pacific Fishery Management Council and National Marine Fisheries Service, *Final Environmental Assessment and Regulatory Impact Review: Pacific Coast Salmon Plan Amendment 18: Incorporating Revisions to Pacific Salmon Essential Fish Habitat*, September 2014. Available from http://www.westcoast.fisheries.noaa.gov/publications/habitat/essential_fish_habitat/bc95_final_ea_rir_am_18_fonsi___appendices.pdf.

[117] Ibid.

December through April. Central California coast steelhead migrate from the Pacific coast through the bay in the winter to spawn in freshwater in the upper Sacramento River. Critical habitat for central California coast steelhead and Central Valley steelhead occurs in the Central Bay and includes the study area.[118]

Green sturgeon. Green sturgeon are listed as a federally threatened species and as a state species of concern. Green sturgeon are found throughout the bay and are native to the Sacramento-San Joaquin River system. Spawning occurs in the lower reaches of the Sacramento-San Joaquin River system; however, feeding occurs throughout the bay. Adult green sturgeon migrate into freshwater beginning in late February, with spawning occurring in March through July and peak activity in April and June. After spawning, juveniles remain in fresh and estuarine waters for 1 to 4 years and then begin to migrate out to sea. Critical habitat for green sturgeon occurs within the Central Bay and includes the study area.[119]

Longfin smelt. Longfin smelt are listed as a state threatened species, and are a candidate for listing under the federal Endangered Species Act. Longfin smelt live in open waters of the Central Bay, including within the study area.[120] Longfin smelt inhabit Central Bay waters throughout the year, although they migrate to the Delta to spawn in freshwater during the winter. No critical habitat has been designated for this species.

Marine mammals are afforded special regulatory protection under the Marine Mammal Protection Act. The most common marine mammals to inhabit the project sites are Pacific harbor seals (*Phoca vitulina*) and California sea lions (*Zalophus californianus*). Other marine mammal species that occasionally inhabit the bay and could be considered transient visitors include the gray whale (*Eschrichtius robustus*), harbor porpoise (*Phocoena phocoena*), Steller sea lion (*Eumetopias jubatus*), and, less frequently, the southern sea otter (*Enhydra lutris*).[121] On rare occasions, individual humpback whales (*Megaptera novaeangliae*) have entered the bay. Pacific harbor seals are nonmigratory, have limited seasonal movements associated with foraging and breeding activities, and use the bay year-round.[122] Harbor seals forage in shallow waters on a variety of fish and crustaceans, and therefore, could occasionally be found foraging in Pier 31½ or Fort Baker waters. Harbor seals come ashore (haulout) in groups ranging in size from a few individuals to several hundred. Habitats used as haulout sites include tidal rocks, bayflats, sandbars, and sandy beaches.[123] California sea lions breed in Southern California and along the Channel Islands. After the

[118] Ibid.

[119] Ibid.

[120] California Department of Fish and Wildlife, Fish Distribution Map, Bay Delta Region, http://www.dfg.ca.gov/delta/data/BayStudy/CPUE_Map.asp, 1998-2017.

[121] URS Corporation, *Final Program Environmental Impact Report Expansion of Ferry Transit Service in the San Francisco Bay Area*, prepared for the Water Transit Authority, June 2003.

[122] Kopec, D. and J. Harvey, *Toxic Pollutants, Health Indices, and Pollution Dynamics of Harbor Seals in San Francisco Bay, 1989-91: Final Report*, 1995.

[123] Zeiner, D.C., W.F. Laudenslayer, K.E. Mayer, and M. White, *California's Wildlife, Volume II: Birds and Volume III: Mammals*, 1990. Available from http://www.co.monterey.ca.us/planning/gpu/2007_GPU_DEIR_Sept_2008/ Text/References/Zeiner1990a.pdf.

breeding season, males migrate up the Pacific Coast and enter the bay. Sea lions are known to haul out at Pier 39 in Fisherman's Wharf, which is approximately 0.75 mile west of Pier 31½. During anchovy and herring runs, approximately 400 to 500 sea lions (mostly immature males) feed almost exclusively in the North and Central Bay[124] and could occasionally forage at Pier 31½ or Fort Baker. Pinnipeds, including California sea lions and harbor seals, may haulout on buoys in the vicinity of Pier 31½, and may use the Fort Baker pier. Other marine mammal species may be infrequent transient visitors at both sites.

Terrestrial Biological Resources

Setting

The terrestrial biological resources study area includes the entire upland footprint of the proposed project at both sites and all areas that may be directly or indirectly affected by the proposed project. Specifically, the study area at the Pier 31½ site includes the Pier 31 and Pier 33 bulkhead buildings, as well as the developed waterfront space between these piers. The study area at the Fort Baker site includes the above-water portions of the pier and the planned trail area.

General Habitat Conditions

Pier 31½ is located in a developed urban area, as characterized using the California Wildlife Habitat Relationship System.[125] Vegetation is minimal, primarily consisting of ornamental landscaping and scattered trees and bushes in planter boxes. The areas surrounding Pier 31½ are minimally vegetated, with a few landscaped trees and bushes intermittently located along the adjacent promenade.

The Fort Baker Plan EIS[126] described the vegetation of Cavallo Point and the developed areas of Fort Baker as "Urban/Disturbed" as a result of historic use and landscape plantings. Developed areas of Fort Baker are bordered on three sides by undeveloped lands managed by the Park Service, and by Horseshoe Bay to the south. The hillside immediately west of the pier consists of coastal scrub dominated by coyote brush (*Baccharis pilularis*) and California sagebrush (*Artemisia californica*). Planted stands of Monterey cypress (*Cupressus macrocarpa*) are also located near the pier.[127]

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[124] U.S. Fish and Wildlife Service, *Status and Trends Report on Wildlife of the San Francisco Estuary*, prepared under U.S. Environmental Protection Agency cooperative agreement CE-009519-0, January 1992, as cited in San Francisco Bay Area Water Emergency Transportation Agency and U.S. Department of Transportation, *Downtown San Francisco Ferry Terminal Expansion Project Final Environmental Impact Statement and Record of Decision/Environmental Impact Report*, Appendix D: Revised Agency Coordination and Consultation, September 2014. Available from http://sanfranciscobayferry.com/sites/default/files/weta/currentprojects/DFTX/files/DFTXFinalEISEIR/Appendix%20D%20Agency%20Coordination.pdf.

[125] California Department of Fish and Wildlife, California Wildlife Habitat Relationship System, version 8.2, California Interagency Wildlife Task Group, Sacramento, California, 2008. Available from https://www.wildlife.ca.gov/Data/CWHR.

[126] National Park Service, *Fort Baker Plan Final Environmental Impact Statement*, October 1999. Available from http://parkplanning.nps.gov/document.cfm?parkID=303&projectID=20244&documentID=20847.

[127] U.S. Fish and Wildlife Service, Species List Search of Project and Surrounding Quadrangles, https://ecos.fws.gov/ipac/, last updated October 11, 2012, accessed March 20, 2013.

Special Status Species

Special status terrestrial species that have been documented in the California Natural Diversity Database search area[128] are presented in Appendix A, including a description of their habitat associations and potential to inhabit the study area. Most of the species are not expected to inhabit the study area because their required habitat is not present. At the Pier 31½ site, potential presence of special status species is limited to bat species and Migratory Bird Treaty Act-protected birds; these protected bats and birds may also be present at Fort Baker, in addition to the mission blue butterfly (*Icaricia icarioides missionensis*), California least tern (*Sterna antillarum browni*), and American badger (*Taxidea taxus*). These species with potential to occur are discussed further as follows.

Additional California Native Plant Species-ranked plant species are listed in Appendix A. Based on the current habitat conditions and the known range of these species, none of these have potential to inhabit the study area.

Populations of the mission blue butterfly and host species lupine have been recorded at several sites within the Marin Headlands and Fort Baker. While lupine is most commonly associated with coastal chaparral and grasslands, this species could potentially inhabit coastal scrub areas at Fort Baker.[129] The Park Service conducts annual surveys for the mission blue butterfly, which includes mapping lupine populations. Neither the mission blue butterfly or host lupine species have been recorded during these surveys within coastal scrub in the study area at Fort Baker.[130]

The federal and state endangered California least tern has been observed feeding in Horseshoe Bay.[131] This species is not expected to use the study area as nesting habitat.[132,133]

Numerous special status bat species are known to inhabit the Bay Area, and may potentially inhabit the vicinity of Fort Baker or Pier 31½. The California Natural Diversity Database lists occurrence of four bat species of special concern within the project and surrounding quadrangles, including the pallid bat (*Antrozous pallidus*), Townsend's big-eared bat, western red bat (*Lasiurus blossevilli*), and big free-tailed bat

[128] California Department of Fish and Wildlife, California Natural Diversity Database and U.S. Fish and Wildlife Service database search of project and surrounding quadrangles: San Francisco North, San Rafael, San Quentin, Richmond, Point Bonita, Oakland West, Hunters Point, and San Francisco South, 2017.

[129] National Park Service, *Fort Baker Plan Final Environmental Impact Statement*, October 1999. Available from http://parkplanning.nps.gov/document.cfm?parkID=303&projectID=20244&documentID=20847.

[130] Urban Wildlands Group, *Status and Variability of Mission Blue Butterfly Populations at Milagra Ridge, Marin Headlands, and Oakwood Valley*, 2012. Available from http://www.urbanwildlands.org/Resources/MBBFinalLowRes.pdf.

[131] National Park Service, *Fort Baker Plan Final Environmental Impact Statement*, October 1999. Available from http://parkplanning.nps.gov/document.cfm?parkID=303&projectID=20244&documentID=20847.

[132] California Department of Fish and Wildlife, California Natural Diversity Database and U.S. Fish and Wildlife Service database search of Project and surrounding quadrangles: San Francisco North, San Rafael, San Quentin, Richmond, Point Bonita, Oakland West, Hunters Point, and San Francisco South.

[133] California Department of Fish and Wildlife, *California Least Tern Breeding Survey 2015 Season*, 2016.

(*Nyctinomops macrotis*).[134] Townsend's big-eared bats and pallid bats may roost in abandoned or minimally occupied structures within the study area, western red bats may roost in trees, and big free-tailed bats may roost in trees or buildings.[135,136] Townsend's big-eared bats have been documented at buildings in the Marin Headlands, and western red bats have been observed in low abundance in San Francisco park and lake areas during 2009 surveys.[137,138] At Fort Baker, trees and buildings suitable for bat roosting are located away from the pier area. Pier 31½ lacks trees suitable for bat roosting, although bulkhead buildings planned for renovation may provide suitable roosting habitat for Townsend's big-eared bats, pallid bats, big free-tailed bats, or other bat species.

The American badger, a state species of special concern, has been observed at Wolfback Ridge in the vicinity of Fort Baker.[139] This species is typically associated with open, arid habitats, including grasslands within the Marin Headlands. American badgers may occasionally frequent coastal scrub habitats, possibly including those occurring adjacent to the study area at Fort Baker.

Migratory birds protected under the Migratory Bird Treaty Act may nest in trees, shrubs, or buildings within the Fort Baker or Pier 31½ sites. Trees at Fort Baker may provide nesting or roosting habitat for birds of prey, such as the great horned owl (*Bubo viginianus*), red-tailed hawk (*Buteo jamaicensis*), red-shouldered hawk (*Buteo lineatus*), and Cooper's hawk (*Accipiter cooperii*).[140] In addition, cliff swallows (*Hirundo pyrrhonota*) are known to nest on buildings at Fort Baker.[141] All owls, hawks, and swallows are protected by the Migratory Bird Treaty Act. Western and California gulls (*Larus occidentalis* and *Larus californicus*), which are also protected migratory birds, often nest on or under roofs of pier sheds and or pier decks.

There are three special status plant species (California Native Plant Species Rank 1 or 2 species) documented in the California Natural Diversity Database search area covering both the Pier 31½ and Fort Baker project sites: bristly sedge (*Carex comosa*); rose leptosiphon (*Leptosiphon rosaceus*), and beach layia

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[134] California Department of Fish and Wildlife, California Department of Fish and Wildlife Natural Diversity Database search of the San Francisco North, San Rafael, San Quentin, Richmond, Point Bonita, Oakland West, Hunters Point, and San Francisco South USGS Quadrangles, December 30, 2012.

[135] Ibid.

[136] National Park Service, *Final Environmental Impact Statement for Extension of F-Line Streetcar Service to Fort Mason Center*, Document No. 641/106203a, February 2012.

[137] National Park Service, *Fort Baker Plan Final Environmental Impact Statement*, October 1999. Available from http://parkplanning.nps.gov/document.cfm?parkID=303&projectID=20244&documentID=20847.

[138] Krauel, J.K., *Foraging Ecology of Bats in San Francisco, California*, Master's thesis. San Francisco, California. San Francisco State University; Department of Biology, 2009.

[139] National Park Service, *Fort Baker Plan Final Environmental Impact Statement*, October 1999. Available from http://parkplanning.nps.gov/document.cfm?parkID=303&projectID=20244&documentID=20847.

[140] National Park Service, *Final Environmental Impact Statement for Extension of F-Line Streetcar Service to Fort Mason Center*, Document No. 641/106203a, February 2012.

[141] National Park Service, *Fort Baker Plan Final Environmental Impact Statement*, October 1999. Available from http://parkplanning.nps.gov/document.cfm?parkID=303&projectID=20244&documentID=20847.

(*Layia camosa*).[142] None of these species occur at the Pier 31½ site. Based on historic occurrences in the region and association with habitats at Fort Baker, three additional species are considered to have potential to inhabit the Fort Baker area: San Francisco wallflower (*Erysimum franciscanum*), San Francisco campion (*Silene verecunda* ssp. *verecunda*), and San Francisco lessingia (*Lessingia germanorum*).[143] Suitable habitat or microhabitat conditions specific to these species do not exist because of long-term disturbances associated with the Fort Baker site. Therefore, these California Native Plant Species-ranked species are unlikely to inhabit the immediate project area.[144,145]

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)

Managed Fish Species

During construction, increases in underwater sound pressure levels as a result of pile driving may affect fish behavior, or cause injury. Pile driving may also temporarily disturb benthic sediments and increase suspended sediment levels (turbidity) in the immediate vicinity of the project sites during construction. Increased suspended sediment levels and associated loss of benthic or encrusting organisms may temporarily impact foraging opportunities for fish during construction.

Construction underwater noise and increased turbidity effects would be localized and temporary: at Pier 31½, pile driving would occur for a period of up to 6 days (for driving of up to 12 steel piles); and at Fort Baker, pile driving would occur for a period of up to 4 days (for driving up to 8 steel piles). The anticipated pile counts, pile types (size and material), and number of piles to be installed per day as part of the proposed project are identified in Table 32. All piles would be installed via impact hammer, with bubble curtains[146] installed to attenuate underwater sound levels.

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[142] California Department of Fish and Game, California Department of Fish and Game Natural Diversity Database search of the San Francisco North, San Rafael, San Quentin, Richmond, Point Bonita, Oakland West, Hunters Point, and San Francisco South USGS Quadrangles, December 30, 2012.

[143] National Park Service, *Fort Baker Plan Final Environmental Impact Statement*, October 1999. Available from http://parkplanning.nps.gov/document.cfm?parkID=303&projectID=20244&documentID=20847.

[144] Ibid.

[145] National Park Service, *Final Environmental Impact Statement for Extension of F-Line Streetcar Service to Fort Mason Center*, Document No. 641/106203a, February 2012.

[146] A bubble curtain is a system set up around a construction activity that produces air bubbles originating from the bottom of the water column. When the bubbles of air (gas) are released, they act as a barrier (a curtain) breaking sound propagating through water due to the difference in density between air and water.

TABLE 32
PROPOSED PROJECT PILE DETAILS

Project Site	Pile Diameter (inches)	Pile Type	Number of New Permanent Piles[1]	Piles Installed per Day[2]
Pier 31½	36	Steel	8	2-3
	24	Steel	4	2-3
Fort Baker	30 (for gangway landing)	Steel filled with concrete	4	2-3
	36 (for float)	Steel	4	2-3

1. Pile counts are approximate, based on preliminary designs and substrate conditions.
2. All piles to be installed via impact hammer with bubble curtain.

As described above, listed salmonids, including central California coast evolutionarily significant unit Coho salmon, central California coast distinct population segment steelhead trout, Central Valley distinct population segment steelhead trout, Sacramento River winter-run evolutionarily significant unit Chinook salmon, and Central Valley spring-run evolutionarily significant unit Chinook salmon, are seasonally present in the bay. Green sturgeon southern distinct population segment and longfin smelt are year-round residents in the San Francisco Bay, and may be present in the project area during construction. However, tagging studies on green sturgeon in the bay suggest that green sturgeon do not typically occur in areas along the waterfront for more than minutes to hours at a time,[147] and the project area lacks the quality forage and cover favored by green sturgeon. Longfin smelt are primarily present in the central Bay during the late summer months before migrating upstream in fall and winter.

If they are locally present during the short duration of activities (up to 6 days at Pier 31½ and 4 days at Fort Baker), pile driving may result in impacts to managed fish species. Impacts could include injury, abnormal behavior indicative of stress, or a startle response. Although managed fish species could occur in the vicinity of construction activities, the likelihood of injury or mortality is proportionate to the low likelihood of presence within the project area and the brief duration of construction. These responses are likely to diminish after a few pile strikes, or as fish leave the area.[148] The open water area of the San Francisco Bay surrounding the pile driving area of effect would provide startled fish sufficient area to escape from the area of potential mortality and injury to areas of reduced or eliminated behavioral effects. Therefore, elevated sound levels should not result in significant effects on these individuals. Areas adjacent to pile driving sites provide habitat of similar or higher quality and provide adequate carrying capacity to support individuals that are temporarily displaced during pile driving.

Furthermore, the area around Pier 31½ in particular is subject to ongoing commercial vessel activity, and pile driving would occur within areas already containing substantial solid fill and large numbers of existing piles surrounding the project site. This would serve to further reduce the likelihood of managed

[147] National Marine Fisheries Service, *Biological Opinion for the Downtown San Francisco Ferry Terminal Expansion Project, San Francisco, California*, June 30, 2014.
[148] Ibid.

fish species being present at this site. At Fort Baker, the small number of piles would also be driven adjacent to an existing pier.

Turbidity effects at from pile driving at Pier 31½ and Fort Baker would be short term and minor, as described in Section E.16, Hydrology and Water Quality. Pile driving may temporarily disturb benthic sediments and increase suspended sediment levels in the immediate vicinity of the project site during construction. Increased suspended sediment levels and associated loss of benthic or encrusting organisms may temporarily impact foraging opportunities. Temporary increases in suspended sediment may cause clogging of gills and feeding apparatuses of fish and filter feeders, if present. These impacts would be limited to the very short pile driving construction period. The likelihood of managed fish species' presence within areas affected by pile driving is low, as discussed above, would further encourage fish species to leave the pile driving area. Therefore, managed fish species would experience only negligible effects related to turbidity and suspended sediments.

Thus, based on the low number of piles being driven, the extremely short duration of pile driving activities, ongoing activity at the Pier 31½ site, proximity to existing structures, and use of bubble curtains, the proposed project would have less-than-significant impacts on managed fish species.

The Park Service, as lead federal agency for the proposed project, initiated formal consultation under the Endangered Species Act with the National Marine Fisheries Service during the National Environmental Policy Act process. This consultation concluded on October 3, 2017, with issuance of the Biological Opinion for the proposed project.[149] As part of the Endangered Species Act consultation, bioacoustic noise modeling was performed to assess the potential for the proposed project to cause adverse pile driving noise effects on managed fish species. The results of this evaluation are documented in the Biological Opinion. As part of the consultation, the Park Service agreed to implement additional measures to ensure the effects of pile driving remain less than significant. These are included as the following project improvement measures:

Improvement Measure I-BI-1a: Pile Driving Work Windows

Pile driving will occur between July 1 and November 30 at the Pier 31½ site and between July 1 and September 30 at the Fort Baker site.

[149] National Marine Fisheries Service, Endangered Species Act Section 7(a)(2) Biological Opinion and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Response for the Alcatraz Ferry Embarkation Project (NPS File No. L76 [GOGA-PL]), October 3, 2017.

Improvement Measure I-BI-1b: Noise Monitoring Plan

The project proponent will develop and implement a marine noise monitoring plan which would be subject to review and approval by the National Marine Fisheries Service. As part of this plan, the following measures will be implemented:

- *Equipment Controls*: The proposed project will be required to bring loud mechanical equipment online slowly (employ a "soft-start").
- *Noise Monitoring:* A trained acoustical specialist will conduct underwater noise monitoring during marine construction to ensure that pile driving noise levels do not exceed the levels identified through noise modeling for the proposed project. If noise levels are exceeded, the proposed project will implement cushion blocks in the hammer to reduce sound levels and prevent exceedance of the levels projected through noise modeling, and noise level exceedances will be reported to the National Marine Fisheries Service.

Based on the analysis presented above, impacts on managed fish species due to pile driving would be less than significant. Adherence to **Improvement Measures I-BI-1a, Pile Driving Work Windows**, and **I-BI-1b, Noise Monitoring Plan**, both of which were agreed to by the Park Service in consultation with the National Marine Fisheries Service, would further ensure that effects of pile driving would remain less than significant.

The installation of new docks would result in a small amount of shading over bay waters. Long-term overwater shading from docks and piers has historically been viewed as relatively neutral with respect to fish communities[150]; seasonal variance would likely have a much stronger effect on fish community composition compared to relatively minor changes in light gradients from gangways and floats. In-water fill from the proposed project would be minimal, limited to the small area required for additional support piles, floats, and gangways (approximate net fill of 0.06 acre at Pier 31½ and 0.04 acre at Fort Baker). The addition of artificial hard substrates (i.e., new piles) may minimally increase habitat area for encrusting organisms on which fish feed. The project proponent would be required to obtain permits from the U.S. Army Corps of Engineers, Regional Water Quality Control Board, and San Francisco Bay Conservation and Development Commission, and proposed project implementation would proceed in adherence with all conditions from these agencies. Effects to fish from shading and in-water fill, including to green sturgeon and longfin smelt, are therefore expected to be less than significant.

Marine Mammals

Marine mammals have large home range; therefore, they are capable of avoiding use of some areas for short periods of time. Any marine mammals present in the general vicinity of the Pier 31½ and Fort Baker sites during construction would be able to detect the increased underwater sound pressure levels resulting from pile driving, and would be expected to temporarily avoid the construction area. The radii

[150] Naval Facilities Engineering Command and Unified Port of San Diego, *San Diego Bay Integrated Natural Resources Management Plan, Draft*, prepared by Tierra Data, Inc., Escondido, California, November 2011.

of possible impacts are described in full in the proposed project's Biological Opinion. Thus, similar to impacts on managed fish species, due to the extremely short pile driving duration, location of pile driving, low number of piles, and use of bubble curtains, the proposed project would result in less-than-significant impacts to marine mammals.

Bioacoustic noise modeling to evaluate the effects of pile driving on marine mammals was also developed during the Endangered Species Act consultation process. As also described in the Biological Opinion, to further ensure that underwater noise effects remain consistent with the levels anticipated through bioacoustics noise modeling, the project proponent would implement **Improvement Measure I-BI-1c, Marine Mammal Safety Zone**:

> **Improvement Measure I-BI-1c: Marine Mammal Safety Zone**
>
> The project proponent will maintain a 500-meter safety zone around sound sources in the event that the sound level is unknown or cannot be adequately predicted. This will be required at the onset of construction, prior to confirming noise levels through noise monitoring (as required through **Improvement Measure I-BI-1b, Noise Monitoring Plan**).
>
> A qualified marine biologist on shore or by boat will survey the safety zone to ensure that no marine mammals are within the zone before pile driving begins. If a marine mammal is observed within the safety zone before pile driving begins, pile driving will be delayed until the marine mammals move out of the area.
>
> If marine mammals enter the safety zone after pile driving of a segment has begun, pile driving will continue. The biologist will monitor and record the species and number of individuals observed, and make note of their behavior patterns. If the animal appears distressed, and if it is operationally safe to do so, pile driving will cease until the animal leaves the area. Prior to the initiation of each new pile driving episode, the area will again be thoroughly surveyed by the biologist.

Implementation of **Improvement Measure I-BI-1c, Marine Mammal Safety Zone,** would further lessen the proposed project's less-than-significant impacts on marine mammals.

Terrestrial Mammals

At Fort Baker, buildings may provide roosting habitat for Townsend's big-eared bat, pallid bat, and big free-tailed bat; and trees may provide roosting habitat for Western red bat and big free-tailed bat. Fort Baker buildings and trees are located away from the area of direct impact associated with the proposed project, and the proposed project would not result in loss of any potential bat roosting habitat. Indirect construction impacts would largely be limited to noise effects, most significantly from pile driving, which would similarly occur away from building or tree habitat suitable for bat roosting. Furthermore, only Townsend's big-eared bat has any record of occurring within the project site or neighboring areas. Therefore, the proposed project is unlikely to affect any special status bat species potentially present at Fort Baker.

The bulkhead buildings at Pier 31 and Pier 33 within the Pier 31½ site 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. Renovations within the bulkhead buildings could result in direct mortality of special status bats roosting within the project site, if present. This would constitute a significant impact. **Mitigation Measure M-BI-1a, Avoidance and Minimization Measures for Special Status Bats at Pier 31½,** would be implemented to reduce impacts.

> **Mitigation Measure M-BI-1a: Avoidance and Minimization Measures for Special Status Bats at Pier 31½**
>
> The project proponent will implement the following measures:
>
> - Demolition within Pier 31 and 33 bulkhead buildings 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 within Pier 31 and 33 bulkhead buildings during the periods when bats are active is not feasible, a qualified biologist will 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 demolition within Pier 31 and 33 bulkhead buildings 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.

Implementing **Mitigation Measure M-BI-1a, Avoidance and Minimization Measures for Special Status Bats at Pier 31½,** 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.

The American badger is known to inhabit coastal scrub habitat within the vicinity of Fort Baker. Operational and construction noise effects from Fort Baker limited ferry service would have minimal noise impacts on surrounding coastal scrub and grassland habitats, as these habitats are located away from the pile driving and ferry operation areas. Noise impacts are not a primary threat to the American badger.[151] Due to the temporary nature of construction, infrequent nature of ferry operations at the site, and baseline noise levels, noise impacts to any American badgers potentially present in these habitats would be less than significant.

Birds

Special status bird species may be affected by increased noise levels, turbidity, or displacement during construction. Cliff swallows nest on the buildings at Fort Baker, and California least terns have been observed feeding in Horseshoe Bay and next to the jetties. California least terns are not known to nest at Fort Baker.[152,153] The Pier 31½ site lacks suitable habitat for Endangered Species Act-listed bird species, although Migratory Bird Treaty Act-protected birds may be present, including gull species which are known to nest on pier sheds and or pier decks.

Construction would include pile driving, which could increase turbidity in the area immediately around the piers at Fort Baker and Pier 31½. 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.

Renovations to structures or scrubbing of vegetation could destroy active bird nests, if present. Construction noise may also disturb nesting birds. These effects would constitute a potentially significant impact. The project proponent would be required to implement **Mitigation Measure M-BI-1b, Nesting Bird Protection Measures,** to reduce potential impacts on nesting special status bird species during construction:

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[151] Reid, F. and K. Helgen, *Taxidea taxus*, in *IUCN 2013, IUCN Red List of Threatened Species*, version 2013.1. Available from http://www.iucnredlist.org/details/41663/0.

[152] California Department of Fish and Wildlife, California Natural Diversity Database and U.S. Fish and Wildlife Service database search of Project and surrounding quadrangles; San Francisco North, San Rafael, San Quentin, Richmond, Point Bonita, Oakland West, Hunters Point, and San Francisco South, 2017.

[153] California Department of Fish and Wildlife, *California Least Tern Breeding Survey 2011 Season*, 2012. Available from https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=48694.

Mitigation Measure M-BI-1b: Nesting Bird Protection Measures

Nesting birds and their nests shall be protected during construction by use of the following measures:

- Removal of trees, scrub vegetation and structures shall occur outside the bird nesting season (February 1 to August 30), to the extent feasible.
- If removal of trees, scrub vegetation or structures during bird nesting season cannot be fully avoided, a qualified wildlife biologist shall conduct preconstruction nesting bird surveys within 7 days prior to the start of such activities or after any construction breaks of 14 days or more. Surveys shall be performed for the project site and suitable habitat within 250 feet of the project site in order to locate any active passerine (perching bird) nests and within 500 feet of the project site to locate any active raptor (birds of prey) nests or double-crested cormorant or heron rookeries.
    - At Pier 31½, if it is determined that bird nesting habitat is only present for gulls, surveys may 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 trail) 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.

With incorporation of **Mitigation Measure M-BI-1b, Nesting Bird Protection Measures,** the proposed project would result in less-than-significant impacts on special status bird species.

Insects

The endangered mission blue butterfly is known to inhabit coastal chaparral and grasslands in close association with lupine in Marin County. These habitats, however, do not occur within the study area.[154] Therefore, construction and operations associated with Fort Baker limited ferry service would have no effect on the mission blue butterfly. There is no suitable habitat for special status insect species at Pier 31½, and there would be no impact to special status insects from proposed project construction or operation.

Plants

The entirety of improvements and operations associated proposed to occur at Pier 31½ would be constructed on existing developed and highly-utilized areas that do not provide habitat for special status plants. Areas surrounding Pier 31½ are similarly developed and devoid of special status plant species.

At Fort Baker, construction of the pedestrian pathway would displace existing vegetation along the proposed alignment. Existing ground cover in this area consists of disturbed or ornamental grass species and ruderal vegetation. Removal of this vegetation would result in no impacts to special status plant species. Ferry operations would not result in any greater impacts on vegetation. Therefore, the proposed project would result in no impacts on special status 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. The project proponent would be required to obtain and comply with all required resource agency permit conditions and to implement **Mitigation Measures M-BI-1a, Avoidance and Minimization Measures for Special Status Bats at Pier 31½,** and **M-BI-1b, Nesting Bird Protection Measures,** to reduce impacts to special status species to a less-than-significant level. The project

[154] Urban Wildlands Group, *Status and Variability of Mission Blue Butterfly Populations at Milagra Ridge, Marin Headlands, and Oakwood Valley*, 2012. Available from http://www.urbanwildlands.org/Resources/MBBFinalLowRes.pdf.

proponent would also implement **Improvement Measures I-BI-1a, Pile Driving Work Windows, I-BI-1b, Noise Monitoring Plan**, and **I-BI-1c, Marine Mammal Safety Zone,** to reduce potential less-than-significant impacts even further.

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)

Sensitive natural communities present within the project areas at the Pier 31½ and Fort Baker sites are limited to aquatic habitats. No riparian habitat, or other upland sensitive natural communities would be affected by the proposed project.

Although the proposed project would result in permanent shading (net increase of approximately 4,100 square feet at Pier 31½ and approximately 2,100 square feet at Fort Baker), the new piles and floats could increase invertebrate habitat and species diversity, thereby increasing foraging opportunities for fish. Long-term shading impacts on aquatic habitats would be insignificant, due to the 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, 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.

Eelgrass (a special aquatic site, as described in Section B, Project Setting) or other submerged aquatic vegetation has not been observed at Pier 31½.[155,156,157] Eelgrass has been observed in Horseshoe Bay, but outside the proposed project footprint (Figure 16). Proposed project activities would not affect these areas; therefore, the proposed project would not affect eelgrass.

[155] 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.

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

[157] 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).

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 31½ or Fort Baker sites; therefore, the proposed project would have no impact.

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)

Both the Pier 31½ and Fort Baker sites contain aquatic habitat that may support migratory fish or marine mammal species, as well as nesting migratory birds protected by the Migratory Bird Treaty Act. As discussed in Impact BI-1, buildings at Pier 31½ may also support nesting bats. The proposed improvements would not create any barriers to movement or migration, and would not permanently affect native wildlife nursery sites. With implementation of **Improvement Measures I-BI-1a, Pile Driving Work Windows**, **I-BI-1b, Noise Monitoring Plan**, and **I-BI-1c, Marine Mammal Safety Zone,** any potential 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 are anticipated. With implementation of **Mitigation Measures M-BI-1a, Avoidance and Minimization Measures for Special Status Bats at Pier 31½,** and **M-BI-1b, Nesting Bird Protection Measures,** proposed project impacts to bat and bird nesting from construction would be reduced to a less-than-significant level.

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), the Marin County Native Tree Protection and Preservation Ordinance, or the City of Sausalito Tree and View Preservation Ordinance. There are no other local policies or ordinances for protecting biological resources that are applicable to the project sites at Pier 31½ and Fort Baker. 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, or for Marin County and Sausalito. The California Eelgrass Mitigation Policy applies to any activities in California which may adversely affect eelgrass. As noted in Impact BI-2, the proposed project would not affect eelgrass, and 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 6. There are no known projects under development within 0.25 mile of Fort Baker. There are three potential cumulative projects in the vicinity of the Pier 31½ site listed in Table 6 that could affect biological resources: ongoing Port pier maintenance dredging; ongoing routine repair and maintenance of Port facilities; and the Pier 43½ project (Red and White Ferry Embarkation Improvements). As is the case for 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.

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 Measures M-BI-1a, Avoidance and Minimization Measures for Special Status Bats at Pier 31½,** and **M-BI-1b, Nesting Bird Protection Measures,** would avoid or substantially minimize the proposed project's effects on special status species. **Improvement Measures I-BI-1a, Pile Driving Work Windows, I-BI-1b, Noise Monitoring Plan**, and **I-BI-1c, Marine Mammal Safety Zone,** would also further reduce potential impacts. As a result, these measures would reduce the proposed project's contribution to cumulative impacts on biological resources to a less-than-cumulatively-considerable level with mitigation (less than significant with mitigation).

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, 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 wastewater?	☐	☐	☐	☐	☒
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☒	☐	☐

The project sites would not be 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 existing sewer and stormwater collection and treatment systems and would not use a septic water 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)

Pier 31½

The proposed project site at Pier 31½ and the 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).[158] Additionally, the area has been mapped as a high liquefaction hazard area, with liquefaction likely to be triggered by strong ground shaking. Seismically induced ground shaking or liquefaction may result in structural damage and possible injury or loss of life. Given the age of the existing piers and structures at Pier 31½, it is anticipated that a large earthquake could potentially result in damage to existing structures and potential harm to users.

Fill materials and bay muds underlie Pier 31½ and may be susceptible to seismically-induced settlement. In the absence of site-specific subsurface information, the precise potential for ground subsidence is not known. Most fills along this section of the San Francisco waterfront are old and were not constructed using currently-required engineering methods. However, because of the site's relative age, most fill compression has likely occurred as a result of natural compression. In the event of a large seismic event, there may be some localized settlement associated with liquefaction. Fill materials are not expected to have expansive properties, and damage due to soil expansion is unlikely. The San Francisco waterfront is relatively flat in the vicinity of Pier 31½. Therefore, landslides in this area are not likely, and the site has not been delineated as within an earthquake-induced landslide zone. Impacts associated with landslides or slope failure are unlikely.

The proposed project would include a retrofit of existing structures at the Pier 31½ site to address seismic hazards and minimize their potential impacts. The design and construction of these improvements would adhere with applicable laws and policies related to seismic safety requirements. Therefore, with implemented retrofits and improvements to the structure, the proposed project would reduce potential for substantial adverse effects resulting from seismic hazards at Pier 31½ as compared to existing conditions, and impacts would be considered less than significant.

Fort Baker

Fort Baker would experience moderate to very strong ground shaking (Modified Mercalli Intensity Unit VI-VIII) in the event of a large seismic event along the San Andreas or Hayward faults (modeled as magnitude 7.5 and 6.9, respectively).[159] Earthquake-induced ground shaking could potentially damage

[158] Association of Bay Area Governments, Interactive Future Earthquake Shaking Scenarios Map, http://gis.abag.ca.gov/website/Hazards/?hlyr=northSanAndreas, accessed March 18, 2013.

[159] Ibid.

structures and result in injury. The Fort Baker pier area has a very low susceptibility to liquefaction.[160] Therefore, impacts due to liquefaction from improving the Fort Baker pier are unlikely. Underlying materials at Fort Baker include natural deposits of gravelly loam and fill materials, which may be susceptible to seismic-induced settlement.[161] However, because of their age, most fill compression at Fort Baker has likely occurred already, as evidenced by a relative lack of apparent surface distress in areas of the site likely underlain by fill.

The proposed project would include a retrofit of the existing Fort Baker pier to address seismic hazards and minimize potential impacts. The design and construction of these improvements would adhere with applicable laws and policies related to seismic safety requirements. Therefore, with implemented retrofits and improvements to the structure, the proposed project would reduce potential for loss, injury, or death resulting from seismic hazards at Fort Baker as compared to existing conditions, and impacts would be considered less than significant.

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

Construction of the proposed project at the Pier 31½ site would not expose topsoil, as all construction would occur on the pier or in the water. Construction of the proposed project at Fort Baker would include construction of a trail. Because the proposed project site (including the proposed trail area) is flat and trail construction would involve minor grading of surficial soils, 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 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 underlie the proposed project sites and may be susceptible to seismically induced settlement, most likely associated with seismically induced liquefaction. In the event of an earthquake, there may be some localized settlement associated with liquefaction. However, construction and operation of the proposed project would not result in additional risk over existing conditions based on adherence to building codes and improvements, and proposed project design details discussed in Impact GE-1. Therefore, impacts would be less than significant.

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[160] Association of Bay Area Governments, Liquefaction Susceptibility Maps, http://gis.abag.ca.gov/website/Hazards/?hlyr=liqSusceptibility, last modified January 3, 2013, accessed March 18, 2013.

[161] National Resources Conservation Service, Web Soil Survey Search of Project Area, https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx, last modified February 17, 2012, accessed March 18, 2013.

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

As discussed above, fill materials and bay muds underlie the proposed project sites. There are no unique geological features on or near the sites.[162] Native sediments may be found under the fill but construction would not expose such sediment. Due to its geomorphological history, the proposed project sites are not likely to contain any fossils other than invertebrate fossils that are in a re-deposited context. Therefore, it is very unlikely that any fossil that is unique or scientifically significant is present, and impacts would be less than significant.

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 sites and immediate vicinity because related impacts are relatively localized or even 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 applicable to the proposed project. Compliance with the 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 are also 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.

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[162] Schlocker, Julius, Geology of the San Francisco North Quadrangle, California, Geological Survey Professional Paper 782, 109 pp., 1974. Available from https://pubs.usgs.gov/pp/0782/report.pdf.

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?	☐	☐	☒	☐	☐
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?	☐	☐	☒	☐	☐

The proposed project would not construct housing; therefore, Topic E.15(g) is not applicable to the proposed project.

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)

All waters of the United States, including San Francisco Bay, are subject to regulation by the San Francisco Bay Regional Water Quality Control Board (RWQCB) 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. 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.[163] 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.

Construction

Proposed project construction would involve driving hollow steel piles for installation of the gangways and floats for the new berths at each project site. A total of 12 piles would be installed at Pier 31½ and eight piles at Fort Baker. Pile driving may disturb sediments and result in temporary localized increases in turbidity, releases of chemicals in the sediment, increases in dissolved oxygen, and changes to pH in the water column. However, the San Francisco Bay is a naturally turbid estuary.[164] Potential impacts on water quality would be short-term, as pile driving operations are only expected to last a matter of days, and conditions would quickly return to baseline levels after pile driving activities are completed. In addition, construction of the proposed project would comply with all local, state, and federal permits, including San Francisco Bay Conservation and Development Commission, 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 31½ would also be

[163] 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 online at https://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/planningtmdls/basinplan/web/docs/BP_all_chapters.pdf.

[164] CALFED Bay-Delta Program, *Water Quality Program Plan Final Programmatic EIS/EIR*, July 2000.

required to comply with the Port of San Francisco's standard best management practice for debris and stormwater management during construction, which require the following:

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 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

- Minimal ground disturbance is anticipated since the proposed activities focus on maintenance and repair of existing hard-surfaced structures. Where ground disturbance is necessary, construction crews will reduce the footprint of disturbance to the minimum necessary to complete the project.
- 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.
- Adequate erosion control supplies (sand bags, wattles, shovels, etc.) shall be kept on site and during all construction activities to ensure materials are kept out of water bodies.

No grading would occur as part of the proposed project at the Pier 31½ site. Landside improvements at the Fort Baker site could require minimal grading over a maximum area of 0.35 acre to create a trail. 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 at the Pier 31½ site, could potentially degrade Bay water quality if improperly handled or spilled. Specific to Clean Water Act Section 303(d) listed pollutants for the Central San Francisco Bay,[165] while heavy metals and polychlorinated biphenyl-containing materials may be found in fill soils or building materials on site, the proposed project would not involve extensive grading at the Fort Baker site

[165] State Water Resources Control Board and Regional Water Quality Control Board, *2010 Integrated Report on Water Quality with Web-Based Interactive Map*, April 2010. Available from http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2010.shtml.

and would not involve any grading at the Pier 31½ site, which would reduce 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 Pier 31½ and Fort Baker would occur in adherence with site-specific Spill Prevention, Control, and Countermeasure Plans required as part of the concessioner agreement for both sites. As outlined above, the proposed project would comply with standard Port construction best management practices for water quality and similar construction contract requirements at Fort Baker. 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 that would receive water quality certification from the RWQCB 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 from construction of the proposed project related to Section 303(d)-listed pollutants.

Given the relatively high natural turbidity of the San Francisco Bay, the localized nature of impacts, the lack of any excavation or significant earthwork, and compliance with all permits and regulations, construction would not substantially degrade water quality and impacts would be less than significant.

Operations

Ferry operations have the potential to impact water quality from potential pollutant discharges of hazardous materials, including chemicals and solvents used onboard, boat cleaning and maintenance materials, fuels, bilge or ballast water, sewage from toilets, and gray water, and trash from passengers and visitors. Under the proposed project, the number of peak day ferry trips from the Pier 31½ site would increase from 27 to 29, and limited ferry service would be introduced at Fort Baker. Ferry operations at both the Pier 31½ and Fort Baker sites would adhere with plans and policies designed to address potential water quality impacts. Consistent with past practices at the Pier 31½ site, proposed project operations would obtain coverage under the National Pollutant Discharge Elimination System General Permit for Storm Water Discharges Associated with Industrial Activities. In accordance with the requirements of the project's National Pollutant Discharge Elimination System permit, the project proponent would be required to prepare and implement a Stormwater Pollution Prevention Plan for operations at the Pier 31½ site and the Park Service would prepare a Stormwater Pollution Prevention Plan for operations at the Fort Baker site. The Stormwater Pollution Prevention Plan would identify pollutant sources within the site and provide site-specific best management practices regarding control of sediments in runoff and storage and use of hazardous materials to prevent discharge of pollutants into stormwater. For the Pier 31½ site, the Stormwater Pollution Prevention Plan would additionally conform with the San Francisco Public Works Code Section 147.2 to minimize stormwater runoff impacts. For the Pier 31½ and Fort Baker sites, respectively, the project proponent and the Park Service 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.

Vessel fueling at Pier 31½ under the proposed project would continue consistent with past practices, where fuel is brought to the site via truck to directly fuel the ferries. This activity would continue 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 using spill response equipment as identified in the Spill Prevention Control and Countermeasure Plan. The Coast Guard maintains a Marine Environmental Protection Division whose primary mission includes containment and cleanup of oil discharges and hazardous substances introduced into navigable waters in coordination with other local, state, and federal agencies.

Ferries do not typically take on or discharge large quantities of ballast water. Nonetheless, any such actions would occur in compliance with federal and state regulations, including the Vessel General Permit and Ballast Water Management for Control of Nonindigenous Species Act. These actions would minimize the potential for introducing invasive aquatic species, which are a Section 303(d)-listed pollutant, and protect Bay waters from other pollutants present in ballast water. Furthermore, ferries servicing the proposed project sites would only operate in the bay; as such, water quality impacts associated with increased invasive marine species would not be expected.

Sanitary sewage from ferries would be subject to the requirements of the MARPOL convention and Section 312 of the Clean Water Act, which include requirements for onboard marine sanitation devices, as well as for storage and discharge of sewage, treatment of sewage, and disinfection of sewage. Sewage systems onboard the ferries would be self-contained and would pump off into the San Francisco Public Utilities Commission combined sewer system in San Francisco.

Due to the proximity of Pier 31½ and Fort Baker to the bay, litter from visitors at the sites could potentially enter the bay. The ferry operator would be responsible for implementation of a trash collection and management program, and waste management at both proposed project sites would proceed in adherence with all applicable federal, state, and local regulations for waste management and disposal. At Pier 31½, design of new facilities must comply with the City's Zero Waste requirements, including providing space and access to ensure convenient recycling and composting. 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,[166] which regulate the volume and quality of stormwater discharged from the site into the public combined stormwater and sewer collection system. Compliance with the

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

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.

While the proposed project would result in a minor increase in the number of ferry trips from the Pier 31½ site compared to existing conditions and would introduce limited ferry service to Fort Baker, development of required plans and compliance with regulations as detailed above would ensure that water quality impacts associated with long-term 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 neither involves excavation to depths that would affect aquifer systems or groundwater movement nor includes the construction of substantial new impervious surfaces that would impede groundwater recharge. Therefore, no impacts related to groundwater would occur from the proposed project.

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 proposed project would modify and upgrade the existing on-site stormwater drainage system at Pier 31½ to accommodate the proposed improvements and provide lateral connections to the existing municipal sewer system. Although the proposed project includes resurfacing at Pier 31½, the entirety of the existing site is already developed with impervious surfaces; 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,[167] including measures pertaining to utility connections, drainage patterns, and impermeable surfaces. Therefore, there would be less-than-significant impacts from drainage pattern changes at the Pier 31½ site.

At Fort Baker, stormwater is currently conveyed via a trunkline system consisting of catch basins, pipes, and concrete-lined swales. Stormwater is gathered and conveyed via gravity flow to four major storm drain outfalls along the seawall at Horseshoe Bay.[168] No significant upland infrastructure would be installed to support limited ferry service to Fort Baker; a new pedestrian pathway would be constructed to connect Cavallo Point Lodge and the Bay Area Discovery Museum with the repaired pier. The pedestrian pathway would cover an area of approximately 0.35 acre, and would be constructed with

[167] Ibid.

[168] National Park Service, *Fort Baker Plan Final Environmental Impact Statement*, October 1999. Available from http://parkplanning.nps.gov/document.cfm?parkID=303&projectID=20244&documentID=20847.

permeable surfaces (e.g., gravel). These improvements are not anticipated to alter the existing drainage pattern or otherwise result in changes that would contribute substantial erosion.

Based on the analyses presented above, the proposed project would result in less-than-significant impacts related to erosion or siltation from drainage pattern alterations.

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)

As described under Impact HY-3, the proposed project would result in no substantial alterations to drainage patterns. The Pier 31½ site is entirely paved and the proposed improvements would not increase the amount of impermeable surfaces. 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. Proposed improvements at Fort Baker include constructing a permeable trail (as described in Impact HY-3), which is not anticipated to affect stormwater runoff. Although Pier 31½ is within a Federal Emergency Management Agency-delineated 100-year flood plain,[169] and the Fort Baker site may be subject to inundation during large storm events, the proposed project would not alter existing drainage patterns in any way that exacerbates existing flood hazards. Therefore, there would be less-than-significant impacts related to flooding from altering existing drainage patterns.

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)

As described under Impact HY-3, proposed improvements at Pier 31½ would not increase impermeable surface areas and therefore would not increase stormwater runoff from the site. New construction would be designed and constructed in compliance with the San Francisco Stormwater Management Requirements and Design Guidelines, including requirements to reduce runoff. Proposed improvements at Fort Baker include construction of permeable surfaced trail, which is not anticipated to affect stormwater runoff volume or quality.

Both proposed project sites are adequately served by existing stormwater drainage facilities. Compliance with applicable regulations, as detailed under Impact HY-1, would ensure that proposed project operations neither introduce nor contribute substantial inputs of polluted runoff.

[169] Federal Emergency Management Agency, Flood Insurance Rate Map, City and County of San Francisco, California, panel number 120 of 260, 2013. Available from http://sfgov.org/sfc/riskmanagement/Modules/ShowImage__5bf6.jpg?imageid=2672.

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 within a 100-year flood hazard area structures that would impede or redirect flood flows. (No Impact)

Pier 31½ is within a Federal Emergency Management Agency-delineated 100-year flood plain, and waterfront flooding could occur in this area.[170] Replacement piles or small structures constructed on the pier would not impede or redirect flood flows. Federal Emergency Management Agency flood maps do not include information for the Fort Baker pier area; however, waterfront areas in adjacent Sausalito and the Marin Headlands are mapped by the Federal Emergency Management Agency as occurring with the 100-year flood zone.[171] As such, the Fort Baker pier area would likely be subject to similar inundation. Construction of the proposed trail and pier improvements (e.g., new piles and floats) would not impede or redirect flood flows.

Based on the analyses presented above, there would be no impact related to redirecting or impeding flood flows resulting from the proposed project.

Impact HY-7: The proposed project 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)

Pier 31½ and Fort Baker are not located in areas where there are levees or dams, or in any dam inundation zones. Therefore, exposure to risk of flooding from the failure of a levee or dam is not applicable to the proposed project.

As described above, Pier 31½ is within a Federal Emergency Management Agency-delineated 100-year flood plain, and the Fort Baker pier area may be subject to inundation during large storm events. Under the U.S. Geological Survey-predicted sea level rise scenario of 100 centimeters (29 inches), the proposed outdoor program area at Pier 31½ and the beach areas northeast and southwest of the Fort Baker pier would be vulnerable to inundation during a 100-year flood event. The areas vulnerable to inundation would further increase under the U.S. Geological Survey sea level rise scenario of 150 centimeters (59 inches).[172]

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[170] Ibid.

[171] Federal Emergency Management Agency, Flood Insurance Rate Map, Marin County Unincorporated and Incorporated Areas, California, panel number 528 of 531, 2014. Available from http://www.ci.sausalito.ca.us/modules/showdocument.aspx?documentid=15111.

[172] U.S. Geological Survey, *Potential Inundation due to Rising Sea Levels in the San Francisco Bay Region*, updated December 14, 2014, accessed September 6, 2017. Available from https://cascade.wr.usgs.gov/data/Task2b-SFBay/index.shtm.

Although the proposed project would result in increased visitation to both the Pier 31½ and Fort Baker, weather advisories and flood warning systems would provide adequate time for site visitors to evacuate. At Pier 31½, the proposed project would not alter the flooding risk for the existing bulkhead buildings and piers, and would only construct floating docks and several small structures on the marginal wharf. At Fort Baker, no new upland structures are proposed. The proposed improvements and operations at both sites would not increase the exposure of individuals or structures to substantial risks of loss, injury, or death involving flooding. Therefore, impacts related to flood risk as a result of the proposed project would be less than significant.

Impact HY-8: 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)

The Pier 31½ and Fort Baker sites are not located near geologic conditions that would generate mudflow (e.g., not in mountainous areas or near channelized features).

A seiche is caused by oscillation of the surface of an enclosed body of water during an earthquake such as San Francisco Bay due to an earthquake or large wind event. Seiches can result in long-period waves that cause run-up or overtopping of adjacent land masses, similar to a tsunami.

Pier 31½ and Fort Baker are within the tsunami inundation area, as delineated on the state's tsunami inundation maps.[173,174] The primary tsunami threat in San Francisco Bay is from distant earthquakes along subduction zones elsewhere in the Pacific basin. By the time a tsunami enters 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 31½ could reach as high as 10.17 feet.[175] Tsunami-induced wave height increases have not been estimated for Marin County coastal areas within the bay, such as Fort Baker.[176]

The National Oceanic and Atmospheric Administration operates the tsunami warning system that serves both San Francisco and Marin counties, among other areas.[177] Tsunami warning procedures for the counties of San Francisco and Marin are provided in their respective tsunami emergency response

[173] California Emergency Management Agency, *California Geological Survey University of Southern California, 2009, Tsunami Inundation Map for Emergency Planning, San Francisco*, 2009. Available from http://www.conservation.ca.gov/.cgs/geologic_hazards/Tsunami/Inundation_Maps/SanFrancisco/Documents/Tsunami_Inundation_SF_Overview_SanFrancisco.pdf.

[174] California Emergency Management Agency, *California Geological Survey University of Southern California, 2009, Tsunami Inundation Map for Emergency Planning, San Francisco North Quadrangle*, 2009. Available from http://www.conservation.ca.gov/cgs/geologic_hazards/Tsunami/Inundation_Maps/Marin/Documents/Tsunami_Inundation_SanFranciscoNorth_Quad_Marin.pdf.

[175] 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.

[176] Marin County Sheriff Office of Emergency Services, *Tsunami Annex Marin Operational Area Emergency Operations Plan*, January 2007.

[177] 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.

plans.[178,179] As discussed above under Impact HY-7, the proposed project would not alter the flooding risk for the existing bulkhead buildings and piers, and would only construct floating docks and several small structures on the marginal wharf. At Fort Baker, no new upland structures are proposed. Although the proposed project would result in minor increases in the number of visitors at the Pier 31½ and Fort Baker project sites, based on the low likelihood of a significant seiche or tsunami event at Pier 31½ and Fort Baker, and taking into consideration the National Oceanic and Atmospheric Administration's tsunami warning system and the City/County's emergency response plans, 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, and this impact would be less than significant.

Impact C-HY: The proposed project, in combination with other past, present, or reasonably foreseeable projects, would result in less-than-significant cumulative impacts to hydrology and water quality. (Less than Significant)

The geographic scope of potential cumulative impacts on water quality encompasses Lower San Francisco Bay; the geographic scope of effects on drainage and flooding consists of areas in the vicinity of project sites; and the geographic scope of flooding consists of the low-lying areas along the bay waterfront.

As outlined in Impact HY-1, the proposed project would not result in significant impacts on water quality. As is the case for the proposed project, construction and operation of other projects that could contribute to a cumulative impact would be required to comply with applicable local, state, and federal water quality regulations. Implementation of these requirements under each individual project would ensure that all discharges comply with regulatory standards and would not otherwise degrade water quality. Therefore, the proposed project, in combination with other reasonably foreseeable projects, would result in less-than-significant cumulative water quality impacts.

As discussed in Impacts HY-3 and HY-4, the proposed project would have less-than-significant impacts with respect to erosion or flooding resulting from alterations to drainage patterns at the project sites. However, the proposed project's drainage changes would be negligible and would not contribute considerably to any potential cumulative impact.

With respect to storm drain system capacity and polluted runoff as discussed in Impact HY-5, the proposed project would be subject to compliance with established guidelines for the combined sewer system and site runoff which would ensure impacts are less than significant. Other cumulative projects would be subject to the same regulations and, accordingly, no significant cumulative impact would result.

[178] Ibid.

[179] Marin County Sheriff Office of Emergency Services, *Tsunami Annex Marin Operational Area Emergency Operations Plan*, January 2007.

Finally, low lying shoreline areas are currently subject to flooding and will be subject to an increased risk of flooding in the future due to sea level rise. Because the hazard warning systems would protect people at the proposed project and other cumulative project sites, cumulative impacts regarding risk of injury and death would be less than significant. Given the small size of new structures and the floating nature of new elements that would be constructed under the proposed project, the proposed project would not contribute considerably to any potential cumulative impact related to existing and future flooding hazards.

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?	☐	☐	☐	☐	☒
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?	☐	☐	☒	☐	☐

The Pier 31½ site is not listed in the GeoTracker or EnviroStor database of hazardous material sites. The Embarcadero was once a highly-industrialized area supporting railyards, fuel terminals, shipyards, and tanneries. In addition, much of the San Francisco shoreline is made up of imported fill, consisting of soil and debris from the 1906 earthquake, which potentially contains lead and other hazardous materials. Because of potential public and worker health exposure, the San Francisco Board of Supervisors adopted the Maher ordinance (Article 22A of the San Francisco health code) in 1986, which requires soil analysis for a specified list of inorganic and organic chemicals at construction sites where: 1) at least 50 cubic yards of soil are disturbed; 2) there is construction on the bay side of the historic high-tide line; or 3) there is reason to believe that hazardous waste may be present. The Embarcadero area is subject to the Maher ordinance, which denotes areas of known historical landfill with a high likelihood of contamination.[180]

Fort Baker has a similar history of former use by the U.S. Department of Defense. It is listed in the Formerly Used Defense Site database as both a hazardous, toxic, and radioactive waste site; and a military munitions response program site.[181] The U.S. Army is the lead agency conducting the investigation and cleanup of areas at Fort Baker contaminated by hazardous materials as a result of military operations. During the site investigation of Fort Baker, eight areas were identified with elevated soil concentrations of polycyclic aromatic hydrocarbons, pesticides, metals, and petroleum hydrocarbons. Of the eight areas, four have been recommended for advancement to a remedial and feasibility investigation. These areas include the storm drain system, Horseshoe Bay, a petroleum tank site near Building 637, and a concrete basin near Building 407. The four remaining areas (an engine repair shop, a small paint shed, soil beneath the deck of the historic boat shop, and the vehicle wash rack adjacent to Building 691) have been cleaned up. Underground storage tanks, which may have started leaking into the surrounding soils, likely remain throughout Fort Baker.[182] The project site is not among the eight Fort Baker sites with identified elevated soil concentrations of polycyclic aromatic hydrocarbons, pesticides, metals, and petroleum hydrocarbons.

Because the proposed project sites are not within a quarter-mile of any schools and are not near any private airstrips, Topics E.16(c), E.16(e), and E.16(f) are not applicable to the proposed project.

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)

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[180] 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.

[181] U.S. Army Corps of Engineers, Formerly Used Defense Sites Projects Per State, September 30, 2011. Available from http://www.usace.army.mil/Missions/Environmental/FormerlyUsedDefenseSites/FUDSInventory.aspx.

[182] National Park Service, *Marin Headlands and Fort Baker Transportation Infrastructure and Management Plan Final Environmental Impact Statement*, March 2009. Available from https://www.nps.gov/goga/learn/management/ upload/feis_2009-0310_150dpi.pdf.

Construction

Construction activities at Pier 31½ include improvements to the bulkhead buildings and sheds which, due to their age, may contain hazardous materials, including asbestos, lead-based paint, and polychlorinated biphenyls. Wood underneath the pier may be treated with hazardous compounds. Chemicals and fuels may be used during construction. While artificial fill or marine sediments at Pier 31½ may contain polycyclic aromatic hydrocarbons, heavy metals, oil and grease, or volatile organic compounds, the proposed project would not involve grading or soil disturbance and is not expected to disturb potentially hazardous soils either during pile driving or other activities.

As a building permit requirement, the proposed project would be required comply with the Port of San Francisco's standard best management practice for spill prevention and response, which requires the following:

- 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.

At Fort Baker, the existing concrete pier was constructed in the late 1930s and may contain creosote-treated wood. Other hazardous materials, including asbestos, lead-based paint, or polychlorinated biphenyls, may be present in structures or other improvements on-site, including treated woods. Fort Baker is also listed in the Formerly Used Defense Site database as both a Hazardous, Toxic, and

Radioactive Waste site and a Military Munitions Response Program site,[183] although the immediate project area is not among the eight Fort Baker sites with identified elevated soil concentrations of polycyclic aromatic hydrocarbons, pesticides, metals, and petroleum hydrocarbons. At the Fort Baker site, the proposed project would include limited shallow ground disturbance (i.e., grading) for construction of a new trail over an approximately 0.35-acre area.

Due to the age of existing structures at Pier 31½ and Fort Baker and the historical uses of these sites, it is expected that some routine removal and management of hazardous materials may be required during construction. Construction 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 hazardous materials and for an accidental release of hazardous materials to the environment. These regulations are discussed further below.

Polychlorinated Biphenyls. All workers must follow Occupational Safety and Health Administration regulations governing the removal and handling of polychlorinated biphenyl products including Code of Federal Regulations Title 29 Section 1910.120 – Hazardous Waste Operations and Emergency Response and 8 California Code of Regulations Title 8 Section 5192 – Hazardous Waste Operations and Emergency Response.

Asbestos-containing Materials. Section 19827.5 of the California Health and Safety Code requires that local agencies not issue demolition or alteration permits until an applicant has demonstrated compliance with the notification requirements under applicable federal regulations regarding hazardous air pollutants, including asbestos. The Bay Area Air Quality Management District is vested by the California legislature with authority to regulate airborne pollutants, including asbestos, through both inspection and law enforcement, and is to be notified 10 days in advance of any proposed demolition or abatement work.

Notification of asbestos removal includes the names and addresses of operations and persons responsible; description and location of the structure to be demolished/altered, including size, age and prior use, and the approximate amount of friable asbestos; scheduled starting and completion dates of demolition or abatement; nature of planned work and methods to be employed; procedures to be employed to meet air quality management district requirements; and the name and location of the waste disposal site to be used. The Bay Area Air Quality Management District randomly inspects asbestos removal operations. In addition, the Bay Area Air Quality Management District will inspect any removal operation when a complaint has been received.

The local California Occupational Safety and Health Administration office must also be notified prior to asbestos remediation. Asbestos abatement contractors must follow state regulations contained in

[183] U.S. Army Corps of Engineers, *Formerly Used Defense Sites Projects Per State, California Entry*, September 30, 2011. Available from http://www.usace.army.mil/Missions/Environmental/FormerlyUsedDefenseSites/FUDSInventory.aspx.

8 California Code of Regulations 1529 and 8 California Code of Regulations 341.6 through 341.14 where there is asbestos-related work involving 100 or more square feet or linear feet of asbestos-containing materials. Asbestos removal contractors must be certified as such by the Contractors Licensing Board of the State of California. The abatement workers are required to have received U.S. Environmental Protection Agency-accredited training and be certified for asbestos abatement work. The owner of the property where abatement is to occur must have a Hazardous Waste Generator Number assigned by and registered with the California Department of Health Services in Sacramento. The contractor and hauler of the material are required to file a Hazardous Waste Manifest that details the hauling of the material from the site and appropriate disposal. Pursuant to California law, the Port of San Francisco will not issue a required permit for work at the Pier 31½ site until an applicant has complied with the notice and abatement requirements described above.

Lead-based Paint. Removal of various fixtures from substrates painted with lead-based or lead-containing paint are required to be performed by workers trained in accordance with the California Division of Occupational Safety and Health Lead in Construction Standard, Title 8, Section 1532.1 training requirements. Demolition and construction would additionally need to comply with San Francisco Building Code Section 3425, which applies to buildings and steel structures on which original construction was completed prior to 1979, and which regulates any disturbance of lead-based paint. The Code requirements include provisions to eliminate the off-site migration of lead contamination and potential on-site soil contamination. The Port of San Francisco must also be notified of the removal, and signs must be posted advising adjacent property owners and/or occupants of the lead-based paint removal.

Hazardous Materials in Soil. Should unanticipated soil contamination be encountered during construction, soil would be segregated and handled in accordance with all applicable regulations for the handling and disposal of hazardous materials.

Routine Construction Chemicals. Hazardous materials that would be used during construction include fuels, lubricants and solvents needed for the fueling and maintenance of construction equipment. Storage and use of 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 construction to a less-than-significant level.

Operations

Ferry operations would involve the routine use of fuel, lubricants, and solvents, as well as cleaning and maintenance chemicals. Ferry operations at Pier 31½ and Fort Baker would occur in adherence with site-specific Spill Prevention, Control, and Countermeasure Plans (required as part of the concessioner agreement for both sites), which would outline how potentially-hazardous materials would be managed to comply with all applicable oversight regulations, including, but not limited to, discharge prevention measures, discharge or drainage controls, countermeasures for accidental releases and methods of disposal (refer to Impact HY-1 in Section E.15, Hydrology and Water Quality, for additional discussion of water quality regulations).

Given the negligible increase in hazardous materials use associated with the minor increase in ferry service under the proposed project and its compliance with federal, state, and local laws and regulations, there would be less-than-significant impacts related to routine transport, use, or disposal of hazardous materials, including accidental releases.

Impact HZ-2: The proposed project is located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5. (Less than Significant)

The Pier 31½ site is not listed in the GeoTracker or EnviroStor database of hazardous material sites.[184,185] Fort Baker is listed in the Formerly Used Defense Site database as both a Hazardous, Toxic, and Radioactive Waste site and a Military Munitions Response Program site,[186] although the project area is not among the eight Fort Baker sites with identified elevated soil concentrations of polycyclic aromatic hydrocarbons, pesticides, metals, and petroleum hydrocarbons. Furthermore, the proposed project includes only minimal grading (0.35 acre) at Fort Baker for trail construction and would have a low potential to encounter hazardous materials, if any, in the subsurface. The proposed project would not affect ongoing investigations and cleanups of any listed hazardous materials sites. Therefore, the proposed project would result in less-than-significant impacts related to its location on a listed hazardous materials site.

[184] California Department of Toxic Substances Control, GeoTracker Database, accessed June 23, 2017. Available from http://geotracker.waterboards.ca.gov/.

[185] California Department of Toxic Substances Control, EnviroStor Database, accessed September 5, 2013. Available from http://www.envirostor.dtsc.ca.gov/public/.

[186] U.S. Army Corps of Engineers, *Formerly Used Defense Sites Projects Per State*, September 30, 2011. Available from http://www.usace.army.mil/Missions/Environmental/FormerlyUsedDefenseSites/FUDSInventory.aspx.

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 31½).
- **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 both San Francisco and Marin counties, among other areas. Tsunami warning procedures for the counties of San Francisco and Marin are provided in their respective tsunami emergency response plans.[187,188]

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 31½ 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 Fort Baker would increase access for emergency responders at the site. The proposed project would not physically interfere with emergency response or emergency evacuation at the Fort Baker site.

Based on the low likelihood of a significant seiche or tsunami event at Pier 31½ or Fort Baker, and taking into consideration the National Oceanic and Atmospheric Administration's tsunami warning system and the emergency response plans for San Francisco and Marin, there would be no impact on the respective

[187] 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.

[188] Marin County Sheriff Office of Emergency Services, *Tsunami Annex Marin Operational Area Emergency Operations Plan*, January 2015. Available from http://www.marinsheriff.org/assets/downloads/01.30.2015-Tsunami-AnnexUH.pdf.

tsunami response plans for San Francisco and Marin counties. The proposed project would not block any evacuation routes or otherwise affect evacuation from Pier 31½ or Fort Baker.

Based on the analysis presented above, the proposed project would result in less-than-significant impacts related to emergency response or evacuation plans.

Impact HZ-4: The proposed project would not 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. (Less than Significant)

The Pier 31½ site is not within a wildland fire area or mapped fire hazard severity areas for San Francisco.[189] San Francisco ensures fire safety and emergency accessibility within new and existing developments through provisions of its building and fire codes. The proposed improvements at Pier 31½ would conform to these standards, ensuring that life safety protections are included as part of the proposed project. Therefore, there would be less-than-significant impacts pertaining to risk of loss, injury, or death involving wildland fire from proposed improvements at Pier 31½, as the site is not within a fire hazard area.

Fort Baker is within a high wildland fire risk area, as identified through the Marin County Fire Department Hazard Model.[190] As described in the 2008 Golden Gate National Recreation Area *Operational Strategy for the Fire Management Plan*, fire management issues at Fort Baker include fire hazards from dense stands of nonnative trees, and fuel hazards (i.e., live and dead vegetation that has accumulated and increases the likelihood of unusually large wildland fires) around buildings. Fire management actions at Fort Baker include prescribed burns in the Marin Headlands to manage coastal scrub, prescribed test burns to enhance mission blue butterfly habitat, and the reduction of fuel hazards near historic structures and heavily developed areas that receive high visitation.[191] The proposed project would not affect these or other fire management activities at Fort Baker. Proposed project construction would occur overwater on the pier and along the shoreline, away from areas with fire-susceptible trees and vegetation. The proposed project would not include new facilities or implementation of any activities that would increase the risk of fire. Furthermore, Fort Baker is adequately served by existing fire response services (as discussed under Section E.12, Public Services). Therefore, the proposed project would not expose people or structures to a significant risk of loss, injury, or death involving wildland fires, and the impact would be less than significant.

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[189] California Department of Forestry and Fire Protection, *Fire Hazard Severity Zones in LRA San Francisco County*, November 2008.

[190] National Park Service, *Operational Strategy for the Fire Management Plan*, Golden Gate National Recreation Area, April 2008. Available from https://www.nps.gov/goga/learn/management/upload/fire_fmp_op_strat_cover.pdf.

[191] National Park Service, *Marin Headlands and Fort Baker Transportation Infrastructure and Management Plan Final Environmental Impact Statement*, March 2009. Available from https://www.nps.gov/goga/learn/management/upload/MH_FB-TIMP-Final-EIS_Main-Document.pdf.

Impact C-HZ: The proposed project would not make a considerable contribution to any cumulative significant effects related to 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 building materials and the subsurface. As outlined in this section, the proposed project would not result in significant impacts related to hazards or hazardous materials. There are no known projects under development within 0.25 mile of Fort Baker. There are three potential cumulative projects in the vicinity of the Pier 31½ site listed in Table 6 that could affect hazards or hazardous materials: 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. With respect to wildland fire, all projects in San Francisco must comply with the fire code, and any projects within Fort Baker would comply with the fire plan discussed in Impact HZ-4. 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?	☐	☐	☒	☐	☐

Pier 31½ and the Fort Baker pier 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.[192] Therefore, Topics 17(a) and 17(b) are not applicable.

[192] 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.

Impact ME-1: The proposed project 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 the Pier 31½ and Fort Baker sites. However, construction of the proposed project would adhere to applicable regulations, including the Port's Green Building Standards at the Pier 31½ site, and employ best management practices to ensure that these resources would be used conservatively.[193] 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. The largest use of energy in terms of operations would be diesel fuel to power the ferries. The overall number of peak day ferry trips would increase from 27 to 29 under the proposed project; however, the proposed project includes Park Service contract requirements to use more efficient Tier 3 engines, to reduce overall fuel use, and to limit idling, decreasing fuel consumption. The Port's Green Building Standards also apply to operations of the proposed project at Pier 31½. For example, the Green Building Standards require that commercial projects achieve a minimum 30 percent reduction in the use of indoor potable water. The proposed project would modernize both the Pier 31½ and Fort Baker sites to 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).

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. 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 proposed project sites; therefore, the proposed project would not contribute to cumulative impacts on mineral resources. While the proposed project would use energy resources, both the proposed project and other regional projects would be subject to City of San Francisco 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.

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[193] Port of San Francisco, *2016 Port of San Francisco Green Building Standards Code*, effective January 1, 2017.

Topics:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Not Applicable
18. AGRICULTURE AND FOREST 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 site at Pier 31½ is zoned light industrial, and the proposed project site at Fort Baker is part of the National Park System.[194] No farmland, lands subject to a Williamson Act contract, forest land, or timberland exist in the proposed project area.[195] 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 proposed 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]) are applicable.

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[194] City and County of San Francisco, San Francisco Municipal Code (current through Ordinance 70-12, File No. 130085), approved April 23, 2013, effective May 23, 2013. Available from http://www.amlegal.com/library/ca/sfrancisco.shtml.

[195] California Department of Conservation, *The California Land Conservation Act of 1965 2016 Status Report*, December 2016. Available from http://www.conservation.ca.gov/dlrp/lca/stats_reports/Documents/2016%20LCA%20Status%20Report.pdf.

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?	☐	☒	☐	☐	☐

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.3, Cultural Resources, construction of the proposed project could result in a substantial adverse change on historic and archeological resources. The proposed project could also disturb human remains. Implementation of **Mitigation Measures M-CR-2, Accidental Discovery of Archaeological Resources**, and **M-CR-5, Tribal Cultural Resources Interpretive Program,** would reduce the impacts to less-than-significant levels. Therefore, the proposed project would not result in a significant impact through the elimination of important examples of major periods of California history or prehistory.

As described in Section E.6, Noise, construction of the proposed project has the potential to impact the historic bulkhead buildings at the Pier 31½ site from vibration during construction. Implementation of **Mitigation Measure M-NO-2, Conduct Vibration Monitoring at Pier 31½**, would reduce impacts to a less-than-significant level.

As described in Section E.7, Air Quality, the proposed project at Pier 31½ 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 31½**, 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 31½ site and nesting birds at both project sites during construction. Implementation of **Mitigation Measures M-BI-1a, Avoidance and Minimization Measures for Special Status Bats at Pier 31½**, and **M-BI-1b, Nesting Bird Protection Measures**, would reduce the impacts on special status bats and nesting birds to less-than-significant levels.

Both long-term and short-term environmental effects, including substantial adverse effects on human beings, associated with the proposed project would be less than significant or less than significant with mitigation, as discussed under each environmental topic. Each environmental topic area includes an analysis of cumulative impacts. This initial study concludes that cumulative impacts for all environmental topic areas would be less than significant.

F. MITIGATION MEASURES AND IMPROVEMENT MEASURES

The project proponent has agreed to implement the following mitigation and improvement measures. Mitigation measures identified below are necessary to reduce the significant effects of the proposed project to a less-than-significant level. Improvement measures would further reduce the effect of the proposed project's less-than-significant impacts.

Mitigation Measure M-CR-2: Accidental Discovery of Archaeological Resources

The following mitigation measure is required to avoid any potential adverse effect from the proposed project on accidentally discovered buried or submerged historical resources as defined in CEQA Guidelines Section 15064.5(a) and (c). The project proponent shall distribute the Planning Department archaeological resource "ALERT" sheet to the project prime contractor; any project subcontractor (including demolition, excavation, grading, foundation, pile driving, etc. firms); and any utilities firm involved in soil-disturbing activities within the project site. Prior to any soils disturbing activities being undertaken each contractor is responsible for ensuring that the "ALERT" sheet is circulated to all field personnel including, machine operators, field crew, pile drivers, supervisory personnel, etc. The project proponent shall provide the Environmental Review Officer and the Port of San Francisco with a signed affidavit from the responsible parties (prime contractor, subcontractor(s), and utilities firm) to the Environmental Review Officer confirming that all field personnel have received copies of the "ALERT" Sheet.

Should any indication of an archaeological resource be encountered during any soils disturbing activity of the project, the project Head Foreman and/or project proponent shall immediately notify the Environmental Review Officer and the Port of San Francisco and shall immediately suspend any soils disturbing activities in the vicinity of the discovery until the Environmental Review Officer has determined what additional measures should be undertaken.

If the Environmental Review Officer determines that an archaeological resource may be present within the project site, the project proponent shall retain the services of an archaeological consultant from the pool of qualified archaeological consultants maintained by the Planning Department archaeologist. The archaeological consultant shall advise the Environmental Review Officer and the Port of San Francisco as to whether the discovery is an archaeological resource, retains sufficient integrity, and is of potential scientific/historical/cultural significance. If an archaeological resource is present, the archaeological consultant shall identify and evaluate the archaeological resource. The archaeological consultant shall make a recommendation as to what action, if any, is warranted. Based on this information, the Environmental Review Officer may require, if warranted, specific additional measures to be implemented by the project proponent.

Measures might include: preservation in situ of the archaeological resource; an archaeological monitoring program; or an archaeological testing program. If an archaeological monitoring program or archaeological testing program is required, it shall be consistent with the Environmental Planning

division guidelines for such programs. The Environmental Review Officer may also require that the project proponent immediately implement a site security program if the archaeological resource is at risk from vandalism, looting, or other damaging actions.

The project archaeological consultant shall submit a Final Archaeological Resources Report to the Environmental Review Officer and the Port of San Francisco that evaluates the historical significance of any discovered archaeological resource and describes the archaeological and historical research methods employed in the archaeological monitoring/data recovery program(s) undertaken. Information that may put at risk any archaeological resource shall be provided in a separate removable insert within the final report.

Copies of the Draft Final Archaeological Resources Report shall be sent to the Environmental Review Officer for review and approval. Once approved by the Environmental Review Officer, copies of the Final Archaeological Resources Report shall be distributed as follows: the California Archaeological Site Survey Northwest Information Center shall receive one copy, and the Environmental Review Officer shall receive a copy of the transmittal of the Final Archaeological Resources Report to the Northwest Information Center. The Environmental Planning division of the Planning Department shall receive one bound copy; one unbound copy; and one unlocked, searchable PDF copy on CD of the Final Archaeological Resources Report, along with copies of any formal site recordation forms (CA DPR 523 series) and/or documentation for nomination to the National Register of Historic Places/California Register of Historical Resources. In instances of high public interest or interpretive value, the Environmental Review Officer may require a different final report content, format, and distribution than that presented above.

Mitigation Measure M-CR-4: Tribal Cultural Resources Interpretive Program

If the Environmental Review Officer determines that a significant archaeological resource is present, and if in consultation with the affiliated Native American tribal representatives, the Environmental Review Officer determines that the resource constitutes a tribal cultural resource and that the resource could be adversely affected by the proposed project, the proposed project shall be redesigned so as to avoid any adverse effect on the significant tribal cultural resource, if feasible. If the Environmental Review Officer, in consultation with the affiliated Native American tribal representatives and the project proponent, determines that preservation-in-place of the tribal cultural resources is not a sufficient or feasible option, the project proponent shall implement an interpretive program of the tribal cultural resources in consultation with affiliated tribal representatives. An interpretive plan produced in consultation with the Environmental Review Officer and affiliated tribal representatives, at a minimum, and approved by the Environmental Review Officer, would be required to guide the interpretive program. The plan shall identify, as appropriate, proposed locations for installations or displays, the proposed content and materials of those displays or installation, the producers or artists of the displays or installation, and a long-term maintenance program. The interpretive program may include artist installations, preferably by local Native American artists, oral histories with local Native Americans, artifacts displays and

interpretation, and educational panels or other informational displays. In the event that construction activities disturb unknown archaeological sites that are considered tribal cultural resources, any inadvertent damage would be considered a significant impact.

Mitigation Measure M-NO-2: Conduct Vibration Monitoring at Pier 31½

The project proponent would require that a qualified professional evaluate the subject structure(s) prior to the pile driving to assess their susceptibility to vibration impacts and provide pre-construction bracing if warranted. Based on the results of the evaluation, the professional shall develop a vibration control plan. The plan would include set of site-specific vibration attenuation measures that would be implemented under the supervision of a qualified acoustical consultant during the project construction. These attenuation measures would include as feasible, in consideration of technical and structural requirements and conditions, implementing "quiet" pile driving technology, such as predrilling piles, using sonic pile drivers, or using more than one pile driver to shorten the total duration of pile driving. During construction, the construction contractor will conduct vibration monitoring when construction activities occur within 50 feet of the historic Pier 33 bulkhead building. If monitoring indicates that peak particle velocity caused by construction activities is approaching 0.12 inches per second, construction activities would be halted and a plan would be developed to reduce construction activities. Other effective strategies may also be required to the extent necessary to achieve a peak particle velocity vibration level at bulkhead buildings of less than the level of 0.12 inches per second.

Mitigation Measure M-AQ-4: Best Available Control Technology for Diesel Generators at Pier 31½

The project proponent 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 proponent 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: Avoidance and Minimization Measures for Special Status Bats at Pier 31½

The project proponent will implement the following measures:

- Demolition within Pier 31 and 33 bulkhead buildings 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 within Pier 31 and 33 bulkhead buildings during the periods when bats are active is not feasible, a qualified biologist will 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 demolition within Pier 31 and 33 bulkhead buildings 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.

Mitigation Measure M-BI-1b: Nesting Bird Protection Measures

Nesting birds and their nests shall be protected during construction by use of the following measures:

- Removal of trees, scrub vegetation and structures shall occur outside the bird nesting season (February 1 to August 30), to the extent feasible.
- If removal of trees, scrub vegetation or structures during bird nesting season cannot be fully avoided, a qualified wildlife biologist shall conduct preconstruction nesting bird surveys within 7 days prior to the start of such activities or after any construction breaks of 14 days or more. Surveys shall be performed for the project site and suitable habitat within 250 feet of the project site in order to locate any active passerine (perching bird) nests and within 500 feet of the project site to locate any active raptor (birds of prey) nests or double-crested cormorant or heron rookeries.
  - At Pier 31½, if it is determined that bird nesting habitat is only present for gulls, surveys may 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 trail) 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.

Improvement Measure I-TR-2a: Provide Information on Active Transportation and Transit Routes to/from the Pier 31½ Site

The project proponent will require the concessioner to provide information regarding pedestrian, bicycle, and transit travel to/from the embarkation site to both employees and in advance to visitors. This may include maps designating preferred pedestrian, bicycle or transit routes to/from the site, maps indicating where City-provided bicycle facilities or transit stops are present, and time estimates for walking or biking to common destinations, such as BART stations, Union Square, Pier 39, or other tourist destinations. This information would be presented on tickets and information websites, as well as distributed via mail or email to all ticketed visitors.

Improvement Measure I-TR-2b: Install Multimodal Wayfinding Kiosk and Signage at the Pier 31½ Site

The project proponent will add a multimodal wayfinding kiosk that may include maps, signs, or digital displays to provide visitors information on various travel options and times. The kiosk will be located near the site entrance/exit to the Pier 31½ site. In addition to a centralized kiosk, signage could be placed at the site entrance with directional arrows indicating walk times to nearby destinations or transit stops.

Improvement Measure I-NO-1: Construction Noise Minimization Plan for Pier 31½

The project proponent shall develop a construction noise minimization plan that requires the following:

- Construction contractors shall specify noise-reducing construction practices and measures that will be employed to reduce construction noise from pile driving and construction activities. The practices and measures specified by the project proponent will be reviewed and approved by the City prior to the issuance of building permits. Practices and measures that can be used to limit noise include but are not limited to those listed below:
  - Avoid simultaneous use of equipment that exceeds 90 dBA, particularly impact and vibratory pile drivers
  - Install noise mufflers to stationary equipment and impact tools that are no less effective than those provided by the manufacturer
  - Use construction equipment with low noise emission ratings
  - Locate equipment, materials, and staging areas as far as practicable from sensitive receptors
  - Install barriers around particularly loud activities at the construction site to eliminate the line of sight between the source of noise and nearby sensitive receptors, which could reduce noise up to 10 dBA based on the configuration of the site and equipment used.[196]
  - Prohibit unnecessary idling of vehicles or equipment
  - Require applicable construction-related vehicles or equipment to use designated truck routes to access the proposed project site
  - Restrict construction activities between 7:00 AM to 8:00 PM Monday through Saturday

Improvement Measure I-AQ-1a: Use Cleaner Construction Equipment

The project proponent shall develop a plan demonstrating that the off-road equipment (more than 50 horsepower) to be used in the construction project (i.e., owned, leased, and subcontractor vehicles) would achieve a project wide fleet-average 20 percent nitrogen oxide (NOx) reduction and 45 percent particulate matter (PM) reduction compared to the most recent California Air Resources Board fleet average. Acceptable options for reducing emissions include the use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, add-on devices such as particulate filters, and/or other options as such become available.

Improvement Measure I-AQ-1b: Use Cleaner Engines on Tugboats

The project proponent shall use tugboats with Tier 4 propulsion engines and Tier 3 auxiliary engines.

[196] The Federal Highway Administration's *Roadway Construction Noise Model Users' Guide* gives the following "rules of thumb" for estimating noise attenuation of barriers at construction sites:
3 dBA - if a noise barrier or other obstruction (like a dirt mound) just barely breaks the line-of- sight between the noise source and the receptor;
5 dBA - if the noise source is partly enclosed OR shielded with a barrier with some gaps located close to the source;
8 dBA - if the noise source is completely enclosed OR completely shielded with a solid barrier located close to the source;
10 dBA - if the noise source is completely enclosed AND completely shielded with a solid barrier located close to the source;
15 dBA - if a building stands between the noise source and receptor and completely shields the noise source.

Improvement Measure I-BI-1a: Pile Driving Work Windows

Pile driving will occur between July 1 and November 30 at the Pier 31½ site and between July 1 and September 30 at the Fort Baker site.

Improvement Measure I-BI-1b: Noise Monitoring Plan

The project proponent will develop and implement a marine noise monitoring plan which would be subject to review and approval by the National Marine Fisheries Service. As part of this plan, the following measures will be implemented:

- *Equipment Controls:* The proposed project will be required to bring loud mechanical equipment online slowly (employ a "soft-start").
- *Noise Monitoring:* A trained acoustical specialist will conduct underwater noise monitoring during marine construction to ensure that pile driving noise levels do not exceed the levels identified through noise modeling for the proposed project. If noise levels are exceeded, the proposed project will implement cushion blocks in the hammer to reduce sound levels and prevent exceedance of the levels projected through noise modeling, and noise level exceedances will be reported to the National Marine Fisheries Service.

Improvement Measure I-BI-1c: Marine Mammal Safety Zone

The project proponent will maintain a 500-meter safety zone around sound sources in the event that the sound level is unknown or cannot be adequately predicted. This will be required at the onset of construction, prior to confirming noise levels through noise monitoring (as required through **Improvement Measure I-BI-1b, Noise Monitoring Plan**).

A qualified marine biologist on shore or by boat will survey the safety zone to ensure that no marine mammals are within the zone before pile driving begins. If a marine mammal is observed within the safety zone before pile driving begins, pile driving will be delayed until the marine mammals move out of the area.

If marine mammals enter the safety zone after pile driving of a segment has begun, pile driving will continue. The biologist will monitor and record the species and number of individuals observed, and make note of their behavior patterns. If the animal appears distressed, and if it is operationally safe to do so, pile driving will cease until the animal leaves the area. Prior to the initiation of each new pile driving episode, the area will again be thoroughly surveyed by the biologist.

G. PUBLIC NOTICE AND COMMENT

On September 13, 2017, the Planning Department mailed a "Notification of Project Receiving Environmental Review" to property owners and residents of property within 300 feet of the project sites, responsible and trustee agencies, and interested parties. No comments were received in response to the notification.

On December 6, 2017, the Planning Department issued a "Notice of Availability of and Intent to Adopt a Negative Declaration" in accordance with CEQA Guidelines section 15072. In response to this notice, the City of Sausalito filed an appeal of the preliminary mitigated negative declaration on December 27, 2018. The City of Sausalito's primary concern is that Fort Baker ferry passengers may leave Fort Baker and travel to downtown Sausalito, exacerbating overcrowded conditions within Sausalito's downtown and waterfront. To evaluate this concern, a supplemental transportation and circulation study was performed and is included as Appendix B. The study concluded that the project is not likely to contribute substantially to congestion issues and conflicts between bicycles, pedestrians, and vehicles in Sausalito. FMND section E.5, Transportation and Circulation, has been revised to reflect this additional analysis, which does not change the less-than-significant findings of the PMND concerning transportation and circulation.

No other comments were received.

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 proponent. 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_____

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Appendix A
Federal and State Listed Species with the Potential to Occur in the Study Area

TABLE A-1
FEDERALLY LISTED SPECIES WITH THE POTENTIAL TO OCCUR IN THE STUDY AREA
(FISH AND MARINE MAMMALS LISTED IN TABLE A-4)

Species	Federal	State	Habitat Association	Potential to Occur	
				Pier 31 ½	Fort Baker
Invertebrates					
San Bruno elfin butterfly (*Callophrys mossii bayensis*)	E	-	Rocky outcrops and cliffs in coastal scrub on the San Francisco Peninsula that support its host plant, stonecrop (*Sedum spathulifolium).*	No potential to occur. Habitat not present.	
Bay checkerspot butterfly (*Euphydryas editha bayensis*)	T	-	Shallow, serpentine-derived or similar soils in the San Francisco Bay Area. Primary host plant is the native plantain (*Plantago erecta).* Populations are known only from San Mateo and Santa Clara counties.	No potential to occur. Habitat not present.	Very low potential to occur. Coastal scrub habitat may be marginally suitable for host species. No recorded observations in the study area.
Black abalone (*Haliotes cracherodii*)	E	-	Rocky intertidal and subtidal habitats.	No potential to occur. Habitat not present.	No potential to occur. Habitat not present.
White abalone (*Haliotes sorenseni*)	E	-	Open low and high relief rock or boulder habitat that is interspersed with sand channels.	No potential to occur. Habitat not present.	No potential to occur. Habitat not present.
Mission blue butterfly (*Icaricia icarioides missionensis*)	E	-	Coastal chapparal and grasslands that support its host plants, perennial lupines (*Lupinus albifrons, L. Variicolor*, and *L. Formosus*).	No potential to occur. Habitat not present.	Low potential to occur. Coastal scrub habitat may be marginally suitable for host species. Recorded observations in grasslands of Marin Headlands.
Callippe silverspot butterfly (*Speyeria callippe callippe*)	E	-	Grasslands that support its host plant, Johnny jump-up (*Viola pedunculata*). Populations are known only from San Bruno Mountain on the San Francisco Peninsula.	No potential to occur. Habitat not present.	No potential to occur. Habitat not present.
Myrtle's silverspot butterfly (*Speyeria zerene myrtleae*)	E	-	Dunes, scrub, and grasslands immediately adjacent to the coast. Populations are known only from Marin County.	No potential to occur. Habitat not present.	No potential to occur. Habitat not present.

Species	Federal	State	Habitat Association	Potential to Occur	
				Pier 31 ½	Fort Baker
Amphibians					
California tiger salamander (*Ambystoma californiense*)	T	T	Cismontane woodland, meadow and seep, riparian woodland, valley and foothill grassland.	No potential to occur. Habitat not present.	No potential to occur. Habitat not present.
California red-legged frog (*Rana draytonii*)	T	-	Streams, deep pools, backwaters within streams and creeks, ponds, marshes, sag ponds, dune ponds, and lagoons and adjacent uplands.	No potential to occur. Habitat not present.	No potential to occur. Habitat not present.
Reptiles					
Loggerhead turtle (*Caretta caretta*)	T	-	Open ocean, seldom along the California coast.	No potential to occur. Habitat not present.	No potential to occur. Habitat not present.
Green turtle (*Chelonia mydas*)	T	-	Warm-water bays and lagoons.	No potential to occur. Habitat not present.	No potential to occur. Habitat not present.
Leatherback turtle (*Dermochelys coriacea*)	E	-	Open ocean, California coast, bays, and estuaries.	No potential to occur. Habitat not present.	No potential to occur. Habitat not present.
Olive Ridley sea turtle (*Lepidochelys olivacea*)	T	-	Bay and lagoons, seldom in California.	No potential to occur. Habitat not present.	No potential to occur. Habitat not present.
Alameda whipsnake (*Masticophis lateralis euryxanthus*)	T	T	Chaparral and scrub habitats, adjacent grassland, oak savanna, and woodland habitats. Mostly south-facing slopes and ravines with rock outcrops, deep crevices, or abundant rodent burrows.	No potential to occur. Habitat not present.	No potential to occur. Habitat not present.
San Francisco garter snake (*Thamnophis sirtalis tetrataenia*)	E	E	Wetlands or grasslands near ponds, marshes, and sloughs.	No potential to occur. Habitat not present.	No potential to occur. Habitat not present.
Birds					
Marbled murrelet (*Brachyramphus marmoratus*)	T	E	Coastal waters; nests inland in old-growth redwood forests and in Marin County in Douglas fir forests.	No potential to occur. Habitat not present.	No potential to occur. Habitat not present.
Western snowy plover (*Charadrius alexandrinus nivosus*)	T	SSC	Flat, open coastal beaches, dunes, and near stream mouths.	No potential to occur. Habitat not present.	No potential to occur. Habitat not present.
California Ridgway's rail (*Rallus longirostris obsoletus*)	E	E; FP	Saltmarshes along San Francisco Bay.	No potential to occur. Habitat not present.	No potential to occur. Habitat not present.
California least tern (*Sternula antillarum brow*nii)	E	E; FP	Shallow estuaries and lagoons.	No potential to occur. Habitat not present.	Low potential to occur. Known to occur in Horseshoe Bay.

Species	Federal	State	Habitat Association	Potential to Occur	
				Pier 31 ½	Fort Baker
Northern spotted owl (*Strix occidentalis caurina*)	T	-	Old-growth forests or mixed stands of old-growth and mature trees. Occasionally in younger forests w/patches of big trees. High, multistory canopy dominated by big trees, many trees w/cavities or broken tops, woody debris, and space under canopy.	No potential to occur. Habitat not present.	No potential to occur. Habitat not present.
Yellow-headed blackbird (*Xanthocephalus xanthocephalus*)	-	SC	Nests in freshwater emergent wetlands with dense vegetation and deep water. Often along borders of lakes or ponds. Nests only where large insects such as odonata are abundant, nesting timed with maximum emergence of aquatic insects.	No potential to occur. Habitat not present.	No potential to occur. Habitat not present.
Mammals					
Salt marsh harvest mouse (*Reithrodontomys raviventris*)	E	E, FP	Saline emergent wetlands only; requires pickleweed.	No potential to occur. Habitat not present.	No potential to occur. Habitat not present.
Plants					
Presidio manzanita (*Arctostaphylos montana ssp. ravenii*)	E	E; 1B.1	Serpentinite soils in chaparral, coastal prairie, and coastal scrub. Known from only one extant native occurrence at the Presidio in San Francisco.	No potential to occur. Habitat not present.	No potential to occur. Habitat not present.
Franciscan manzanita (*Arctostaphylos franciscana)*	E	1B.1	Chaparral, ultramafic.	No potential to occur. Habitat not present	No potential to occur. Habitat not present
Pallid manzanita (*Arcostaphylos pallida*)	T	E; 1B.1	Broadleafed upland forest, closed-cone coniferous forest, chaparral, cismontane woodland, coastal scrub. Grows on uplifted marine terraces on siliceous shale or thin chert. May require fire.	No potential to occur. Habitat not present.	No potential to occur. Habitat not present.
Marsh sandwort (*Arenaria paludicola*)	E	E; 1B.1	Sandy, openings, freshwater or brackish marshes and swamps. Populations are known only from Santa Cruz County.	No potential to occur. Habitat not present.	No potential to occur. Habitat not present.
Tiburon mariposa lily (*Calochortus tiburonensis*)	T	T; 1B.1	Valley and foothill grassland. On open, rocky, slopes in serpentine grassland.	No potential to occur. Habitat not present.	No potential to occur. Habitat not present.
Tiburon paintbrush (*Castilleja affinis ssp. neglecta*)	E	T; 1B.2	Valley and foothill grassland. Rocky serpentine sites.	No potential to occur. Habitat not present.	No potential to occur. Habitat not present.

Species	Federal	State	Habitat Association	Potential to Occur	
				Pier 31 ½	Fort Baker
Robust spineflower (*Chorizanthe robusta* var. *robusta*)	E	1B.1	Sandy or gravelly soils in maritime chaparral, openings in cismontane woodland, coastal dunes, and coastal scrub. Most populations extirpated, and now known from only six extended occurrences in Santa Cruz and Monterey Counties.	No potential to occur. Habitat not present.	No potential to occur. Habitat not present.
Presidio clarkia (*Clarkia franciscana*)	E	E; 1B.1	Coastal scrub and serpentinite soils in valley and foothill grassland.	No potential to occur. Habitat not present.	No potential to occur. Habitat not present.
Marin western-flax (*Hesperolinon congestum*)	T	T; 1B.1	Serpentinite soils in chaparral and valley and foothill grassland.	No potential to occur. Habitat not present.	No potential to occur. Habitat not present.
Santa Cruz tarplant (*Holocarpha macradenia*)	T	E; 1B.1	Coastal prairie, valley and foothill grassland. Light, sandy soil or sandy clay; often with non-natives.	No potential to occur. Habitat not present.	No potential to occur. Habitat not present.
Beach layia (*Layia camosa*)	E	E; 1B.1	Coastal dunes and sandy soils in coastal scrub.	No potential to occur. Habitat not present.	No potential to occur. Habitat not present.
San Francisco lessingia (*Lessingia germanorum*)	E	E; 1B.1	Remnant dunes in coastal scrub. Populations known from only four occurrences in the Presidio.	No potential to occur. Habitat not present.	No potential to occur. Habitat not present.
White-rayed pentachaeta (*Pentachaeta bellidiflora*)	E	E; 1B.1	Cismontane woodland and serpentine soils in valley and foothill grassland.	No potential to occur. Habitat not present.	No potential to occur. Habitat not present.
Tiburon jewelflower (*Streptanthus glandulosus ssp. niger)*	E	E; 1B.1	Valley and foothill grassland. Shallow, rocky serpentine slopes.	No potential to occur. Habitat not present.	No potential to occur. Habitat not present.
California sea blite *(Suaeda californica*)	E	1B.1	Coastal salt marshes and swamps. Populations known only from Morrow Bay and near Cayucos Point; considered extirpated in the San Francisco Bay area.	No potential to occur. Habitat not present.	No potential to occur. Habitat not present.
Two-forkall clover (*Trifolium amoenum*)	E	1B.1	Coastal bluff scrub and valley and foothill grasslands (occasionally serpentinite soils).	No potential to occur. Habitat not present.	No potential to occur. Habitat not present.

Source: California Natural Diversity Database and U.S. Fish and Wildlife Service database search of project and surrounding quadrangles; San Francisco North, San Rafael, San Quentin, Richmond, Point Bonita, Oakland West, Hunters Point, and San Francisco South

E: endangered

Rare Plant Rank 1B.1: rare, threatened, or endangered in California and elsewhere; seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)

SSC: state species of special concern

T: threatened

TABLE A-2
STATE LISTED THREATENED AND ENDANGERED PLANTS AND ADDITIONAL SPECIAL STATUS WILDLIFE SPECIES WITH THE POTENTIAL TO OCCUR IN THE STUDY AREA (FISH AND MARINE MAMMALS LISTED IN TABLE A-4)

Species	Federal	State	Habitat Association	Potential to Occur	
				Pier 31 ½	Fort Baker
Amphibians					
California giant salamander (*Dicamptodon ensatus*)		SSC	Aquatic, meadow and seep, north coast coniferous forest, riparian forest.	No potential to occur. Habitat not present.	No potential to occur. Habitat not present.
Foothill yellow-legged frog (*Rana boylii*)	-	SC	Partly-shaded, shallow streams and riffles with a rocky substrate in a variety of habitats. Need at least some cobble-sized substrate for egg-laying.	No potential to occur. Habitat not present.	No potential to occur. Habitat not present.
Reptiles					
Western pond turtle (*Emys marmorata*)	-	SSC	Freshwater ponds, marshes, and year-round streams.	No potential to occur. Habitat not present.	No potential to occur. Habitat not present.
Birds					
Short-eared owl (*Asio flammeus*)	-	SSC	Found in swamp lands, both fresh and salt; lowland meadows; irrigated alfalfa fields. Tule patches/tall grass needed for nesting/daytime seclusion. Nests on dry ground in depression concealed in vegetation.	No potential to occur. Habitat not present.	No potential to occur. Habitat not present.
Burrowing owl (*Athene cunicularia*)	-	SSC	Open, dry annual or perennial grasslands, deserts and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	No potential to occur. Habitat not present.	No potential to occur. Habitat not present.
Northern harrier (*Circus cyaneus*)	-	SSC	Coastal salt and fresh-water marsh. Nest and forage in grasslands, from salt grass in desert sink to mountain cienagas. Nests on ground in shrubby vegetation, usually at marsh edge; nest built of a large mound of sticks in wet areas.	No potential to occur. Habitat not present.	No potential to occur. Habitat not present.
Salt marsh common yellowthroat (*Geothylpis trichas sinuosa*)	-	SSC	Tidal salt marshes with adjacent riparian vegetation.	No potential to occur. Habitat not present.	No potential to occur. Habitat not present.
California black rail (*Lateralus jamaicensis coturniculus*)	-	T; FP	Tidal salt marshes.	No potential to occur. Habitat not present.	No potential to occur. Habitat not present.

Species	Federal	State	Habitat Association	Potential to Occur	
				Pier 31 ½	Fort Baker
Alameda song sparrow (*Melospiza melodia pusillula*)	-	SSC	Tidal salt marshes.	No potential to occur. Habitat not present.	No potential to occur. Habitat not present.
San Pablo song sparrow (*Melospiza melodia samuelis*)	-	SSC	Tidal salt marshes.	No potential to occur. Habitat not present.	No potential to occur. Habitat not present.
California brown pelican (*Pelecanus occidentalis californicus*)	D	FP	Coastal waters along the Pacific Coast.	Potential to occur.	No potential to occur. Habitat not present.
Bank swallow (*Riparia riparia*)	-	T	Vertical banks or bluffs of friable soils suitable for burrowing.	No potential to occur. Habitat not present.	No potential to occur. Habitat not present.
Yellow-headed blackbird (*Xanthocephalus xanthocephalus*)	-	SSC	Marsh, swamp, and wetlands.	No potential to occur. Habitat not present.	No potential to occur. Habitat not present.
Mammals					
Pallid bat *Antrozous pallidus*	-	SSC	Deserts, grasslands, shrublands, woodlands, and forests. Most common in open, dry habitats with rocky areas for roosting. Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	No potential to occur. Habitat not present.	Low to moderate potential to occur. May roost in abandoned or minimally occupied structures within the study area.
Townsend's big-eared bat (*Corynorhinus (Plecotus) townsendii*)	-	SSC	Caves, mines, tunnels, buildings, or other human-made structures for roosting.	No potential to occur. Habitat not present	Low to moderate potential to occur. May roost in abandoned or minimally occupied structures within the study area.
Western red bat (*Lasiurus blossevillii*)	-	SSC	Woodland borders, rivers, agricultural areas, and urban areas with mature trees.	No potential to occur. Habitat not present	Low to moderate potential to occur. May roost in trees within the project area.
San Pablo vole (*Microtus californicus sanpabloensis*)	-	SSC	Saltmarshes of San Pablo Creek, on the south shore of San Pablo Bay. Constructs burrow in soft soil. Feeds on grasses, sedges, and herbs. Forms a network of runways leading from the burrow.	No potential to occur. Habitat not present.	No potential to occur. Habitat not present.
Big free-tailed bat (*Nyctinomops macrotis*)	-	SC	Low-lying arid areas in southern California. Need high cliffs or rocky outcrops for roosting sites. Feeds principally on large moths.	No potential to occur. Habitat not present.	Low to moderate potential to occur. May roost or forage in the project area.
Alameda Island mole	-	SSC	Valley and foothill grassland, only known in Alameda	No potential to occur.	No potential to occur.

Species	Federal	State	Habitat Association	Potential to Occur	
				Pier 31 ½	Fort Baker
(*Scapanus latimanus parvus*)			Island.	Habitat not present.	Habitat not present.
Salt-marsh wandering shrew (*Sorex vagrans halicoetes*)	-	SSC	Salt marshes of the south arm of San Francisco Bay. Medium high marsh 6 to 8 feet above sea level where abundant driftwood is scattered among imbricata.	No potential to occur. Habitat not present.	No potential to occur. Habitat not present.
American badger (*Taxidea taxus*)	-	SSC	Open, arid habitats, commonly in grasslands, savannas, mountain meadows, and open areas of desert scrub.	No potential to occur. Habitat not present.	Low potential to occur. Known to occur in grasslands of Marin Headlands. May frequent coastal scrub at Fort Baker.
Point Reyes jumping mouse (*Zapus trinotatus orarius*)	-	SSC	Coastal forests; restricted to Point Reyes Peninsula.	No potential to occur. Habitat not present.	No potential to occur. Habitat not present.
Plants					
San Bruno Mountain manzanita (*Arctostaphylos imbricata*)	-	E; 1B.1	Rocky areas in chaparral and coastal scrub. Population known from fewer than five occurrences on San Bruno Mountain.	No potential to occur. Habitat not present.	No potential to occur. Habitat not present.
Pacific manzanita (*Arctostaphylos pacifica)*	-	E; 1B.1	Chaparral, coastal scrub.	No potential to occur. Habitat not present.	No potential to occur. Habitat not present.
San Francisco popcorn-flower (*Plagiobothrys diffusus*)	-	E; 1B.1	Coastal prairie and valley and foothill grassland. Populations in San Francisco are considered extirpated.	No potential to occur. Habitat not present.	No potential to occur. Habitat not present.
North Coast semaphore grass (*Pleuropogon hooverianus*)	-	T; 1B.1	Broadleafed upland forest, meadows and seeps, north coast coniferous forest. Wet grassy, usually shady areas, sometimes freshwater marsh; associated with forest environments.	No potential to occur. Habitat not present.	No potential to occur. Habitat not present.

D: Delisted
FP: fully protected
Rare Plant Rank 1B.1: rare, threatened, or endangered in California and elsewhere; seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)
SSC: state species of special concern
T: threatened

Additional Special-Status Plants. Plant species with a California Rare Plant Rank 1B (Plants Rare, Threatened or Endangered in California and Elsewhere), 2 (Plants Rare, Threatened or Endangered in California but More Common Elsewhere) or 3 (Plants About Which We Need More Information) are listed in Table A-3 below. Based on the current habitat conditions and the known range of these species, none of these have potential to occur within the study area:

TABLE A-3
ADDITIONAL CALIFORNIA NATIVE PLANT SPECIES LIST PLANT SPECIES WITH THE POTENTIAL TO OCCUR IN THE STUDY AREA

Common Name	Scientific Name	California Rare Plant Rank
Franciscan onion	*Allium peninsulare var. franciscanum*	1B.2
Napa false indigo	*Amorpha californica var. napensis*	1B.2
Bent-flowered fiddleneck	*Amsinckia lunaris*	1B.2
Montara manzanita	*Arctostaphylos montaraensis*	1B.2
Mt. Tamalpais manzanita	*Mt. Tamalpais manzanita*	1B.3
Marin manzanita	*Arctostaphylos virgata*	1B.2
Alkali milk-vetch	*Astragalus tener var. tener*	1B.2
Round-leaved filaree	*California macrophylla*	1B.1
Coastal bluff morning-glory	*Calystegia purpurata ssp. saxicola*	1B.2
Bristly sedge	*Carex comosa*	2B.1
Point Reyes bird's-beak	*Chloropyron maritimum ssp. palustre*	1B.2
San Francisco Bay spineflower	*Chorizanthe cuspidata var. cuspidata*	1B.2
Franciscan thistle	*Cirsium andrewsii*	1B.2
Mt. Tamalpais thistle	*Cirsium hydrophilum var. vaseyi*	1B.2
Compact cobwebby thistle	*Cirsium occidentale var. compactum*	1B.2
Round-headed Chinese-houses	*Collinsia corymbosa*	1B.2
San Francisco collinsia	*Collinsia multicolor*	1B.2
Western leatherwood	*Dirca occidentalis*	1B.2
Tiburon buckwheat	*Eriogonum luteolum var. caninum*	1B.2
Extriplex joaquinana	*Extriplex joaquinana*	1B.2
Minute pocket moss	*Fissidens pauperculus*	1B.2

Common Name	Scientific Name	California Rare Plant Rank
Marin checker lily	*Fritillaria lanceolata var. tristulis*	1B.1
Fragrant fritillary	*Fritillaria liliacea*	1B.2
Blue coast gilia	*Gilia capitata ssp. chamissonis*	1B.1
Dark-eyed gilia	*Gilia millefoliata*	1B.2
San Francisco gumplant	*Grindelia hirsutula var. maritima*	3.2
Diablo helianthella	*Helianthella castanea*	1B.2
Congested-headed hayfield tarplant	*Hemizonia congesta ssp. congesta*	1B.2
Short-leaved evax	*Hesperevax sparsiflora var. brevifolia*	1B.2
Loma Prieta hoita	*Hoita strobilina*	1B.1
Kellogg's horkelia	*Horkelia cuneata ssp. sericea*	1B.1
Point Reyes horkelia	*Horkelia marinensis*	1B.2
Thin-lobed horkelia	*Horkelia tenuiloba*	1B.2
Rose leptosiphon	*Leptosiphon rosaceus*	1B.1
Tamalpais lessingia	*Lessingia micradenia var. micradenia*	1B.2
Arcuate bush-mallow	*Malacothamnus arcuatus*	1B.1
Marsh microseris	*Microseris paludosa*	1B.2
Northern curly-leaved monardella	*Monardella sinuata ssp. nigrescens*	1B.2
Marin County navarretia	*Navarretia rosulata*	1B.2
Choris' popcorn-flower	*Plagiobothrys chorisianus var. chorisianus*	1B.2
Hairless popcorn-flower	*Plagiobothrys glaber*	1A
Oregon polemonium	*Polemonium carneum*	2B.2
Marin knotweed	*Polygonum marinense*	3.1
Tamalpais oak	*Quercus parvula var. tamalpaisensis*	1B.3
Adobe sanicle	*Sanicula maritime*	1B.1
Point Reyes checkerbloom	*Sidalcea calycosa ssp. rhizomata*	1B.2
Marin checkerbloom	*Sidalcea hickmanii ssp. viridis*	1B.1
San Francisco campion	*Silene verecunda ssp. verecunda*	1B.2
Santa Cruz microseris	*Stebbinsoseris decipiens*	1B.2

Common Name	Scientific Name	California Rare Plant Rank
Tamalpais jewelflower	*Streptanthus batrachopus*	1B.3
Mount Tamalpais bristly jewel-flower	*Streptanthus glandulosus ssp. pulchellus*	1B.2
Suisun Marsh aster	*Symphyotrichum lentum*	1B.2
Saline clover	*Trifolium hydrophilum*	1B.2
San Francisco owl's-clover	*Triphysaria floribunda*	1B.2
Coastal triquetrella	*Triquetrella californica*	1B.2

Rare Plant Rank 1B.1 – rare, threatened, or endangered in California and elsewhere; seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)
Rare Plant Rank 1B.2 – rare, threatened, or endangered in California and elsewhere; fairly threatened in California (20-80% occurrences threatened / moderate degree and immediacy of threat)
Rare Plant Rank 1B.3 – rare, threatened, or endangered in California and elsewhere; not very endangered in California
Rare Plant Rank 2B.2 - rare or Endangered in California, common elsewhere; fairly endangered in California

TABLE A-4
FEDERAL ESA- AND STATE ESA-LISTED MARINE SPECIES WITH THE POTENTIAL TO INHABIT THE STUDY AREA

Species	Federal	State	Habitat Association	Potential to Inhabit (Pier 31 ½ and Fort Baker)
Fish				
Green sturgeon southern DPS (*Acipenser medirostris*)	T	SSC	Marine and estuarine environments and Sacramento River; all of San Francisco Bay-Delta (Bay-Delta)	High potential to inhabit. Known to inhabit the Central Bay. Critical habitat present in the study area.
Tidewater goby *(Eucyclogobius newberryi)*	E	SSC	Brackish water habitats along the California coast from Agua Hedionda Lagoon, San Diego County to the mouth of the Smith River	No suitable habitat present. Species presumed to be extirpated from Bay-Delta.
Delta smelt *(Hypomesus transpacificus)*	T	E	Sacramento-San Joaquin Delta, Suisun Bay, San Pablo Bay, river channels and sloughs in Delta	Outside known range.
Central California coast ESU coho salmon *(Oncorhynchus kisutch)*	E	E	Ocean waters, Sacramento and San Joaquin Rivers; migrates from ocean through the Bay-Delta to freshwater spawning grounds	High potential to inhabit. Known to inhabit the Central Bay. Critical habitat present in the study area.
Central California coast DPS steelhead trout *(Oncorhynchus mykiss)*	T	SSC	Ocean waters, Sacramento and San Joaquin Rivers; migrates from ocean through the Bay-Delta to freshwater spawning grounds	High potential to inhabit. Known to inhabit the Central Bay. Critical habitat present in the study area.
Central Valley DPS steelhead trout *(Oncorhynchus mykiss)*	T	-	Ocean waters, Sacramento and San Joaquin Rivers; migrates from ocean through the Bay-Delta to freshwater spawning grounds	High potential to inhabit. Known to inhabit the Central Bay. Critical habitat present in the study area.
Sacramento River winter-run ESU Chinook salmon (*Oncorhynchus tshawytscha)*	E	E	Ocean waters, Sacramento and San Joaquin Rivers; migrates from ocean through the Bay-Delta to freshwater spawning grounds	High potential to inhabit. Known to inhabit the Central Bay. Critical habitat present in the study area.
Central Valley spring-run ESU Chinook salmon *(Oncorhynchus tshawytscha)*	T	T	Ocean waters, Sacramento and San Joaquin Rivers; migrates from ocean through the Bay-Delta to freshwater spawning grounds	High potential to inhabit. Known to inhabit the Central Bay. Critical habitat present in the study area.
Central Valley fall-run/late fall-run Chinook salmon *(Oncorhynchus tshawytscha)*	FSC	SSC	Ocean waters, Sacramento and San Joaquin Rivers; migrates from ocean through the Bay-Delta to freshwater spawning grounds	High potential to inhabit. Known to inhabit the Central Bay.
Longfin smelt *(Spirinchus thaleichthys)*	C	T; SSC	Euryhaline, nektonic, and anadromous. Found in open waters of estuaries, mostly in middle or bottom of water column.	High potential to inhabit. Known to inhabit Central Bay.

Species	Federal	State	Habitat Association	Potential to Inhabit (Pier 31 ½ and Fort Baker)
Eulachon (*Thaleichthys pacificus*)	T	-	Found in Klamath River, Mad River, Redwood Creek, and in small numbers in Smith River and Humboldt Bay tributaries.	No suitable habitat present. Outside of known range.
Marine Mammals				
Southern Sea Otter (*Enhydra lutris nereis*)	T	-	Nearshore marine environments from about Ano Nuevo, San Mateo Co. to Point Sal, Santa Barbara Co. Needs canopies of giant kelp and bull kelp for rafting and feeding. Prefers rocky substrates with abundant invertebrates.	No suitable habitat present. Outside of known range.
Humpback whale *(Megoptera noveangliae)*	E	SSC	Predominantly coastal waters, although occasional individuals enter the Bay-Delta.	Will not inhabit Project footprint. Infrequent transient visitor to the Bay, typically only in deeper waters.

C: candidate
DPS: distinct population segment
E: endangered
ESU: evolutionarily significant unit
FSC: federal species of special concern
SSC: state species of special concern
T: threatened

Sources:
California Department of Fish and Wildlife, California Natural Diversity Database and U.S. Fish and Wildlife Service database search of Project and surrounding quadrangles: San Francisco North, San Rafael, San Quentin, Richmond, Point Bonita, Oakland West, Hunters Point, and San Francisco South, 2017.
National Marine Fisheries Service, Fisheries Management Plan Species Distributions in San Francisco, San Pablo and Suisun Bays, 2001.

Appendix B
Supplemental Transportation Study
Fehr & Peers, February 2018

FEHR PEERS

February 8, 2018

Ms. Julie Moore
San Francisco Planning Department
1650 Mission Street, Suite 400
San Francisco, CA 94103

Subject: Alcatraz Embarkation Facility – Pier 31 ½ Transportation Circulation Study Response to PMND Appeal Transportation Concerns

Dear Julie:

We understand the Preliminary Mitigated Negative Declaration (PMND) on the above subject project has been appealed by the City of Sausalito. As noted in the PMND, the project would include ferry service from Pier 31 ½ to Fort Baker including up to two round trips on weekends only. The City of Sausalito's appeal, prepared by Sheppard Mullin, and dated December 27, 2017, claims that the Fort Baker ferry service component of the project may substantially increase visitor demand to Sausalito, exacerbating already-congested conditions along Sausalito's waterfront, which could potentially cause significant environmental impacts that were not evaluated in the PMND. Further, the City of Sausalito's appeal states that the PMND should have included more detailed discussion about the environmental setting further from Fort Baker, including the Marin Headlands, Alexander Avenue, and Sausalito.

This letter provides additional discussion of the environmental setting near Sausalito and additional discussion of travel demand specific to Sausalito that may be included in the PMND for informational purposes. This letter also includes a more specific response to the transportation-related concerns identified in the City of Sausalito's letter, based on the additional setting and travel demand analysis contained herein.

ADDITIONAL SETTING DISCUSSION

The PMND prepared for the Alcatraz Embarkation Facility did not forecast substantial amount of additional transportation demand between Fort Baker and Sausalito associated with the project. However, additional detail on the existing setting along Alexander Avenue and within Sausalito is provided here for informational purposes.

The City of Sausalito currently experiences high tourism on weekends, particularly during the summer months. On-street traffic and bicycle and pedestrian flows along the City's waterfront are

routine, including perceived high levels of congestion. The Golden Gate Bridge, Highway, and Transportation District (GGBHTD) and the Blue and Gold Fleet operate several ferries between Sausalito and San Francisco on weekends, with higher frequency during the peak summer periods. As part of a separate project, the GGBHTD plans to increase the size of the ferry terminal in Sausalito to accommodate increases in ferry ridership. According to the *Second Addendum to the 2012 Initial Study/Mitigated Negative Declaration and 2017 Addendum for the Sausalito Ferry Terminal* (LSA Associates, 2017) (Ferry Terminal Addendum), the number of ferry passengers with bicycles can reach up to 6,000 passengers per day on peak weekends, which contributes to the congestion in Sausalito and creates some operational challenges associated with loading/unloading passengers.

Specifically, the Ferry Terminal Addendum notes that the primary areas where congestion occurs are in the parking lot areas adjacent to the ferry terminal, with concentrations near the pier, the sidewalks connecting the pier to the local street network, and near the ferry ticket kiosk associated with ferry passengers with bicycles attempting to board ferries to return to San Francisco. The City of Sausalito has noted that this congestion creates safety concerns.

To manage the congestion, the City of Sausalito has adopted a number of strategies including physical improvements to better manage the demand and increased enforcement. The Ferry Terminal Addendum found that with active management to prevent queues from extending outside a designated queuing area, the proposed expansion project would have less than significant transportation impacts.

Fehr & Peers examined collision statistics for an approximately one quarter-mile long segment along Bridgeway, from Bay Street to a midblock location to the south, approximately at Scoma's restaurant for the most recent five-year period for which data is available, 2012-2016 (see Figure 1).[1] This area includes the area that experiences the highest levels of tourism-related congestion.

During that five-year period, a total of 17 collisions were reported. Three of the collisions were reported during weekends and five were reported on Fridays, with the remaining nine occurring on Mondays through Thursdays. Fourteen of the seventeen collisions involved bicycles or pedestrians (eight with bicycles and six with pedestrians). Five of the 17 collisions were reported during the

[1] California Statewide Integrated Traffic Records System (SWITRS), most recently accessed February 2, 2018. Note that records from 2015 and 2016 are considered provisional and subject to change.

month of June, with no other month experiencing more than two (January, September, and October each recorded two collisions). Overall, the data suggests that weekends do not appear to experience disproportionately high rates of collisions. However, the vast majority of reported collisions did involve bicycles or pedestrians. Detailed collision data are provided in the Appendix to this letter.



Figure 1 - Reported Collisions along Bridgeway in Sausalito (2012-2016)

In April 2017, Fehr & Peers completed a study for the Golden Gate National Recreation Area (GGNRA) of conditions at and around Vista Point at the Golden Gate Bridge, which included counts of traffic volumes and speeds along Alexander Avenue on summer weekends in 2016. Alexander Avenue, particularly north of Bunker Road, is the primary route to access Sausalito by car from San Francisco and points to the south, and thus, represents a reasonable proxy for tourist vehicle traffic to and from Sausalito. That study found that the peak traffic volume on Alexander Avenue, north of Bunker Road, near the Fort Baker site, was approximately 775 vehicles per hour on both Saturday and Sunday on a May weekend (May 14-15, 2016). During this same weekend, the 85th percentile

travel speed along the same portion of Alexander Avenue was approximately 40 mph. Traffic counts and speed survey data are included as an Appendix to this letter.

SUPPLEMENTAL ANALYSIS OF TRAVEL DEMAND TO SAUSALITO

As noted in Table 4 of the PMND, the Fort Baker ferry service component of the project would serve approximately 40,000 visitors annually, with service operating on weekends only via two round-trips per weekend day. Visitation is expected to vary by season, with summer and holiday weekends experiencing higher usage than the off-peak winter season. During typical off-peak days, the service is expected to serve approximately 250 visitors per weekend day. During peak weekends, visitor forecasts are expected to reach 500 passengers per day, or approximately 250 passengers per boat.

As noted in the Setting section, both the GGBHTD and the Blue and Gold Fleet operate several ferries between Sausalito and San Francisco on weekends, with higher frequency during the peak summer periods. Combined, the ferries operate approximately 12 round trips per day on peak summer weekends, with service between Sausalito and the San Francisco Ferry Terminal and Pier 41. Because the ferry service between Sausalito and San Francisco is so robust, it is unlikely that most visitors would choose to take a ferry to Fort Baker and then some other form of transportation to Sausalito, as it would be a more circuitous, time-consuming, and likely more expensive way to travel.[2] Instead the ferry service to Fort Baker would likely be most attractive to visitors who wish to visit Fort Baker's many uses, including the Cavallo Point Lodge (restaurant, spa, hotel, and conference center), the Bay Area Discovery Museum, Battery Yates and Battery Cavallo, the Travis Sailing Center/Presidio Yacht Club, or the California Coastal Trail in the Marin Headlands.

However, even if some users did elect to make the trip to Sausalito via Fort Baker, options for doing so are limited. Walking is not likely a viable option. The distance between Fort Baker and Sausalito is approximately 2 miles, and sidewalks or paths between the two are discontinuous. Pedestrians

[2] It is also unlikely that most visitors would take a ferry to downtown Sausalito from San Francisco and then travel to and from Fort Baker from downtown Sausalito because the distance between the San Francisco Ferry Building and Pier 31.5 is approximately one mile and the numerous travel options that exist between those two sites, In other words, it is most likely that if a visitor is destined for downtown Sausalito, they would leave from the San Francisco Ferry Building and if a visitor is destined for Fort Baker, they would leave from Pier 31.5.

would likely be forced to use Alexander Avenue or East Road, both of which are very narrow, windy, and steep with partial sidewalks, and would be extremely uncomfortable for pedestrians. Bicycling is also not a likely option, as bicycles would be prohibited on the Fort Baker ferries, and there are not currently any bicycle rental locations in Fort Baker, nor are there any known plans to add them. Thus passengers would not be able to obtain a bicycle in Fort Baker with which to ride to Sausalito. Finally, transit service between Fort Baker and Sausalito is virtually non-existent, and there are no shuttles currently or planned in the future. The most viable potential way for visitors to travel between Fort Baker and Sausalito would be by Transportation Network Company (TNC), such as Uber or Lyft, or other types of for-hire vehicles (e.g., taxis).

While traveling to Sausalito via Fort Baker does not appear to be a particularly convenient or desirable route, even if it were to occur, the number of new vehicles added to the roadway network would be small. For example, even if one-half of all ferry passengers were to travel to Sausalito (a conservatively large portion given the number of ferries that travel directly between San Francisco and Sausalito and the potential lack of TNC or other for-hire vehicle availability to arrive at one time given the lower relative density of demand for such for-hire vehicles compared to other places in the Bay Area (e.g., downtown San Francisco)), that would mean 125 passengers per ferry would travel to Sausalito. Based on the analysis in the PMND, average vehicle occupancy for visitors who arrived at the Pier 31 ½ Embarkation Facility in San Francisco was 3.9 persons per vehicle. It is reasonable to assume this represents an average group size, regardless of arrival mode in San Francisco. Assuming a vehicle occupancy of 3.9 passengers per vehicle means the 125 passengers per ferry would occupy 32 vehicles. Finally, if people were taking the ferry to Fort Baker and Sausalito, it is likely that some of those trips would have occurred anyway (or are currently occurring) by car, which means that the number of net new vehicle trips would be even lower than 32 for each ferry.

Thus, even under the very conservative assumption that 50 percent of Fort Baker ferry passengers eventually traveled to Sausalito, the number of net new car trips to Sausalito would likely be less than 30 vehicles per hour, even on a peak weekend. And, even if those trips happened to coincide with the peak hour of traffic volumes on Alexander Avenue, they would represent less than four percent of the existing peak weekend traffic on Alexander Avenue, north of Bunker Road.

While this relatively small (and hypothetical) increase in traffic due to TNCs traveling between Fort Baker and Sausalito would be very small in relation to the existing traffic along Alexander Road and in Sausalito, if that level of traffic were to appear at once within Fort Baker without any curbside management to facilitate safe unloading or loading of passengers, it may create some localized

congestion near the Fort Baker ferry landing. This would be a particular concern during the period when passengers disembark the ferry because they arrive simultaneously; passengers taking TNCs back to the ferry landing to return to San Francisco would likely arrive over a more dispersed period of time prior to the ferry departure, such that vehicles would not arrive simultaneously, drivers would drop off passengers, and queues would not form.

However, for the reasons described above, it is highly unlikely that passengers would disembark the ferry at Fort Baker and immediately request a TNC vehicle to transport them somewhere else that has existing ferry service, such as Sausalito. Instead, those who wish to visit Sausalito from Fort Baker would most likely chose to do so for a meal or sightseeing after completing whatever activities at Fort Baker they originally and primarily traveled for. In this instance, the instances of pick-up or drop-off would be dispersed over time during the day, and would not be concentrated at a specific location (i.e., the ferry landing); instead, they would be spread over multiple destinations within Fort Baker, and would not likely form queues or congestion at any particular point.

Thus, overall, as noted in the PMND, the project is not expected to add substantial increases in traffic, pedestrians or bicycling to Sausalito and therefore is not expected to exacerbate the existing pedestrian, bicycle, or traffic congestion levels described in the Setting section or to create new hazards or exacerbate any existing hazards. Additionally, the very small number of patrons that may travel to Sausalito by TNC vehicle, if any, would not likely create localized congestion near the ferry landing because pick-ups would be dispersed geographically and temporally.

RESPONSE TO TRANSPORTATION CONCERN

The City of Sausalito's appeal also cites the Fort Baker Plan EIS (p. 5-4), which states:

> *Increased visitation at Fort Baker would increase the demand for lodging, restaurant, and other tourist-oriented services in surrounding areas, especially in Sausalito, Tiburon, and San Francisco.*

This statement was made in the context of the entire Fort Baker Plan, which included substantial improvements to the site's historic features and a new conference center, with new meeting space, up to 350 hotel rooms, spa, and restaurant components, an expansion to the Bay Area Discovery Museum, and parking for up to 455 vehicles. This general increase in activity at Fort Baker could reasonably be expected to generate demand for travel between the two sites, particularly for visitors with cars who would be staying at the Fort Baker conference facility for multiple days.

In contrast, the proposed Fort Baker ferry service would be for day trips for visitors from San Francisco who specifically wanted to visit Fort Baker, and not for visitors who were staying multiple days at Fort Baker for a conference who may wish to explore other parts of Marin County during their stay. While both the Fort Baker Plan and the Fort Baker ferry service could increase visitorship at Fort Baker, the types and travel patterns of visitors is different between conference attendees staying at Fort Baker and ferry passengers traveling there from San Francisco for the day. Thus, the conclusion that the Fort Baker ferry would not likely generate substantial increases in visitors to Sausalito is not inconsistent with the Fort Baker EIS.

The PMND included a detailed and adequate analysis of transportation conditions likely to be affected by the proposed project. As noted above, it is unlikely that a substantial amount of passengers would use the Fort Baker ferry to travel from San Francisco to Sausalito because there are so many direct ferries between the two cities, and the connections between Fort Baker and Sausalito are not particularly convenient. However, as noted above, even if some passengers did include a stop in Sausalito on their trip, the likely way to do so would be by TNC (e.g., Uber and Lyft) or other for-hire vehicle (e.g., taxi), and not by foot, bicycle, or transit. Even under a set of conservative assumptions, traffic volume increases would not likely be high enough to be perceptible to the public. Therefore, the project would not create new hazards or exacerbate existing hazards in and around Sausalito.

Further, as discussed on pp. 65-66 and p. 69 of the PRMD, the City of San Francisco does not use traffic congestion as a metric for assessing transportation impacts. Rather, consistent with Senate Bill 743 and recent supporting guidance from the State of California Governor's Office of Planning and Research (OPR), the City of San Francisco has adopted a VMT efficiency metric[3]. Thus, even if traffic from the Fort Baker ferry service were to increase congestion in Sausalito, it would not be considered a significant environmental impact.

The City of San Francisco does consider substantial conflicts between modes that create new or exacerbate existing safety problems to be a significant impact. However, as noted above, the vast majority of reported collisions in the last five years were mid-week, likely when congestion levels

[3] San Francisco Planning Department, *Executive Summary: Resolution Modifying Transportation Impact Analysis*, March 3, 2016.

are lower and cars are traveling at faster speeds. The project would not be in operation mid-week, and would not likely increase bicycles or pedestrians in Sausalito on weekends, and therefore, would not exacerbate the City of Sausalito's safety concerns.

In summary, although congestion issues and conflicts between bicycles, pedestrians, and car traffic are perceived as high for the context of Sausalito, particularly during peak summer weekends, the project is not likely to contribute to that congestion or those conflicts in a meaningful way such that the project would create new significant impacts in Sausalito requiring mitigation.

We hope you have found this information helpful. Please do not hesitate to call if you have any questions.

Sincerely,
FEHR & PEERS



Chris Mitchell, PE
Principal

TECHNICAL APPENDIX

Vehicle Speed Report Summary

Location: Sausalito Lateral Rd

Count Direction: Northbound / Southbound

Date Range: 5/14/2016 to 5/15/2016

Site Code: 01

	Speed Range (mph)																	Total
	0 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	40 - 45	45 - 50	50 - 55	55 - 60	60 - 65	65 - 70	70 - 75	75 - 80	80 - 85	85 +	Volume
Study Total																		
Northbound	8	56	164	506	1,092	2,287	2,408	957	199	28	3	2	0	0	0	0	0	7,710
Percent	0.1%	0.7%	2.1%	6.6%	14.2%	29.7%	31.2%	12.4%	2.6%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100%
Southbound	5	133	743	764	957	2,354	2,541	1,410	367	73	7	1	0	0	0	0	0	9,355
Percent	0.1%	1.4%	7.9%	8.2%	10.2%	25.2%	27.2%	15.1%	3.9%	0.8%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100%
Total	13	189	907	1,270	2,049	4,641	4,949	2,367	566	101	10	3	0	0	0	0	0	17,065
Percent	0.1%	1.1%	5.3%	7.4%	12.0%	27.2%	29.0%	13.9%	3.3%	0.6%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100%

Total Study Percentile Speed Summary			Total Study Speed Statistics		
Northbound			**Northbound**		
50th Percentile (Median)	34.5	mph	Mean (Average) Speed	33.9	mph
85th Percentile	40.0	mph	10 mph Pace	29.8 - 39.8	mph
95th Percentile	43.3	mph	Percent in Pace	60.9	%
Southbound			**Southbound**		
50th Percentile (Median)	34.2	mph	Mean (Average) Speed	33.3	mph
85th Percentile	41.0	mph	10 mph Pace	30.9 - 40.9	mph
95th Percentile	44.8	mph	Percent in Pace	52.8	%

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Location: Sausalito Lateral Rd
Date Range: 5/14/2016 to 5/15/2016
Site Code: 01

Saturday, May 14, 2016
Northbound

Time	Speed Range (mph)																	Total Volume
	0 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	40 - 45	45 - 50	50 - 55	55 - 60	60 - 65	65 - 70	70 - 75	75 - 80	80 - 85	85 +	
12:00 AM	0	0	0	0	3	8	16	1	1	0	0	0	0	0	0	0	0	**29**
1:00 AM	0	0	0	1	2	6	5	4	0	0	0	0	0	0	0	0	0	**18**
2:00 AM	0	0	0	2	0	4	7	2	1	0	0	0	0	0	0	0	0	**16**
3:00 AM	0	0	0	0	0	1	4	1	0	0	0	0	0	0	0	0	0	**6**
4:00 AM	0	0	1	0	1	1	4	2	0	0	0	0	0	0	0	0	0	**9**
5:00 AM	0	0	0	0	1	2	7	6	2	0	0	0	0	0	0	0	0	**18**
6:00 AM	0	1	4	10	4	6	13	5	4	0	0	0	0	0	0	0	0	**47**
7:00 AM	0	0	2	3	9	12	17	9	9	1	1	0	0	0	0	0	0	**63**
8:00 AM	0	0	6	30	29	28	52	18	5	0	0	0	0	0	0	0	0	**168**
9:00 AM	0	0	6	24	34	55	54	40	3	3	0	0	0	0	0	0	0	**219**
10:00 AM	0	5	15	29	47	93	65	20	2	0	0	0	0	0	0	0	0	**276**
11:00 AM	0	2	8	47	59	85	84	39	3	0	0	0	0	0	0	0	0	**327**
12:00 PM	1	2	11	20	59	114	92	30	6	0	0	0	0	0	0	0	0	**335**
1:00 PM	0	1	3	16	46	107	81	12	6	1	0	2	0	0	0	0	0	**275**
2:00 PM	0	1	3	15	59	87	107	30	2	2	0	0	0	0	0	0	0	**306**
3:00 PM	2	6	6	12	45	95	99	31	4	0	0	0	0	0	0	0	0	**300**
4:00 PM	0	0	5	8	42	84	63	14	8	0	1	0	0	0	0	0	0	**225**
5:00 PM	0	2	2	11	51	75	82	26	1	1	0	0	0	0	0	0	0	**251**
6:00 PM	0	0	1	11	49	92	87	25	12	2	0	0	0	0	0	0	0	**279**
7:00 PM	0	1	1	2	21	60	69	36	10	1	0	0	0	0	0	0	0	**201**
8:00 PM	0	0	2	9	13	43	58	37	4	0	0	0	0	0	0	0	0	**166**
9:00 PM	0	0	0	3	15	37	39	20	3	0	0	0	0	0	0	0	0	**117**
10:00 PM	0	0	0	4	10	25	39	17	3	0	0	0	0	0	0	0	0	**98**
11:00 PM	0	0	0	1	11	13	20	15	8	0	0	0	0	0	0	0	0	**68**
Total	**3**	**21**	**76**	**258**	**610**	**1,133**	**1,164**	**440**	**97**	**11**	**2**	**2**	**0**	**0**	**0**	**0**	**0**	**3,817**
Percent	**0.1%**	**0.6%**	**2.0%**	**6.8%**	**16.0%**	**29.7%**	**30.5%**	**11.5%**	**2.5%**	**0.3%**	**0.1%**	**0.1%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	

Daily Percentile Speed Summary			Speed Statistics		
50th Percentile (Median)	34.2	mph	Mean (Average) Speed	33.8	mph
85th Percentile	39.7	mph	10 mph Pace	29.5 - 39.5	mph
95th Percentile	43.1	mph	Percent in Pace	60.6	%

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Location: Sausalito Lateral Rd
Date Range: 5/14/2016 to 5/15/2016
Site Code: 01

Saturday, May 14, 2016
Southbound

Time	Speed Range (mph)																	Total Volume
	0 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	40 - 45	45 - 50	50 - 55	55 - 60	60 - 65	65 - 70	70 - 75	75 - 80	80 - 85	85 +	
12:00 AM	0	0	0	0	2	4	5	13	1	1	0	0	0	0	0	0	0	**26**
1:00 AM	0	0	0	0	0	5	2	3	0	0	0	0	0	0	0	0	0	**10**
2:00 AM	0	0	0	0	0	4	3	5	2	1	0	0	0	0	0	0	0	**15**
3:00 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	**1**
4:00 AM	0	0	0	0	0	3	4	3	2	0	0	0	0	0	0	0	0	**12**
5:00 AM	0	0	0	0	0	3	4	7	1	0	0	1	0	0	0	0	0	**16**
6:00 AM	0	0	2	1	0	1	9	22	10	2	0	0	0	0	0	0	0	**47**
7:00 AM	0	0	1	6	1	12	18	27	15	2	1	0	0	0	0	0	0	**83**
8:00 AM	0	2	3	10	5	12	40	48	19	6	0	0	0	0	0	0	0	**145**
9:00 AM	0	0	17	16	5	22	50	52	23	6	2	0	0	0	0	0	0	**193**
10:00 AM	0	3	31	40	14	40	75	35	12	4	0	0	0	0	0	0	0	**254**
11:00 AM	0	6	47	44	33	70	79	38	7	2	0	0	0	0	0	0	0	**326**
12:00 PM	1	4	51	61	58	78	103	35	5	0	0	0	0	0	0	0	0	**396**
1:00 PM	0	6	57	35	42	126	91	34	8	0	0	0	0	0	0	0	0	**399**
2:00 PM	1	22	53	31	44	103	104	38	4	0	0	0	0	0	0	0	0	**400**
3:00 PM	1	11	57	39	64	155	101	45	7	1	0	0	0	0	0	0	0	**481**
4:00 PM	0	11	48	44	64	140	98	25	4	1	0	0	0	0	0	0	0	**435**
5:00 PM	0	9	31	26	70	129	111	64	7	0	0	0	0	0	0	0	0	**447**
6:00 PM	0	11	21	22	39	87	122	81	17	4	0	0	0	0	0	0	0	**404**
7:00 PM	0	2	10	12	25	73	89	64	13	3	0	0	0	0	0	0	0	**291**
8:00 PM	0	2	6	14	21	77	70	35	5	1	0	0	0	0	0	0	0	**231**
9:00 PM	0	1	1	0	14	62	60	26	3	4	0	0	0	0	0	0	0	**171**
10:00 PM	1	1	2	5	14	41	46	12	5	0	0	0	0	0	0	0	0	**127**
11:00 PM	0	0	0	1	2	21	21	22	1	1	0	0	0	0	0	0	0	**69**
Total	**4**	**91**	**438**	**407**	**517**	**1,269**	**1,305**	**734**	**171**	**39**	**3**	**1**	**0**	**0**	**0**	**0**	**0**	**4,979**
Percent	**0.1%**	**1.8%**	**8.8%**	**8.2%**	**10.4%**	**25.5%**	**26.2%**	**14.7%**	**3.4%**	**0.8%**	**0.1%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	

Daily Percentile Speed Summary			Speed Statistics		
50th Percentile (Median)	34.0	mph	Mean (Average) Speed	32.9	mph
85th Percentile	40.7	mph	10 mph Pace	30.8 - 40.8	mph
95th Percentile	44.4	mph	Percent in Pace	52	%

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Location: Sausalito Lateral Rd
Date Range: 5/14/2016 to 5/15/2016
Site Code: 01

Sunday, May 15, 2016
Northbound

Time	Speed Range (mph)																	Total Volume
	0 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	40 - 45	45 - 50	50 - 55	55 - 60	60 - 65	65 - 70	70 - 75	75 - 80	80 - 85	85 +	
12:00 AM	0	0	0	4	2	13	22	7	3	2	0	0	0	0	0	0	0	**53**
1:00 AM	0	0	0	0	1	14	10	3	0	1	0	0	0	0	0	0	0	**29**
2:00 AM	0	0	0	0	0	4	2	4	1	0	0	0	0	0	0	0	0	**11**
3:00 AM	0	0	0	0	1	2	2	1	1	0	0	0	0	0	0	0	0	**7**
4:00 AM	0	0	0	2	1	2	3	1	0	0	0	0	0	0	0	0	0	**9**
5:00 AM	0	0	0	0	3	2	1	3	3	0	0	0	0	0	0	0	0	**12**
6:00 AM	0	0	0	0	0	6	6	11	6	1	0	0	0	0	0	0	0	**30**
7:00 AM	0	0	3	10	8	10	16	9	5	1	0	0	0	0	0	0	0	**62**
8:00 AM	0	0	7	15	20	28	48	24	5	1	0	0	0	0	0	0	0	**148**
9:00 AM	0	4	16	32	24	46	50	34	7	0	0	0	0	0	0	0	0	**213**
10:00 AM	1	3	12	16	30	79	71	32	3	1	0	0	0	0	0	0	0	**248**
11:00 AM	0	6	12	33	61	90	90	22	2	0	0	0	0	0	0	0	0	**316**
12:00 PM	2	6	12	34	61	139	121	25	7	1	0	0	0	0	0	0	0	**408**
1:00 PM	1	4	4	20	53	121	111	50	3	2	0	0	0	0	0	0	0	**369**
2:00 PM	0	2	8	19	49	106	91	46	2	0	0	0	0	0	0	0	0	**323**
3:00 PM	0	2	4	21	38	85	97	31	7	1	0	0	0	0	0	0	0	**286**
4:00 PM	1	6	3	15	27	99	105	27	6	2	0	0	0	0	0	0	0	**291**
5:00 PM	0	0	2	10	42	103	84	32	9	1	0	0	0	0	0	0	0	**283**
6:00 PM	0	1	0	1	13	61	101	61	8	0	1	0	0	0	0	0	0	**247**
7:00 PM	0	0	2	5	10	42	84	52	6	3	0	0	0	0	0	0	0	**204**
8:00 PM	0	0	1	3	14	44	66	26	7	0	0	0	0	0	0	0	0	**161**
9:00 PM	0	0	2	2	13	29	29	6	2	0	0	0	0	0	0	0	0	**83**
10:00 PM	0	1	0	2	5	16	21	3	5	0	0	0	0	0	0	0	0	**53**
11:00 PM	0	0	0	4	6	13	13	7	4	0	0	0	0	0	0	0	0	**47**
Total	**5**	**35**	**88**	**248**	**482**	**1,154**	**1,244**	**517**	**102**	**17**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**3,893**
Percent	**0.1%**	**0.9%**	**2.3%**	**6.4%**	**12.4%**	**29.6%**	**32.0%**	**13.3%**	**2.6%**	**0.4%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	

Daily Percentile Speed Summary			Speed Statistics		
50th Percentile (Median)	34.7	mph	Mean (Average) Speed	34.1	mph
85th Percentile	40.3	mph	10 mph Pace	31.0 - 41.0	mph
95th Percentile	43.5	mph	Percent in Pace	61.8	%

Deon Fouche: (415) 757-7714
deon.fouche@idaxdata.com

Location: Sausalito Lateral Rd
Date Range: 5/14/2016 to 5/15/2016
Site Code: 01

Sunday, May 15, 2016
Southbound

Time	Speed Range (mph)																	Total Volume
	0 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	40 - 45	45 - 50	50 - 55	55 - 60	60 - 65	65 - 70	70 - 75	75 - 80	80 - 85	85 +	
12:00 AM	0	0	0	3	6	11	6	3	0	0	0	0	0	0	0	0	0	**29**
1:00 AM	0	0	0	0	2	1	4	0	1	1	0	0	0	0	0	0	0	**9**
2:00 AM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	**2**
3:00 AM	0	0	0	1	0	0	3	2	0	0	0	0	0	0	0	0	0	**6**
4:00 AM	0	0	4	0	0	6	2	2	1	1	0	0	0	0	0	0	0	**16**
5:00 AM	0	1	0	0	0	1	1	6	1	0	0	0	0	0	0	0	0	**10**
6:00 AM	0	1	2	0	0	2	11	15	9	2	0	0	0	0	0	0	0	**42**
7:00 AM	0	1	3	3	1	6	21	25	14	4	0	0	0	0	0	0	0	**78**
8:00 AM	0	0	7	12	4	8	22	37	13	6	0	0	0	0	0	0	0	**109**
9:00 AM	0	0	9	19	21	22	53	41	21	3	1	0	0	0	0	0	0	**190**
10:00 AM	0	3	20	31	19	26	48	39	19	4	0	0	0	0	0	0	0	**209**
11:00 AM	0	0	21	38	22	44	64	68	17	0	1	0	0	0	0	0	0	**275**
12:00 PM	0	4	34	53	37	70	74	46	13	0	0	0	0	0	0	0	0	**331**
1:00 PM	0	6	49	38	37	89	107	39	7	1	2	0	0	0	0	0	0	**375**
2:00 PM	0	5	37	41	61	136	109	38	12	0	0	0	0	0	0	0	0	**439**
3:00 PM	0	4	35	26	47	113	128	38	6	2	0	0	0	0	0	0	0	**399**
4:00 PM	0	2	28	39	33	125	140	56	6	1	0	0	0	0	0	0	0	**430**
5:00 PM	0	5	23	24	40	103	83	63	13	0	0	0	0	0	0	0	0	**354**
6:00 PM	1	5	26	19	37	100	92	47	9	1	0	0	0	0	0	0	0	**337**
7:00 PM	0	1	2	5	29	80	91	39	13	2	0	0	0	0	0	0	0	**262**
8:00 PM	0	0	2	2	23	71	73	32	12	2	0	0	0	0	0	0	0	**217**
9:00 PM	0	3	1	1	15	52	62	16	5	0	0	0	0	0	0	0	0	**155**
10:00 PM	0	1	2	2	4	15	33	14	3	1	0	0	0	0	0	0	0	**75**
11:00 PM	0	0	0	0	2	4	9	9	1	2	0	0	0	0	0	0	0	**27**
Total	**1**	**42**	**305**	**357**	**440**	**1,085**	**1,236**	**676**	**196**	**34**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**4,376**
Percent	**0.0%**	**1.0%**	**7.0%**	**8.2%**	**10.1%**	**24.8%**	**28.2%**	**15.4%**	**4.5%**	**0.8%**	**0.1%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	

Daily Percentile Speed Summary			Speed Statistics		
50th Percentile (Median)	34.7	mph	Mean (Average) Speed	33.8	mph
85th Percentile	41.3	mph	10 mph Pace	30.9 - 40.9	mph
95th Percentile	45.2	mph	Percent in Pace	53.7	%

Deon Fouche: (415) 757-7714
deon.fouche@idaxdata.com

Location: Sausalito Lateral Rd
Date Range: 5/14/2016 to 5/15/2016
Site Code: 01

Total Study Average
Northbound

Time	Speed Range (mph)																	Total Volume
	0 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	40 - 45	45 - 50	50 - 55	55 - 60	60 - 65	65 - 70	70 - 75	75 - 80	80 - 85	85 +	
12:00 AM	0	0	0	2	3	11	19	4	2	1	0	0	0	0	0	0	0	**42**
1:00 AM	0	0	0	1	2	10	8	4	0	1	0	0	0	0	0	0	0	**26**
2:00 AM	0	0	0	1	0	4	5	3	1	0	0	0	0	0	0	0	0	**14**
3:00 AM	0	0	0	0	1	2	3	1	1	0	0	0	0	0	0	0	0	**8**
4:00 AM	0	0	1	1	1	2	4	2	0	0	0	0	0	0	0	0	0	**11**
5:00 AM	0	0	0	0	2	2	4	5	3	0	0	0	0	0	0	0	0	**16**
6:00 AM	0	1	2	5	2	6	10	8	5	1	0	0	0	0	0	0	0	**40**
7:00 AM	0	0	3	7	9	11	17	9	7	1	1	0	0	0	0	0	0	**65**
8:00 AM	0	0	7	23	25	28	50	21	5	1	0	0	0	0	0	0	0	**160**
9:00 AM	0	2	11	28	29	51	52	37	5	2	0	0	0	0	0	0	0	**217**
10:00 AM	1	4	14	23	39	86	68	26	3	1	0	0	0	0	0	0	0	**265**
11:00 AM	0	4	10	40	60	88	87	31	3	0	0	0	0	0	0	0	0	**323**
12:00 PM	2	4	12	27	60	127	107	28	7	1	0	0	0	0	0	0	0	**375**
1:00 PM	1	3	4	18	50	114	96	31	5	2	0	1	0	0	0	0	0	**325**
2:00 PM	0	2	6	17	54	97	99	38	2	1	0	0	0	0	0	0	0	**316**
3:00 PM	1	4	5	17	42	90	98	31	6	1	0	0	0	0	0	0	0	**295**
4:00 PM	1	3	4	12	35	92	84	21	7	1	1	0	0	0	0	0	0	**261**
5:00 PM	0	1	2	11	47	89	83	29	5	1	0	0	0	0	0	0	0	**268**
6:00 PM	0	1	1	6	31	77	94	43	10	1	1	0	0	0	0	0	0	**265**
7:00 PM	0	1	2	4	16	51	77	44	8	2	0	0	0	0	0	0	0	**205**
8:00 PM	0	0	2	6	14	44	62	32	6	0	0	0	0	0	0	0	0	**166**
9:00 PM	0	0	1	3	14	33	34	13	3	0	0	0	0	0	0	0	0	**101**
10:00 PM	0	1	0	3	8	21	30	10	4	0	0	0	0	0	0	0	0	**77**
11:00 PM	0	0	0	3	9	13	17	11	6	0	0	0	0	0	0	0	0	**59**
Total	**6**	**31**	**87**	**258**	**553**	**1,149**	**1,208**	**482**	**104**	**18**	**3**	**1**	**0**	**0**	**0**	**0**	**0**	**3,900**
Percent	**0.2%**	**0.8%**	**2.2%**	**6.6%**	**14.2%**	**29.5%**	**31.0%**	**12.4%**	**2.7%**	**0.5%**	**0.1%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	

Note: Average only condsidered on days with 24-hours of data.

Total Study Percentile Speed Summary			Total Study Speed Statistics		
50th Percentile (Median)	34.5	mph	Mean (Average) Speed	33.9	mph
85th Percentile	40.0	mph	10 mph Pace	29.8 - 39.8	mph
95th Percentile	43.3	mph	Percent in Pace	60.9	%

Deon Fouche: (415) 757-7714
deon.fouche@idaxdata.com

Location: Sausalito Lateral Rd
Date Range: 5/14/2016 to 5/15/2016
Site Code: 01

Total Study Average
Southbound

Time	Speed Range (mph)																	Total Volume
	0 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	40 - 45	45 - 50	50 - 55	55 - 60	60 - 65	65 - 70	70 - 75	75 - 80	80 - 85	85 +	
12:00 AM	0	0	0	2	4	8	6	8	1	1	0	0	0	0	0	0	0	**30**
1:00 AM	0	0	0	0	1	3	3	2	1	1	0	0	0	0	0	0	0	**11**
2:00 AM	0	0	0	0	0	2	2	3	1	1	0	0	0	0	0	0	0	**9**
3:00 AM	0	0	0	1	0	1	2	1	0	0	0	0	0	0	0	0	0	**5**
4:00 AM	0	0	2	0	0	5	3	3	2	1	0	0	0	0	0	0	0	**16**
5:00 AM	0	1	0	0	0	2	3	7	1	0	0	1	0	0	0	0	0	**15**
6:00 AM	0	1	2	1	0	2	10	19	10	2	0	0	0	0	0	0	0	**47**
7:00 AM	0	1	2	5	1	9	20	26	15	3	1	0	0	0	0	0	0	**83**
8:00 AM	0	1	5	11	5	10	31	43	16	6	0	0	0	0	0	0	0	**128**
9:00 AM	0	0	13	18	13	22	52	47	22	5	2	0	0	0	0	0	0	**194**
10:00 AM	0	3	26	36	17	33	62	37	16	4	0	0	0	0	0	0	0	**234**
11:00 AM	0	3	34	41	28	57	72	53	12	1	1	0	0	0	0	0	0	**302**
12:00 PM	1	4	43	57	48	74	89	41	9	0	0	0	0	0	0	0	0	**366**
1:00 PM	0	6	53	37	40	108	99	37	8	1	1	0	0	0	0	0	0	**390**
2:00 PM	1	14	45	36	53	120	107	38	8	0	0	0	0	0	0	0	0	**422**
3:00 PM	1	8	46	33	56	134	115	42	7	2	0	0	0	0	0	0	0	**444**
4:00 PM	0	7	38	42	49	133	119	41	5	1	0	0	0	0	0	0	0	**435**
5:00 PM	0	7	27	25	55	116	97	64	10	0	0	0	0	0	0	0	0	**401**
6:00 PM	1	8	24	21	38	94	107	64	13	3	0	0	0	0	0	0	0	**373**
7:00 PM	0	2	6	9	27	77	90	52	13	3	0	0	0	0	0	0	0	**279**
8:00 PM	0	1	4	8	22	74	72	34	9	2	0	0	0	0	0	0	0	**226**
9:00 PM	0	2	1	1	15	57	61	21	4	2	0	0	0	0	0	0	0	**164**
10:00 PM	1	1	2	4	9	28	40	13	4	1	0	0	0	0	0	0	0	**103**
11:00 PM	0	0	0	1	2	13	15	16	1	2	0	0	0	0	0	0	0	**50**
Total	**5**	**70**	**373**	**389**	**483**	**1,182**	**1,277**	**712**	**188**	**42**	**5**	**1**	**0**	**0**	**0**	**0**	**0**	**4,727**
Percent	**0.1%**	**1.5%**	**7.9%**	**8.2%**	**10.2%**	**25.0%**	**27.0%**	**15.1%**	**4.0%**	**0.9%**	**0.1%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	

Note: Average only condsidered on days with 24-hours of data.

Total Study Percentile Speed Summary			Total Study Speed Statistics		
50th Percentile (Median)	34.2	mph	Mean (Average) Speed	33.3	mph
85th Percentile	41.0	mph	10 mph Pace	30.9 - 40.9	mph
95th Percentile	44.8	mph	Percent in Pace	52.8	%

Deon Fouche: (415) 757-7714
deon.fouche@idaxdata.com

Location: Sausalito Lateral Rd
Date Range: 5/14/2016 - 5/20/2016
Site Code: 01

	Saturday			Sunday			Monday			Tuesday			Wednesday			Thursday			Friday					
	5/14/2016			5/15/2016			5/16/2016			5/17/2016			5/18/2016			5/19/2016			5/20/2016			Mid-Week Average		
Time	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total
12:00 AM	29	26	55	53	29	82	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
1:00 AM	18	10	28	29	9	38	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
2:00 AM	16	15	31	11	2	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
3:00 AM	6	1	7	7	6	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
4:00 AM	9	12	21	9	16	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
5:00 AM	18	16	34	12	10	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
6:00 AM	47	47	94	30	42	72	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
7:00 AM	63	83	146	62	78	140	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
8:00 AM	168	145	313	148	109	257	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
9:00 AM	219	193	412	213	190	403	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
10:00 AM	276	254	530	248	209	457	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
11:00 AM	327	326	653	316	275	591	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
12:00 PM	335	396	731	408	331	739	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
1:00 PM	275	399	674	369	375	744	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
2:00 PM	306	400	706	323	439	762	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
3:00 PM	300	481	781	286	399	685	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
4:00 PM	225	435	660	291	430	721	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
5:00 PM	251	447	698	283	354	637	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
6:00 PM	279	404	683	247	337	584	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
7:00 PM	201	291	492	204	262	466	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
8:00 PM	166	231	397	161	217	378	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
9:00 PM	117	171	288	83	155	238	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
10:00 PM	98	127	225	53	75	128	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
11:00 PM	68	69	137	47	27	74	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
Total	**3,817**	**4,979**	**8,796**	**3,893**	**4,376**	**8,269**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#####	#####	#####
Percent	**43%**	**57%**	-	**47%**	**53%**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

1. Mid-week average includes data between Tuesday and Thursday.

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deon.fouche@idaxdata.com

Collision Summary

This tool shows the summary of collision counts by collision factors, injury trends, and killed/injured victim.

— The summary was generated based on collision level result.
— The summary does not contains non-geocoded collisions. Please go to SWITRS Query & Map to look at the summary including non-geocoded collisions.

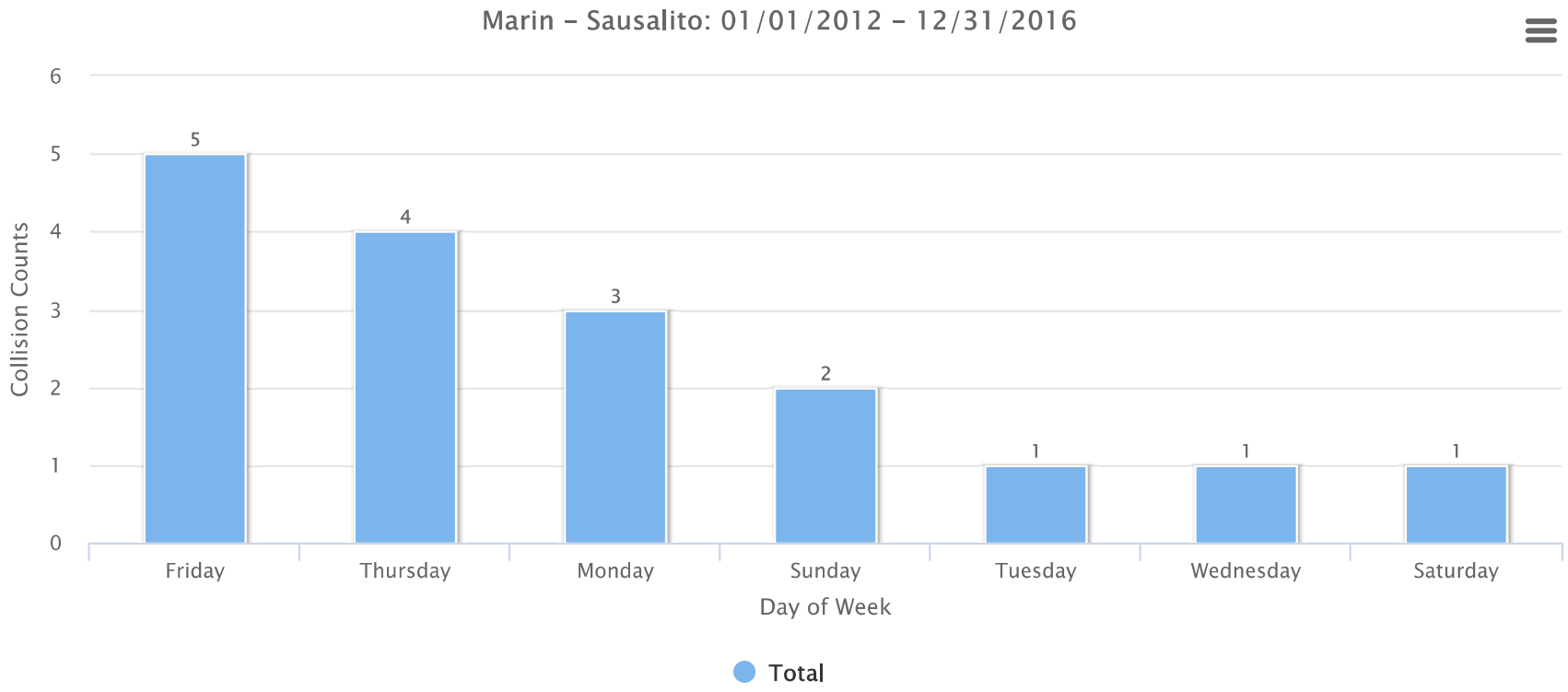
Collision Factors | Injury Trends | Killed/Injured Victim Summary

Select Variable Type

Collision Variable

Select Subtype

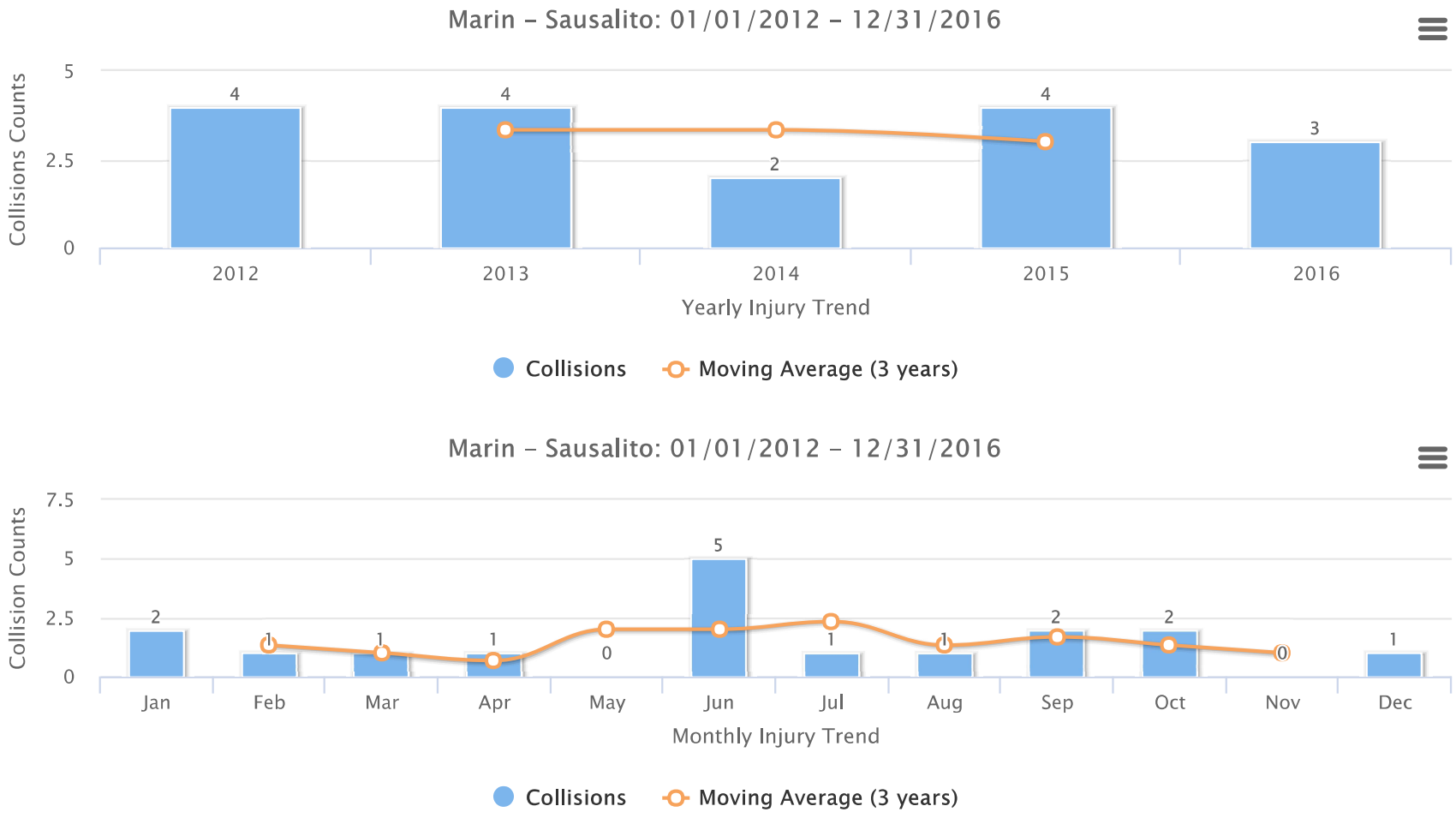
Day of Week



This tool shows the summary of collision counts by collision factors, injury trends, and killed/injured victim.

— The summary was generated based on collision level result.
— The summary does not contains non-geocoded collisions. Please go to SWITRS Query & Map to look at the summary including non-geocoded collisions.

Collision Factors | Injury Trends | Killed/Injured Victim Summary



Close

Collision Summary

This tool shows the summary of collision counts by collision factors, injury trends, and killed/injured victim.

— The summary was generated based on collision level result.
— The summary does not contains non-geocoded collisions. Please go to SWITRS Query & Map to look at the summary including non-geocoded collisions.

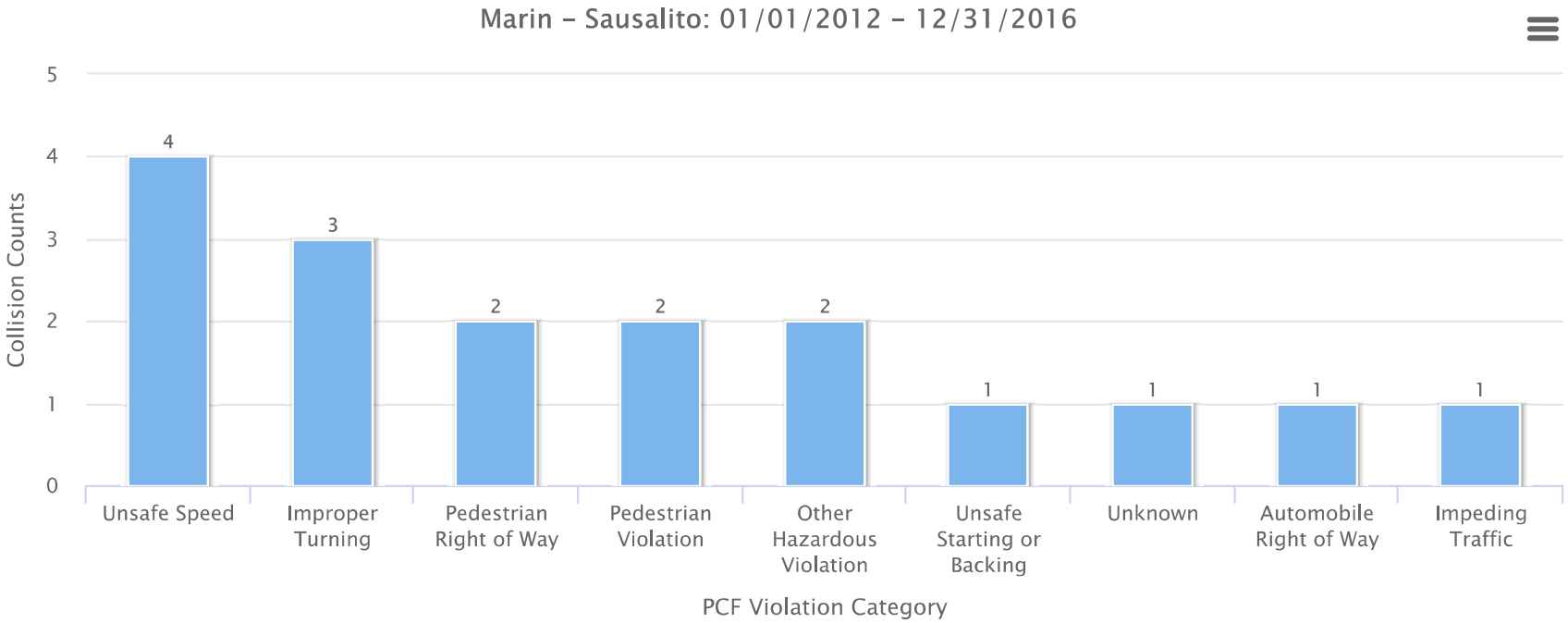
Collision Factors | Injury Trends | Killed/Injured Victim Summary

Select Variable Type

Collision Variable

Select Subtype

PCF Violation Category



Collision Summary

This tool shows the summary of collision counts by collision factors, injury trends, and killed/injured victim.

— The summary was generated based on collision level result.
— The summary does not contains non-geocoded collisions. Please go to SWITRS Query & Map to look at the summary including non-geocoded collisions.

Collision Factors | Injury Trends | Killed/Injured Victim Summary

Select Variable Type

Collision Variable

Select Subtype

Motor Vehicle Involved With

