THIS PROJECT IS UNDER DEVELOPMENT AND THIS REPORT DOES NOT REFLECT ONESHORELINE'S FINAL PREFERRED PROJECT

Millbrae and Burlingame Shoreline Area Protection and Enhancement Project

Biological Resources Constraints Analysis

prepared for

San Mateo County Flood Control and Sea Level Rise Resiliency District
1700 South El Camino Real, Suite 502
San Mateo, California 94402
Contact: Makena Wong

prepared by

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449 15th Street, Suite 303
Oakland, California 94612

April 2023

RINCON CONSULTANTS, INC.
Environmental Scientists | Planners | Engineers
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Executive Summary

Schaaf & Wheeler retained Rincon Consultants Inc. (Rincon) on behalf of the San Mateo County Flood and Sea Level Rise Resiliency District (OneShoreline) to perform a Biological Resources Constraints Analysis for the five alternatives of the Millbrae and Burlingame Shoreline Area Protection and Enhancement Project (project) in San Mateo County, California. The purpose of this analysis is to document the tasks conducted by Rincon, specifically, a biological resources literature and database review, a terrestrial field survey, bathymetric data analysis, and constraints analysis of the five alternatives. No biological resources were evaluated for impacts during this analysis. This constraints analysis is prepared in support of the project to inform project planning efforts and future compliance with the California Environmental Quality Act (CEQA), National Environmental Policy Act (NEPA), and/or other laws, ordinances, regulations, and statutes (e.g., federal Endangered Species Act). OneShoreline is the lead agency for the purposes of CEQA.

OneShoreline proposes to implement one of five alternatives designed by Schaaf & Wheeler to protect against a 100-year flood event with approximately 6 feet of sea level rise associated with climate change (equal to 10 feet above today's high tide). The five alternatives involve the following:

- Alternative 1 involves the construction of a shoreline barrier to approximately 8 feet tall with depths of disturbance down to 10 feet below the surface.
- Alternative 2 involves the construction of the same shoreline barrier as Alternative 1 with the addition of six tide gate/pump stations at the mouth of each of five creeks, which may reach depths of disturbance down to 30 feet below the surface from pile driving and depths of 5-10 feet of excavation.
- Alternative 3 involves construction of a shoreline barrier and the same six tide gate/pump stations as Alternative 2, but also includes construction of an offshore floating living breakwater.
- Alternative 4 involves only the construction of an offshore barrier with tide gates.
- Alternative 5 would involve the construction of an offshore barrier and the same tide gates from Alternative 4 as well as a shoreline barrier.

Rincon delineated a study area to identify the potential for sensitive biological resources to be present within each alternative's direct and indirect footprint. The study area for each alternative is defined as the alternative footprint and surrounding 100-foot buffer to account for indirect or temporary impacts.

Rincon assessed the potential for 131 special status terrestrial species (69 plant species and 62 wildlife species) to occur within the study areas for all five alternatives. The following special status terrestrial species can potentially occur in the study area.

- One non-listed special status plant species has a moderate potential to occur within the study areas: Point Reyes bird's-beak (*Chloropyron maritimum* ssp. *palustre*; California Native Plant Rank 1B.2).
- Fourteen (14) special status wildlife species have potential to occur within terrestrial portions of the study areas for all alternatives.
    - The monarch butterfly (*Danaus plexippus*; federal candidate) has a low potential to occur in the study area for alternatives 1 and 2, and a moderate potential to occur in the study area for alternatives 3, 4, and 5.

  - The California red-legged frog (*Rana draytonii;* federally threatened, State Species of Special Concern [SSC]) has a moderate potential to occur in the study area for Alternative 1.
  - Western snowy plover (*Charadrius nivosus nivosus*; federally threatened, SSC), white-tailed kite (*Elanus leucurus*; State fully protected), American peregrine falcon (*Falco peregrinus anatum*; State fully protected), California black rail (Laterallus jamaicensis coturniculus; State threatened, State fully protected), pallid bat (*Antrozous pallidus*; SSC), and salt-marsh harvest mouse (*Reithrodontomys raviventris*; federally and State endangered, State fully protected) all have a moderate potential to occur in all alternative study areas.
  - San Francisco garter snake (*Thamnophis sirtalis tetrataenia*; federally and State endangered, State fully protected) has a high potential to occur in the study area for Alternative 1 and a moderate potential to occur in the study areas for alternatives 2 through 5.
  - Cooper's hawk (*Accipiter cooperii*; State watchlist [WL]), merlin (*Falco columbarius*; WL), Alameda song sparrow (*Melospiza melodia pusillula*; SSC), double-crested cormorant (*Phalacrocorax auratus*; WL), and California Ridgway's rail (*Rallus obsoletus obsoletus*; federally and State endangered, State fully protected) have a high potential to occur in all alternative study areas.
- Nesting special status bird species and/or nesting birds protected under the Migratory Bird Treaty Act and California Fish and Game Code also have potential to occur throughout the study areas for all alternatives during the nesting season (February 1 through September 15).

Eleven special status marine and anadromous wildlife species have potential to occur within the study area for all alternatives. The following marine and anadromous wildlife species can potentially occur in the study area.

- Green sturgeon- southern DPS (*Acipenser medirostris pop. 1*, federally threatened), white sturgeon (*Acipenser transmontanus*, species of special concern), steelhead – central California coast DPS (*Oncorhynchus mykiss irideus pop. 8*, federally threatened), and longfin smelt (*Spirinchus thaleichthys*, federal candidate, state threatened) all have a moderate potential to occur within the study area for all alternatives.
- Gray whale- Eastern North Pacific Distinct Population Segment (DPS) (*Eschrichtius robustus,* federally delisted recovered, Marine Mammal Protection Act [MMPA]), harbor seal (*Phoca vitulina richardii*, MMPA), harbor porpoise (*Phocoena phocoena,* MMPA), and common bottlenose dolphin (*Tursiops truncates*, MMPA) all have a low potential to occur for alternatives 1 and 2.
- Gray whale - Eastern North Pacific DPS (*Eschrichtius robustus,* federally delisted recovered, MMPA), common bottlenose dolphin (*Tursiops truncates*, MMPA), and California sea lion (*Zalophus californianus*, MMPA) all have a moderate potential to occur within the study area for alternatives 3 through 5.
- Humpback whale - Mexico DPS (*Megaptera novaeangliae*, federally threatened, MMPA) and humpback whale - Central America DPS (*Megaptera novaeangliae*, federally endangered, MMPA) have a low potential to occur within the study area for alternatives 3 through 5.
- Harbor seal (*Phoca vitulina richardii*, MMPA), harbor porpoise (*Phocoena phocoena,* MMPA), and California sea lion (*Zalophus californianus*, MMPA) all have a high potential to occur within the study area for alternatives 3 through 5.

Several tidal creeks and channels as well as two tidally influenced lagoons are also located within the study area for all alternatives. There is designated Essential Fish Habitat (EFH) within the study

areas for Pacific salmon, groundfish, and coastal pelagic species (CPS) including finfish. Estuaries and marine and estuarine submerged aquatic vegetation (SAV) are considered habitat areas of particular concern (HAPC) for Chinook salmon, Coho salmon, groundfish, and CPS finfish.

Jurisdictional waters within the study areas include the Pacific Ocean (i.e., the San Francisco Bay), creeks and tidal canals including Highline Canal, Lomita Canal, El Portal Canal, Mills Creek, Easton Creek, and Sanchez Creek, and areas of freshwater emergent wetlands located throughout the terrestrial portions of the study areas.

None of the alternatives would interfere with the provisions of an applicable adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan.

A comprehensive list of the constraints and also the opportunities (such as habitat enhancement) for each alternative is provided in Section 6. Table 1 provides a summary of the constraints and that are different between the five Alternatives. In other words, Table 1 does not include the constraints that would be the same for the alternatives. Table 2 provides the opportunities for each of the five alternatives. All constraints and opportunities are shown in Table 7.

Overall, as shown in Table 1, biological resources constraints are present for each alternative. While Alternative 1 would have some additional constraints related to the terrestrial work that would occur along the creeks (i.e., potential impacts to riparian habitat and the potential to encounter the California red-legged frog), Alternative 1 would avoid some of the potential marine constraints associated with conducting work in the Bay (i.e., for alternatives 3, 4, and 5). Alternative 2 would avoid some of the terrestrial constraints associated with Alternative 1 (i.e., riparian habitat and California red-legged frog); however, Alternative 2 could result in potentially more impacts to migration for fish species. Like Alternative 2, alternatives 3, 4, and 5 would avoid some of the terrestrial impacts associated with Alternative 1 (i.e., riparian habitat and California red-legged frog); however, alternatives 3, 4, and 5 could affect fish migration as well as more marine species. In addition, alternatives 3, 4, and 5 could offer some potential benefits in the form of opportunities to create marine habitat. These marine opportunities would not be available under alternatives 1 and 2.

The analysis and conclusions of this study are based upon the scientific data, mapping, and information available at the time of preparation of the report. New information or onsite discoveries that are currently unknown may alter the conclusions of the report.

Table 1 Summary of Constraints

Alternative	Constraints	Comparative Level of Constraint
1: Shoreline and Creek Barriers	14 special status terrestrial wildlife species have potential to occur (6 are either State or federally listed); Moderate potential for California red-legged frog to occur; 6 special status marine wildlife species have potential to occur (3 are either State or federally listed); Humpback whale not expected to occur; Includes riparian habitat; Would preserve access to historical spawning areas for green sturgeon; Would preserve access to migratory corridors to freshwater spawning habitat.	Moderate
2: Shoreline Barrier and Creek Pumping	13 special status terrestrial wildlife species have potential to occur (6 are either State or federally listed); California red-legged frog not expected to occur; 6 special status marine wildlife species have potential to occur (3 are either State or federally listed); Humpback whale not expected to occur; No riparian habitat; May limit or remove access to historical spawning area for green sturgeon; May limit access to migratory corridors to freshwater spawning habitat.	Low
3: Shoreline Barrier with Reef Wave Break	13 special status terrestrial wildlife species have potential to occur (6 are either State or federally listed); California red-legged frog not expected to occur; 11 special status marine wildlife species have potential to occur (5 are either State or federally listed); Humpback whale has potential to occur; No riparian habitat; May limit or remove access to historical spawning area for green sturgeon; May limit access to migratory corridors to freshwater spawning habitat. Creek tidal gate may interfere with water flow and passage of anadromous wildlife and limit access to creeks.	High
4: Managed Tidal Lagoon	13 special status terrestrial wildlife species have potential to occur (6 are either State or federally listed); California red-legged frog not expected to occur; 11 special status marine wildlife species have potential to occur (5 are either State or federally listed); Humpback whale has potential to occur; No riparian habitat; May limit access to historical spawning area for green sturgeon; May limit access to migratory corridors to freshwater spawning habitat. May affect the salt marsh lining the edges/outfalls of the creeks. May alter/limit sediment transport and marine/anadromous wildlife movement. May restrict tidal flow and interfere with movement of one or more life stages of native fish.	. High
5: Tidal Lagoon with Barrier Reef and Shoreline Enhancement	13 special status terrestrial wildlife species have potential to occur (6 are either State or federally listed); California red-legged frog not expected to occur; 11 special status marine wildlife species have potential to occur (5 are either State or federally listed); Humpback whale has potential to occur; No riparian habitat; May limit access to historical spawning area for green sturgeon; May limit access to migratory corridors to freshwater spawning habitat. May affect the salt marsh lining the edges/outfalls of the creeks. May alter/limit	High

Alternative	Constraints	Comparative Level of Constraint
	sediment transport and marine/anadromous wildlife movement. May restrict tidal flow and interfere with movement of one or more life stages of native fish.	

Source: Compiled by Rincon Consultants, Inc. 2023

Table 2 Summary of Marine Opportunities

Alternative	Constraints	Comparative Level of Opportunity
1: Shoreline and Creek Barriers	None	Low
2: Shoreline Barrier and Creek Pumping	None	Low
3: Shoreline Barrier with Reef Wave Break	Potential to provide refuge and foraging habitat from for juvenile stages of groundfish, Coastal Pelagic Species finfish, and salmonids. Potential to allow for continuous access to the creeks within the study area. Potential not to permanently obstruct tidal movement and wildlife migration. Potential to provide a net improvement in conditions for establishment and persistence of eelgrass based primarily on reduction in wave action and resulting reduction in turbidity.	High (Slightly more opportunities for Alternative 3 than Alternatives 4/5 due to preservation of tidal movement and wildlife migration)
4: Managed Tidal Lagoon	Potential to increase the rocky reef habitat for the native Olympia oyster and refuge and foraging habitat for native fish species. Potential to improve water quality due to the increase population of oysters and other filter-feeders. It may allow for more suitable eelgrass habitat by reducing water depth which is a limiting factor for eelgrass (i.e., light penetration).	High
5: Tidal Lagoon with Barrier Reef and Shoreline Enhancement	Potential to increase the rocky reef habitat for the native Olympia oyster and refuge and foraging habitat for native fish species. Potential to improve water quality due to the increase population of oysters and other filter-feeders. It may allow for more suitable eelgrass habitat by reducing water depth which is a limiting factor for eelgrass (i.e., light penetration).	High

Source: Compiled by Rincon Consultants, Inc. 2023

1 Introduction

The San Mateo County Flood Control and Sea Level Rise Resiliency District, also known as "OneShoreline," is an independent government agency working throughout San Mateo County to address the climate change-related impacts of sea level rise, flooding, and coastal erosion. OneShoreline is proposing the Millbrae and Burlingame Shoreline Area Protection and Enhancement Project (project) with the objective of protecting properties and infrastructure in Millbrae, Burlingame, and San Mateo from sea level rise. OneShoreline is currently considering five alternative designs to meet the objective of addressing sea level rise. These alternatives are described in Section 2, *Alternatives Description*.

Rincon Consultants, Inc. (Rincon) has prepared this Biological Resources Constraints Analysis on behalf of Schaaf & Wheeler and the San Mateo County Flood and Sea Level Rise Resiliency District (OneShoreline) for five alternatives for the Millbrae and Burlingame Shoreline Area Protection and Enhancement Project (project) in San Mateo County, California. This constraints analysis presents information on existing conditions, including terrestrial and marine biological resources, jurisdictional waters, and other locally protected resources. The biological evaluation herein includes the results of a background literature review and reconnaissance-level field survey conducted by Rincon and a constraints analysis of the five alternatives as they pertain to sensitive terrestrial and marine biological resources. This constraints analysis is presented in support of the project to inform planning efforts and future compliance with the California Environmental Quality Act (CEQA), National Environmental Policy Act (NEPA), and/or other laws, ordinances, regulations, and statutes (e.g., federal Endangered Species Act). OneShoreline is the lead agency for the purposes of CEQA.

2 Alternatives Description

The primary objective of the project is to protect against a 100-year flood event with approximately 6 feet of sea level rise associated with climate change (equal to 10 feet above today's high tide). The project would establish long-term resilience against sea level rise within and along the Millbrae-Burlingame Bay shoreline (Figure 1). Beyond its flood protection objective, the project would prioritize nature-based solutions, such as opportunities for restoring and establishing habitat in conjunction with engineered structures and closing existing gaps in the San Francisco Bay Trail to enhance public access and recreational connectivity. The five alternatives being considered are detailed below in Sections 2.1 through 2.5.

The five Alternatives that are being considered by OneShoreline are in the conceptual phase of project design. The design details of these conceptual alternatives may be adjusted depending on additional information that is obtained.

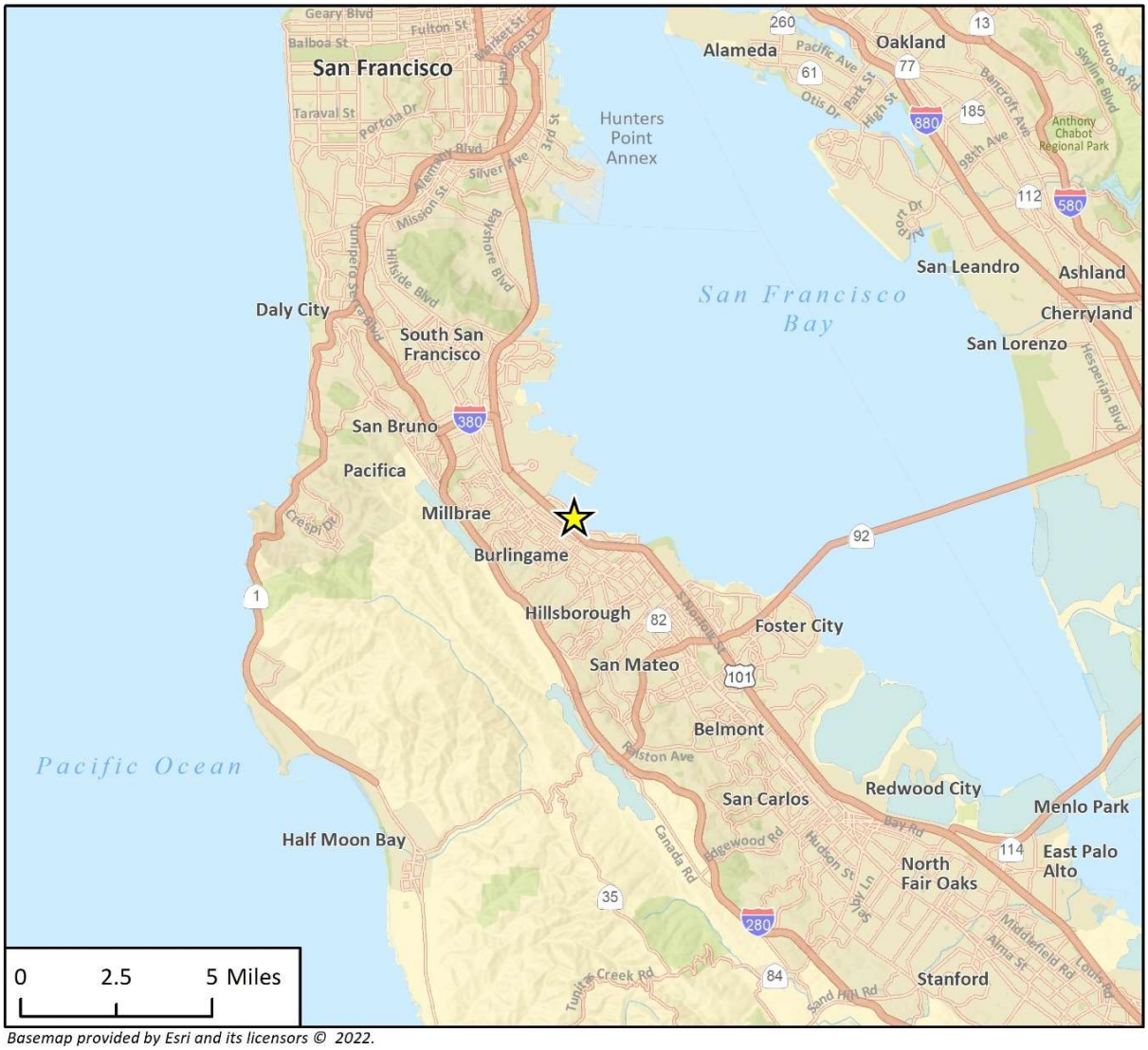
2.1 Alternative 1: Shoreline and Creek Barriers

Alternative 1 would protect against coastal hazards (i.e., still-water and wave runup) through the construction of a shoreline barrier. The conceptual layout for this alternative is shown in Figure 2. The barrier would be located along the Bay from the San Francisco International Airport (SFO)-Millbrae border to the Burlingame-San Mateo border, including along Anza Lagoon and along the tidally influenced reaches of the five creeks draining to this Bay shoreline (Highline Creek, El Portal Creek, Mills Creek, Easton Creek, and Sanchez Creek). Shoreline protection would tie into other barriers at SFO and at the San Mateo city limit.

The elevation of barriers along the Bay and creeks would depend on a variety of factors but would be expected to be approximately 8 feet tall (at 18 feet North American Vertical Datum [NAVD] elevation) for the highest barrier. Under this alternative, the creek barriers would prevent flooding from the creeks. Detailed hydraulic analyses will indicate whether local storm drainage system improvements, including possibly storm water pump stations, are necessary to mitigate the impact of creek bank barriers on local interior flooding. Culverts and bridges that cross the creeks, including culverts and bridges on U.S. Highway 101, would need to be evaluated for potential retrofit or replacement. This alternative would also require the relocation of utilities, including high pressure gas lines and high voltage overhead electric lines that are adjacent to or cross the creeks.

The maximum depth of excavation for this alternative would be approximately 5 to 10 feet deep, to clear debris and rubble on the shoreline to allow sheet piles to be installed.

Figure 1 Regional Location Map



Basemap provided by Esri and its licensors © 2022.

Project Location

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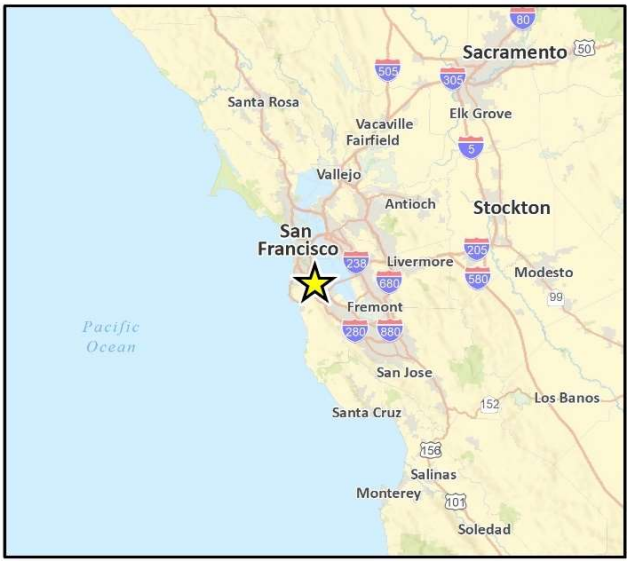
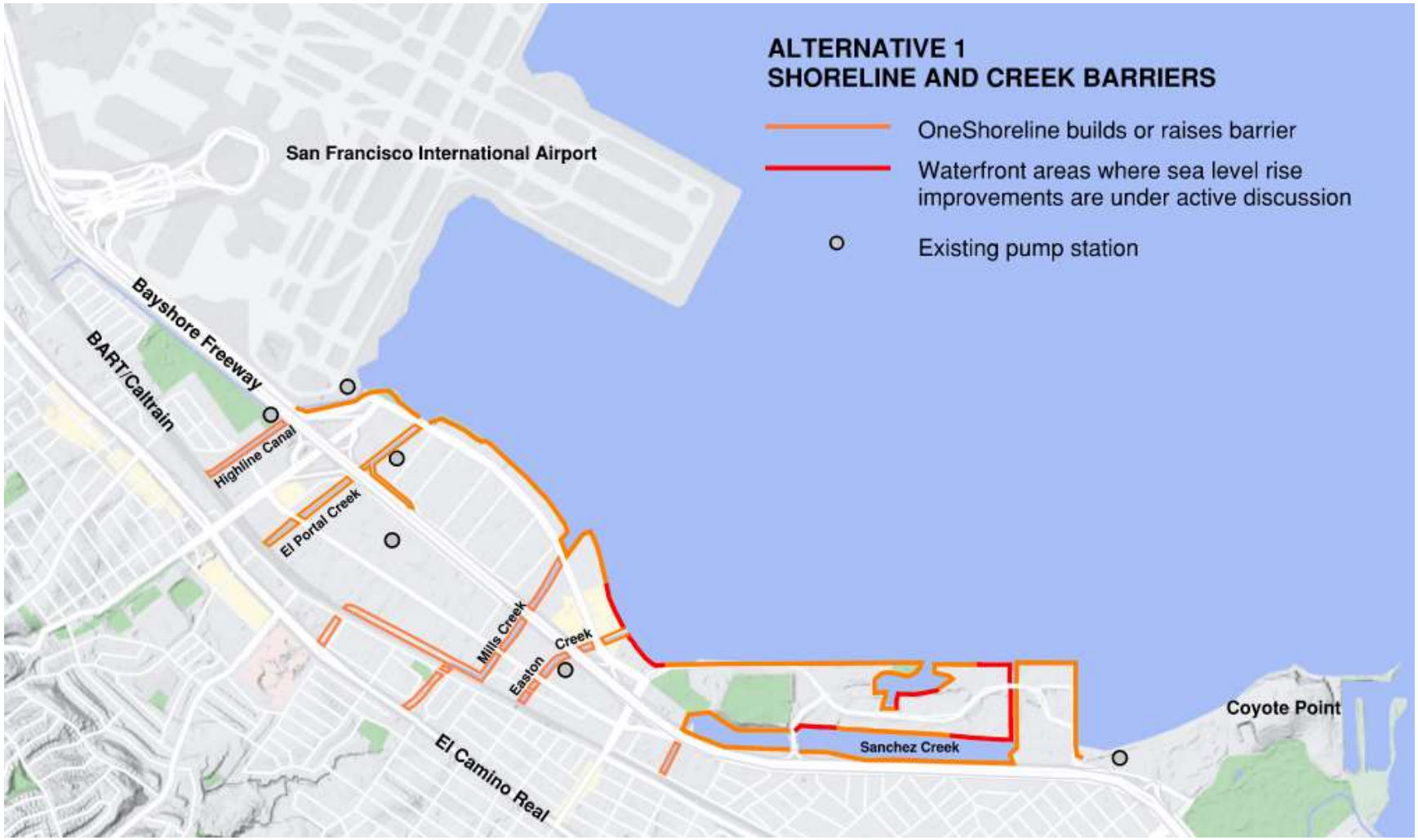


Figure 2 Alternative 1 Conceptual Layout



2.2 Alternative 2: Shoreline Barrier and Creek Pump Stations

Alternative 2 would protect against coastal hazards (i.e., still-water and wave runup) through the construction of a shoreline barrier. The conceptual layout for this alternative is shown in Figure 3. This shoreline protection would tie into other barriers at SFO and at the San Mateo city limit. The elevation of barriers along the Bay would depend on a variety of factors but would be expected to be approximately 8 feet tall (at 18 feet NAVD elevation) for the highest barrier.

Alternative 2 would not require the installation of protective barriers along the creeks due to five tide gates/pump stations at the mouth of each creek to control backwater elevations in each creek. The pump stations would each have an area of approximately 2,500 square feet (50 feet long by 50 feet wide) to 10,000 square feet (100 feet long by 100 feet wide). The five tide gates/pump station structures would pump the peak discharge from each creek since there is limited storage capacity within each creek channel and the sea level would be too high for them to drain by gravity. Self-regulating automatic tide gates would enable gravity drainage and fish passage into the creeks during lower tides. Automatic standby power generation would be required.

The maximum depth of excavation for the shoreline barrier would be approximately 5 to 10 feet deep, to clear debris and rubble on the shoreline to allow sheet piles to be installed. The maximum depth of excavation for the new pump stations would be approximately 20 to 30 feet. Pile driving would be required to create cofferdams for pump station construction.

Figure 3 Alternative 2 Conceptual Layout

2.3 Alternative 3: Shoreline Barrier with Reef Wave Break

Alternative 3 would protect against coastal hazards (i.e., still-water and wave runup) through the construction of an approximately 8 feet tall shoreline barrier (at 18 feet NAVD) as in alternatives 1 and 2; and gates/pump stations at the mouths of five creeks (Highline Creek, El Portal Creek, Mills Creek, Easton Creek, and Sanchez Creek) as in Alternative 2; as well as an offshore breakwater so that the shoreline barrier would only be needed for still-water protection. The pump stations would each have an area of approximately 2,500 square feet (50 feet long by 50 feet wide) to 10,000 square feet (100 feet long by 100 feet wide). Alternative 3 would not require the installation of barriers along the creeks because the pump stations would prevent flooding along the creeks. The conceptual layout for this alternative is shown in Figure 4.

There are several breakwater options that could be considered under this Alternative (see Figure 5). The majority are a type of floating breakwater or pile-barrier breakwater. This type of breakwater would allow for unconstrained tidal movement and aquatic wildlife migration. This alternative would utilize a floating breakwater or living breakwater. “Living breakwaters” have been created in other locations, notably Staten Island in New York State. With any fixed breakwater, the amount of material needed to be effective in minimizing wave action at the shore would be significant with sea level rise. Generally, the breakwater elevation would need to be close to the estimated still-water elevation, at least 14 feet NAVD elevation (13-18 feet in height measured from the Bay floor), to be effective in breaking waves. A lower wave energy environment may be more conducive to encourage natural elements such as beach formation, eelgrass, and maintaining the existing mudflats with future sea level rise. Development and/or enhancement of these habitat types would be considered under this Alternative.

The maximum depth of excavation for the breakwater would be approximately 5 feet. The maximum depth of excavation for the shoreline barrier would be approximately 5 to 10 feet deep to clear debris and rubble on the shoreline to allow sheet piles to be installed. The maximum depth of excavation for the new pump stations would be approximately 20 feet to 30 feet. Pile driving would be required to create cofferdams for pump station construction.

Figure 4 Alternative 3 Conceptual Layout

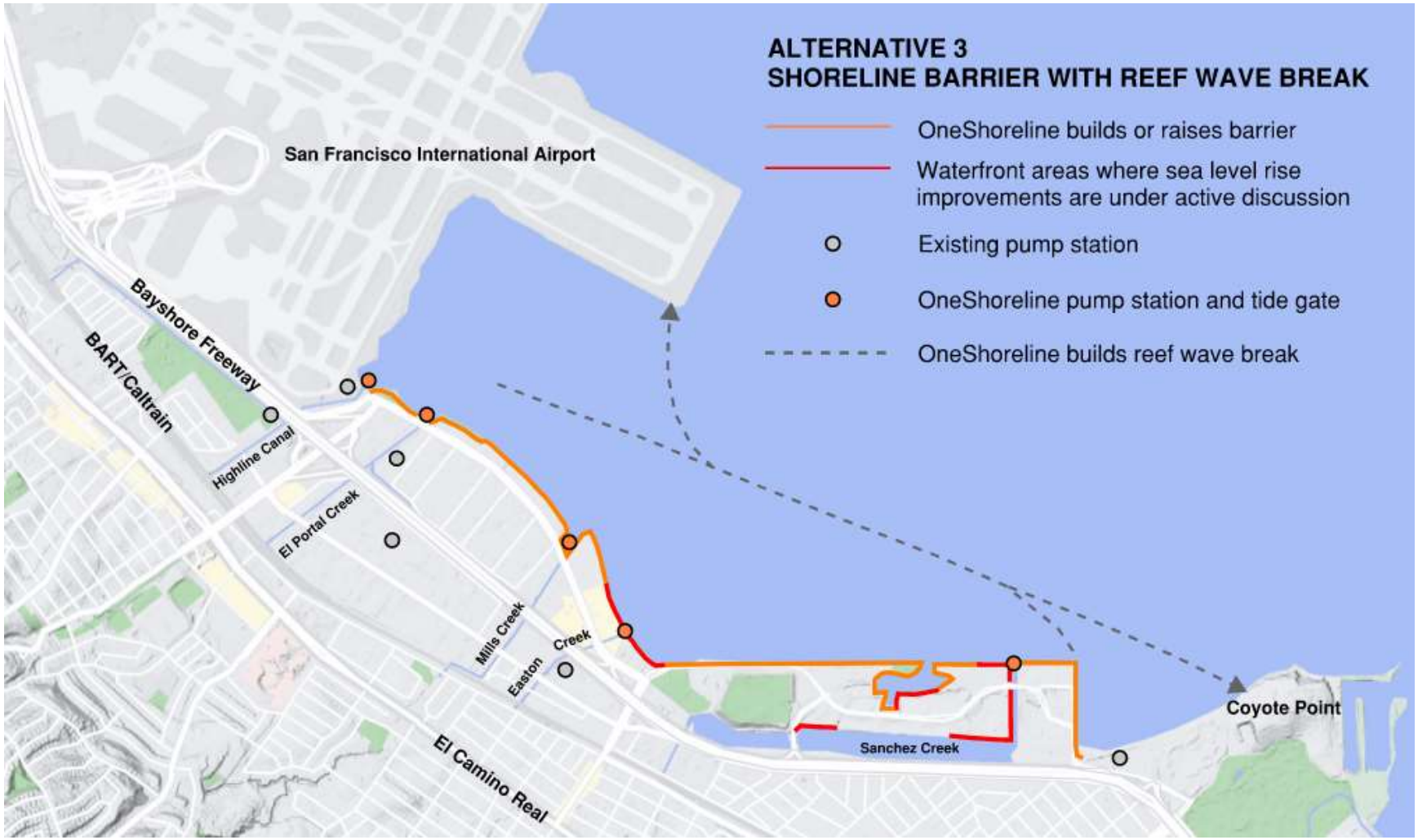
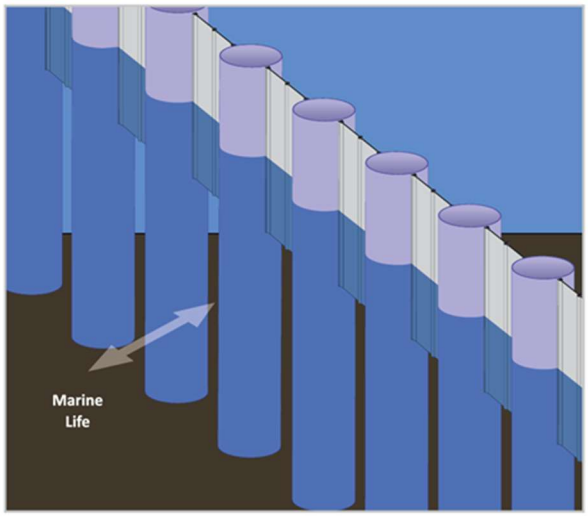


Figure 5 Breakwater Examples

Rock jetties have a wide base on the ocean floor.



A pipe-sheet pile wave barrier has a small footprint and allows marine life to travel through the wall without disruption.

Floating Breakwater (Charleston, SC)

Vegetated Floating Breakwater

Waterstudio – Floating breakwater that harvests power for electricity from wave action.

Source: Schaaf & Wheeler 2022

2.4 Alternative 4: Tidal Lagoon with Barrier Reef

Alternative 4 would protect against coastal hazards (i.e., still-water and wave runup) through the construction of an offshore barrier (non-floating) as well as a shoreline barrier. The conceptual layout for this alternative is shown in Figure 6.

Under this alternative, a tidal lagoon would be created to control water levels between the present shoreline and the offshore barrier. Under this Alternative, self-regulating tide gates would be used to manage water levels inside the tidal lagoon. When Bay tides rise to a threatening level (e.g., mean high water), the gates would automatically close to separate the lagoon from the Bay. The tidal lagoon created under Alternative 4 would provide opportunities to create habitat. For example, Alternative 4 could create eelgrass habitat and beaches, or augment mudflats. Tide gates would be used to manage the lagoon until sea level rises to a point that low tides no longer allow the lagoon to drain. At that time a pump station would be required. The pump station would have an area of approximately 25,000 square feet (500 feet long by 50 feet wide). The tide gate structure can likely be designed for future pump installation within the same footprint. Alternative 4 would also include construction of an approximately 8 feet tall shoreline barrier (at 18 feet NAVD) going north-south, adjacent to portions of Fisherman's Park, Bay Trail, and Airport Boulevard (see the orange line depicted in Figure 6). Alternative 4 would not require the installation of barriers along the creeks because the tidal lagoon would create a controlled maximum backwater elevation to prevent flooding along the creeks.

The maximum depth of excavation for the shoreline barrier would be approximately 5 to 10 feet deep to clear debris and rubble on the shoreline to allow sheet piles to be installed. The maximum depth of excavation for this alternative into the Bay floor remains to be determined through geotechnical investigation, hydraulic design, and structural design. Pile driving may be required for this alternative; however, this remains to be determined.

Figure 6 Alternative 4 Conceptual Layout

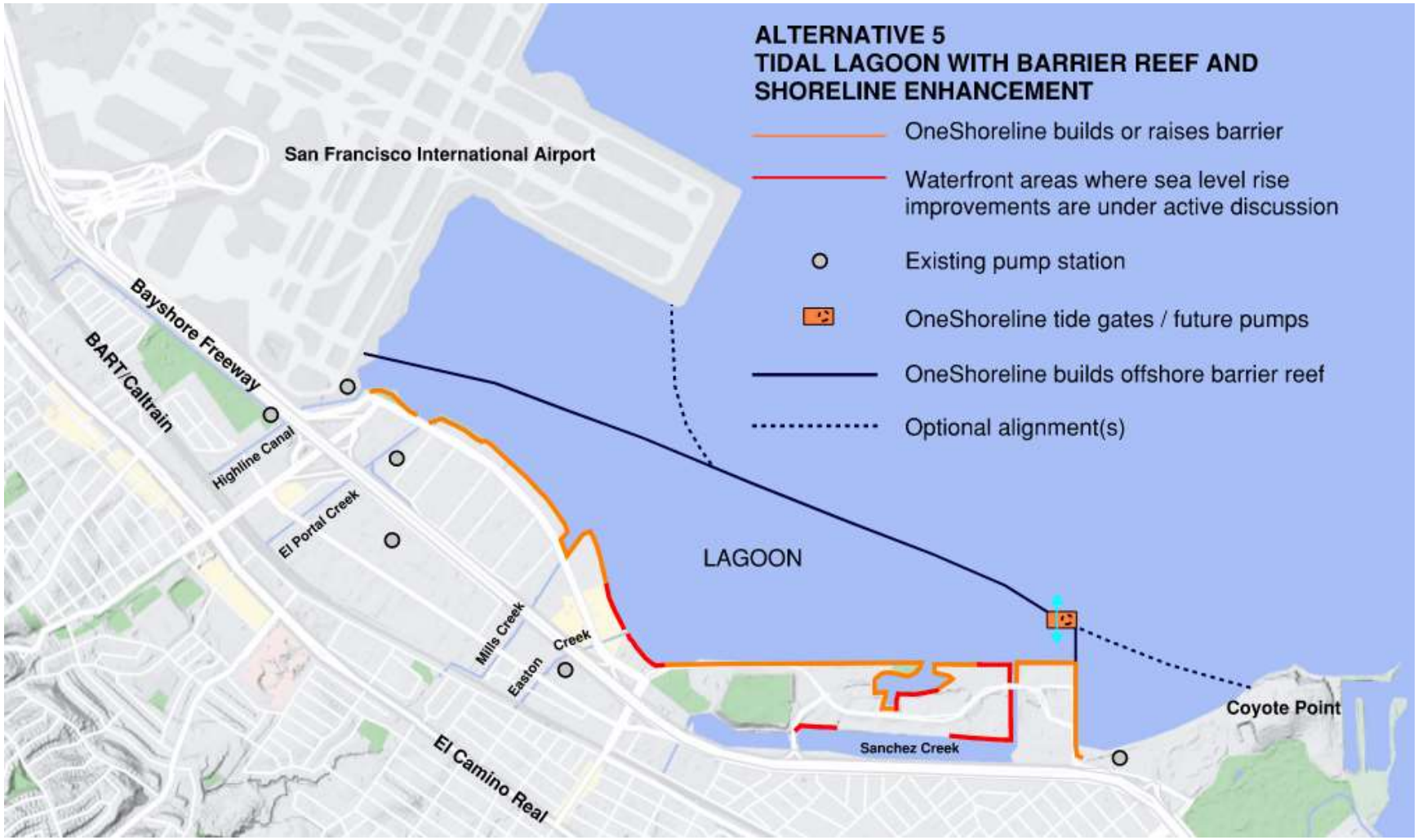
2.5 Alternative 5: Tidal Lagoon with Barrier Reef and Shoreline Enhancement

Alternative 5 would include the same offshore barrier (non-floating), tidal lagoon, tide gate structure, and future pumping as described in Alternative 4; however, Alternative 5 would also include shoreline enhancements. The conceptual layout for this alternative is shown in Figure 7.

These shoreline enhancements would not need to provide accredited flood protection, as the barrier reef and tidal lagoon would provide the necessary flood protection. The shoreline barrier would allow for Bay Trail, shoreline access, and grading enhancements that would not be made under Alternative 4. The elevation of barriers along the Bay would depend on a variety of factors but would be expected to be approximately 8 feet tall (at 18 feet NAVD elevation) for the highest barrier.

The maximum depth of excavation for shoreline enhancements associated with this alternative would be approximately 5 feet. Pile driving may be required to complete these enhancements.

Figure 7 Alternative 5 Conceptual Layout



2.6 Project Location and Study Areas

The five alteratives are located along the Millbrae-Burlingame Bay shoreline from the SFO-Millbrae border to the San Mateo-Burlingame city boundary at Coyote Point State Recreation Area. Each alternative encompasses a portion of the shoreline as well as other areas where future activities are planned. The study area for each alternative is defined as the alternative footprint as shown in the project conceptual layouts, in Figure 2 through Figure 7, and a 100-foot shoreline buffer and 35-foot creek buffer to account for indirect or temporary impacts (Figure 8 through Figure 10).

The Alternative 1 study area extends along the Bay shoreline from SFO to the San Mateo-Burlingame city boundary. Moving inland from the Bay shoreline, the Alternative 1 study area also encompasses the reaches of creeks and canals that are/will be tidally influenced and flood-prone with sea level rise. This includes reaches of El Portal Canal in both Millbrae and Burlingame, the Highline and Lomita Canals in Millbrae, as well as Easton Creek, Mills Creek, Sanchez Creek, and Anza Lagoon and Burlingame Lagoon in Burlingame (Figure 8).

The Alternative 2 study area is confined to the Bay shoreline extending from SFO to the San Mateo Burlingame city boundaries. This study area does not extend into inland drainages or creeks within the cities of Millbrae or Burlingame; however, it includes the creek mouths to the bay. The Alternative 2 study area boundary is shown in Figure 9.

Alternative 3 study area is a combination of Alternative 2 and Alternatives 4 and 5 (Figure 10. The study area is the Bay shoreline extending from SFO to the San Mateo / Burlingame city boundaries to Coyote Point State Beach and includes a portion of the San Francisco Bay itself. This study area also includes the creek mouths to the bay.

The study area for Alternatives 4 and 5 extends along the same area of the Bay shoreline as alternatives 1 and 2, but also includes a portion of the San Francisco Bay itself. This study area also includes a portion of the shoreline and Bay from the San Mateo-Burlingame city boundaries to Coyote Point State Beach. The study areas for these Alternatives have been combined into one boundary because of the similarity of the physical location of activities proposed under each alternative. While the Alternatives are different in design features, for the purposes of this constraints analysis the study area limits are the same (Figure 10).

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Figure 8 Alternative 1 Study Area

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Fig X Study Area

Figure 9 Alternative 2 Study Area

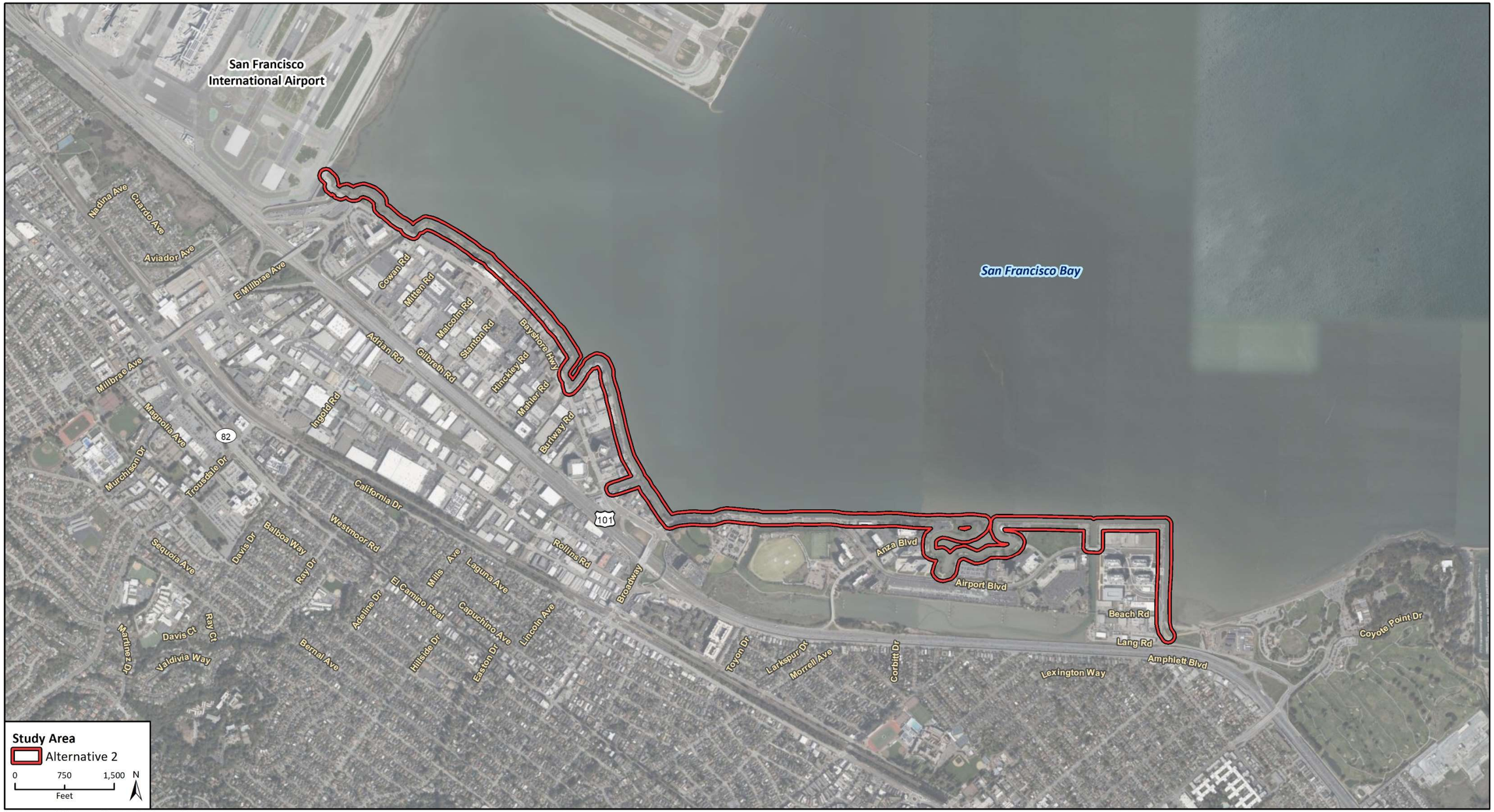

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Fig X Study Area

Figure 10 Alternatives 3 Study Area

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Fig X Study Area

Figure 11 Alternatives 4 - 5 Study Area

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Fig X Study Area

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3 Methodology

3.1 Regulatory Overview

Regulated or sensitive resources studied and analyzed herein include special status plant and animal species, nesting birds and raptors, sensitive plant communities, jurisdictional waters and wetlands, wildlife movement, and locally protected resources. Regulatory authority over biological resources is shared by federal, State, and local authorities. The San Francisco Bay is also regulated by the San Francisco Bay Conservation and Development Commission (BCDC) and the California State Lands Commission (SLC). Primary authority for regulation of general biological resources lies within the land use control and planning authority of local jurisdictions (in this instance, the City of Millbrae, the City of Burlingame, and the City of San Mateo).

3.1.1 Definition of Special Status Species

For the purposes of this constraints analysis, special status species include:

- Species listed as threatened or endangered under the federal Endangered Species Act (ESA); species that are candidates for listing may be included if there is a reasonable expectation of listing within the life of the project;
- Species listed as candidate, threatened, or endangered under the California Endangered Species Act (CESA);
- Plant species listed as rare under the California Native Plant Protection Act;
- Wildlife species designated as Fully Protected, Species of Special Concern, or Watch List by the California Department of Fish and Wildlife (CDFW);
- Species designated as a species of concern by the National Oceanic and Atmospheric Administration Fisheries (NOAA Fisheries), otherwise known as National Marine Fisheries Service (NMFS);
- Species afforded protection under the Marine Mammal Protection Act; and
- Species designated as locally important by the local agency and/or otherwise protected through ordinance or local policy.

In addition, special status species are ranked globally (G) and sub-nationally (S) 1 through 3 based on NatureServe's (2010) methodologies as follows:

- **G1 or S1** - Critically Imperiled globally or State-wide
- **G2 or S2** - Imperiled globally or State-wide
- **G3 or S3** - Vulnerable to extirpation or extinction globally or State-wide

The California Native Plant Society (CNPS) and CDFW California Rare Plant Rank (CRPR) of 1A, 1B, 2A and 2B, per the following definitions:

- **Rank 1A** = Presumed extirpated in California and rare or extinct elsewhere
- **Rank 1B** = Rare, threatened, or endangered in California and elsewhere
- **Rank 2A** = Presumed extirpated in California but common elsewhere

- **Rank 2B** = Rare, threatened or endangered in California, but common elsewhere

CRPR 3 and 4 plant species are typically not considered for analysis under the California Environmental Quality Act (CEQA) except where they are designated as rare or otherwise protected by local governments, or where cumulative impacts could result in population-level effects.

3.1.2 Environmental Statutes

For the purpose of this constraints analysis, potential impacts to biological resources were analyzed based on the following statutes (Appendix A):

Terrestrial and Marine

- CEQA and NEPA
- ESA and CESA
- Federal Clean Water Act (CWA)
- California Fish and Game Code (CFGC)
- Porter-Cologne Water Quality Control Act
- City of Millbrae 2040 General Plan
- City of Burlingame General Plan
- City of San Mateo General Plan
- Millbrae Municipal Code
- Burlingame Municipal Code
- San Mateo Municipal Code
- San Francisco Bay Conservation and Development Commission (BCDC) Strategic Plan

Terrestrial

- Migratory Bird Treaty Act (MBTA)
- The Bald and Golden Eagle Protection Act
- Native Plant Protection Act
- Natural Communities Conservation Planning Act

Marine

- Marine Mammal Protection Act (MMPA)
- Rivers and Harbors Act of 1899
- Magnuson-Stevens Fishery Conservation and Management Act
- Pacific Salmonid Fishery Management Plan
- Coastal Pelagic Species (CPS) Fishery Management Plan
- Pacific Coast Groundfish Fishery Management Plan
- California Eelgrass Mitigation Policy and Implementation Guidelines
- Marine Life Protection Act
- Marine Life Management Act
- California Ocean Plan

- Marine Invasive Species Act
- San Francisco Bay Subtidal Habitat 50-Year Conservation Plan

3.2 Literature Review

Prior to conducting the reconnaissance-level field survey, Rincon reviewed literature to collect baseline information on biological resources potentially occurring within the study areas. Rincon reviewed the *California Natural Diversity Database* (CNDDB) (CDFW 2022a), *California Species List Tool* (NMFS 2022a), and *Online Inventory of Rare and Endangered Plants of California* (CNPS 2022) for special status species that are known to occur within the *San Mateo, California* U.S. Geological Survey (USGS) 7.5-minute quadrangle and surrounding eight quadrangles (*Palo Alto, Redwood Point, San Leandro, Hunters Point, San Francisco South, Half Moon Bay, Woodside*, and *Montara Mountain*). In addition, Rincon reviewed the *Biogeographic Information and Observation System* (BIOS; CDFW 2022b), *Critical Habitat Portal* (U.S. Fish and Wildlife Service [USFWS] 2022a), *Information for Planning and Consultation* (IPaC; USFWS 2022b), and *Essential Fish Habitat (EFH) Mapper* (NMFS 2022b) for the study areas and regional vicinity.

Rincon also reviewed the following documents and websites for further information on sensitive biological resources within the vicinity of the study area: Millbrae 2040 General Plan Parks, Open Space and Conservation Element (City of Millbrae 2022), Burlingame General Plan (City of Burlingame 2019), San Mateo General Plan Conservation Element (City of San Mateo 2011), *Special Animals List* (CDFW 2022c), *Special Vascular Plants, Bryophytes, and Lichens List* (CDFW 2022d), *Wildlife Habitat Relationship System* (CDFW 2014), All About Birds (Cornell Lab of Ornithology 2022a), and eBird (Cornell Lab of Ornithology 2022b). Additionally, Rincon reviewed the following databases for information on existing conditions within the study area: *Web Soil Survey* (United States Department of Agriculture, Natural Resources Conservation Service [USDA, NRCS] 2022a) and *National Wetlands Inventory* (NWI; USFWS 2022c).

Rincon compiled the results of the literature review and database queries into a preliminary list of special status species with potential to occur within the study areas, which was then reviewed by Rincon's regional biological experts for accuracy and completeness. The list of special status biological resources evaluated as part of the constraints analysis was determined based on documented occurrences in the eight-quadrangle search area, results from the reconnaissance-level field survey, and species known to occur in the region based on the expert opinions of local biologists. The results and analysis of the database queries were compiled into a table presented as Appendix B and are discussed in detail in this constraints analysis.

The literature review also included peer-reviewed journal articles, standard reference materials (e.g., Allen et al. 2011; Bowers et al. 2004; Sawyer et al. 2009; Stebbins 2003), and agency and public databases. Aerial photographs, topographic maps, soil survey maps, geologic maps, and climatic data for the study area were also reviewed. Preliminary desktop mapping of land cover types was completed based on the review of background literature and aerial imagery and was verified and refined during the reconnaissance-level field survey.

3.3 Reconnaissance-level Field Survey

Rincon biologists Anastasia Ennis and Beth Wilson conducted a reconnaissance-level field survey (survey) of the study areas on July 11 and 12, 2022. The study area for the terrestrial pedestrian survey is considered to be all areas of the Alternative 1 footprint as shown in Figure 2. The survey

consisted of a pedestrian survey throughout the study area between the hours of 11:30 A.M. and 5:00 P.M. on July 11, 2022, and 8:30 A.M. and 4:00 P.M. on July 12, 2022. The temperature ranged between 59- and 76-degrees Fahrenheit and was mostly sunny with winds gusting at between three and 15 miles per hour.

The survey focused on documenting existing conditions and biological resources, evaluating the study area for potential to support terrestrial and marine special status plants, wildlife species, marine habitats, sensitive vegetation communities and potentially jurisdictional resources. Binoculars (10 X 42) were used to aid in identification and to achieve visual coverage of all terrestrial, human-made, and surface water portions of the study area. Focused or protocol-level surveys were not conducted. Prior to conducting the survey, Rincon biologists reviewed aerial imagery and database search results for special status species records in the vicinity of the study area.

Additionally, the biologists evaluated the general condition and level of existing disturbances to vegetation communities and habitat types. The biologists documented signs of the presence of special status species within the study area. Results of the survey were used to identify suitable habitat for special status species that may require protocol-level surveys or other more involved analyses, and to develop an approach for evaluating potential impacts to existing biological resources.

Representative photographs were taken to document existing conditions, vegetation communities and habitat types, species sign, or other notable biological resource observations. Photographs are included in Appendix C.

4 Existing Conditions

This section provides an overview of existing conditions within the study areas for all alternatives, including physical characteristics, marine and terrestrial habitat types, and biological resources, including plant and wildlife species observed during the field survey. A summary of existing conditions for each alternative is provided below in Section 4.4.

4.1 Physical Characteristics

The study areas are dispersed along the Millbrae-Burlingame shoreline from the SFO-Millbrae border to the San Mateo-Burlingame city boundaries. The cities of Millbrae, Burlingame, and San Mateo are located along the western shoreline of the San Francisco Bay. This region has a Mediterranean climate with rains falling mostly in the winter and spring, as is the case with most of the San Francisco Bay area. Due to the coastal location of the project, fog and cool temperatures are common in the summer. The average annual high temperature is approximately 76 °F and the average annual low temperature is 42 °F. Average annual precipitation is approximately 18 inches (Western Regional Climate Center 2022).

The study areas are located on relatively flat ground with elevations ranging from sea level to approximately 20 feet (0 to 6.1 meters) above mean sea level. In general, the study areas are in or near commercial areas in the cities of Burlingame and Millbrae. Additionally, the northwestern extent of the study areas run immediately to the southwest of SFO properties.

4.2 Overview of Terrestrial Features

This section provides an overview of existing terrestrial (i.e., non-marine) conditions within the study areas, including watershed and drainages, soils, terrestrial vegetation communities, land cover types, and terrestrial species observed during the survey.

4.2.1 Watershed and Drainages

The study areas are located along the shoreline of the San Francisco Bay from SFO through the city of Burlingame. The study areas occur primarily within the San Francisco Bay Estuaries Subwatershed (Hydrologic Unit Code [HUC]: 180500041001) (USGS 2021). The San Francisco Bay is located off the shoreline within the study areas, and several creeks and tributaries that flow to the Bay run through the study areas. The NWI classifies the Bay from SFO to the mouth of Anza Lagoon as Estuarine and Marine Wetland habitat (USFWS 2022c). From Anza Lagoon to the eastern end of the study areas, the Bay shoreline is designated as Estuarine and Marine Deepwater habitat (USFWS 2022c). Several tidal creeks and channels as well as two tidally fed lagoons are also located within the study areas (see Figure 2 through Figure 4, Figure 6, and Figure 7). These features are described further below.

Highline Canal

Highline Canal is a concrete lined canal located at the northwestern extent of the study areas, which flows toward the San Francisco Bay. This feature is described as Riverine habitat in the NWI (USFWS 2022c). Highline Canal is a tidal canal that conveys tidal flows and receives discharge from Lomita

Canal to the northwest and the Millbrae stormwater system. This canal is also protected from high tides by a gate at the mouth of the canal.

Lomita Canal

Lomita Canal is a concrete lined canal that is heavily overgrown with vegetation that runs adjacent to U.S. Highway 101 (U.S. 101) just south of SFO. The canal is classified as riverine habitat with areas of freshwater ponding. Several freshwater emergent wetlands are located immediately adjacent to the canal, although this area was not accessible during the field reconnaissance surveys. Lomita Canal flows into Highline Canal to the southeast before discharging into the Bay.

El Portal Canal

El Portal Canal is a concrete lined canal located to the southeast of Highline Canal along the Millbrae-Burlingame border, which flows toward the San Francisco Bay. This canal is classified as Riverine habitat (USFWS 2022c). El Portal Canal conveys storm water drainage and tidal flows to the San Francisco Bay. El Portal Canal is also protected by a gate that reduces high tides at the mouth of the canal. A short offshoot of this canal extends to the southeast and runs along Gilbreth Road into Burlingame.

Mills Creek

Mills Creek is southeast of El Portal Canal and northwest of Easton Creek. The portion of Mills Creek that runs through the study areas is classified as Riverine toward the southwestern extent and as Estuarine and Marine Wetland to the northeastern extent as the creek flows into the San Francisco Bay (USFWS 2022c). Tidal marsh habitat is also located along the northeastern extent and at the mouth of the creek.

Easton Creek

Easton Creek to the southwest of U.S. 101 is classified by the NWI as Riverine habitat, while the portion to the northeast of the highway is considered Estuarine and Marine Wetland habitat (USFWS 2022c). Some portions of this creek are concrete lined, although tidal salt marsh occurs along this creek through the extent of the study areas.

Sanchez Creek

Sanchez Creek is located toward the southeastern extent of the study areas and runs under U.S. 101, turning to the east to flow under Anza Boulevard. This creek flows into Sanchez Marsh on the north side of U.S. 101 and is heavily influenced by tidal flows in the marsh and Burlingame Lagoon. Sanchez Creek and the surrounding marsh are classified as Estuarine and Marine Wetland habitat by the NWI (USFWS 2022c).

Burlingame Lagoon

Burlingame Lagoon is fed by Sanchez Creek and consists of the lagoon channel located north of U.S. 101 and east of Anza Boulevard. Burlingame Lagoon is heavily altered and is classified by the NWI as Estuarine and Marine Deepwater habitat (USWFS 2022c).

Anza Lagoon

Anza Lagoon is located at the southeastern extent of the study areas adjacent to the San Francisco Bay. This lagoon is classified as Freshwater Ponded habitat by NWI, which indicates that although it is somewhat tidally influenced, it is primarily manmade and heavily managed (USFWS 2022c). This is supported by the fact that there is a remnant concrete shoreline barrier along the mouth of Anza lagoon that the pedestrian bridge has been constructed over.

4.2.2 Soils

The Web Soil Survey for *San Mateo County, Eastern Part, and San Francisco County, California* identifies five soil map units within the terrestrial portions of the study areas for all alternatives: Novato clay, 0 to 1 percent slopes; Pits and Dumps; Urban land; Urban land – Orthents, cut and fill complex, 0 to 5 percent slopes; and Urban land – Orthents, reclaimed complex, 0 to 2 percent slopes (USDA, NRCS 2022a). Each of these soil map units is described in detail below.

- **Novato Clay, 0 to 1 Percent Slopes** is formed from alluvium derived from mixed parent material and occurs in salt marshes and on toeslopes at elevations from 0 to 10 feet. This soil type is very poorly drained, the frequency of flooding and ponding is frequent, and the available water supply is low (about 3.0 inches).
- **Pits and dumps** soil type is an artificial soil type and consists of 55 percent pits and 45 percent dumps. These are typically extremely gravelly to very gravelly coarse sand.
- **Urban land** is an artificial landfill soil type and consists of 85 percent urban land and 15 percent minor components. This soil type is found on toeslopes at elevations from 10 to 320 feet.
- **Urban land – Orthents, cut and fill complex, 0 to 5 percent** is formed from alluvium and occurs on terraces, alluvial fans, and footslopes at elevations from 30 to 500 feet. This soil type is well drained, the frequency of flooding and ponding is none, and the available water supply is very low (about 0 inches).
- **Urban land – Orthents, reclaimed complex, 0 to 2 percent slopes** is an artificial landfill soil type and consists of 65 percent urban land, 30 percent Orthents and similar soils and 5 percent minor components. This soil type is found on tidal flats at elevations from 0 to 50 feet. This soil type is well drained, the frequency of flooding and ponding is none, and the available water supply is very low (about 1.8 inches).

None of the above soil types are listed on the List of Hydric Soils (USDA, NRCS 2022b).

4.2.3 Vegetation Communities and Land Cover Types

Nine terrestrial land cover types, including five vegetation communities, were identified within the study areas for all alternatives during the survey. Figure through Figure depict all terrestrial vegetation communities and land cover types documented within the study areas. The vegetation community characterizations for this analysis were based on the classification system presented in *A Manual of California Vegetation, Second Edition* ([MCV2] Sawyer et al. 2009) but have been modified to some extent to reflect existing site conditions. Vegetation community and land cover type descriptions are as follows. Table 3 shows the vegetation communities and land cover types by study area for each alternative.

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Figure 12Vegetation Communities and Land Cover Types in the Alternative 1 Study Area

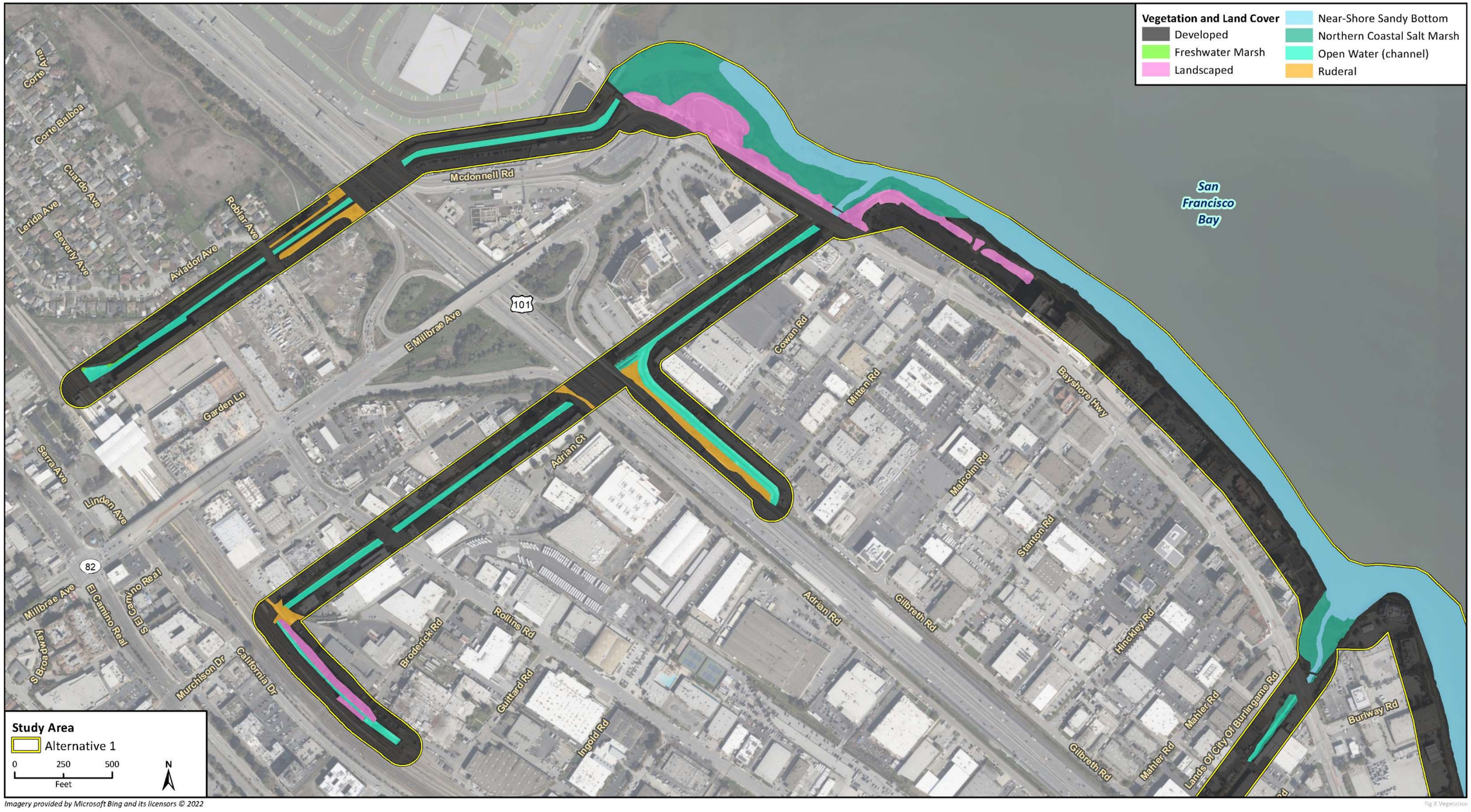

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Fig X Vegetation

Figure 13 Vegetation Communities and Land Cover Types in the Alternative 1 Study Area, Continued

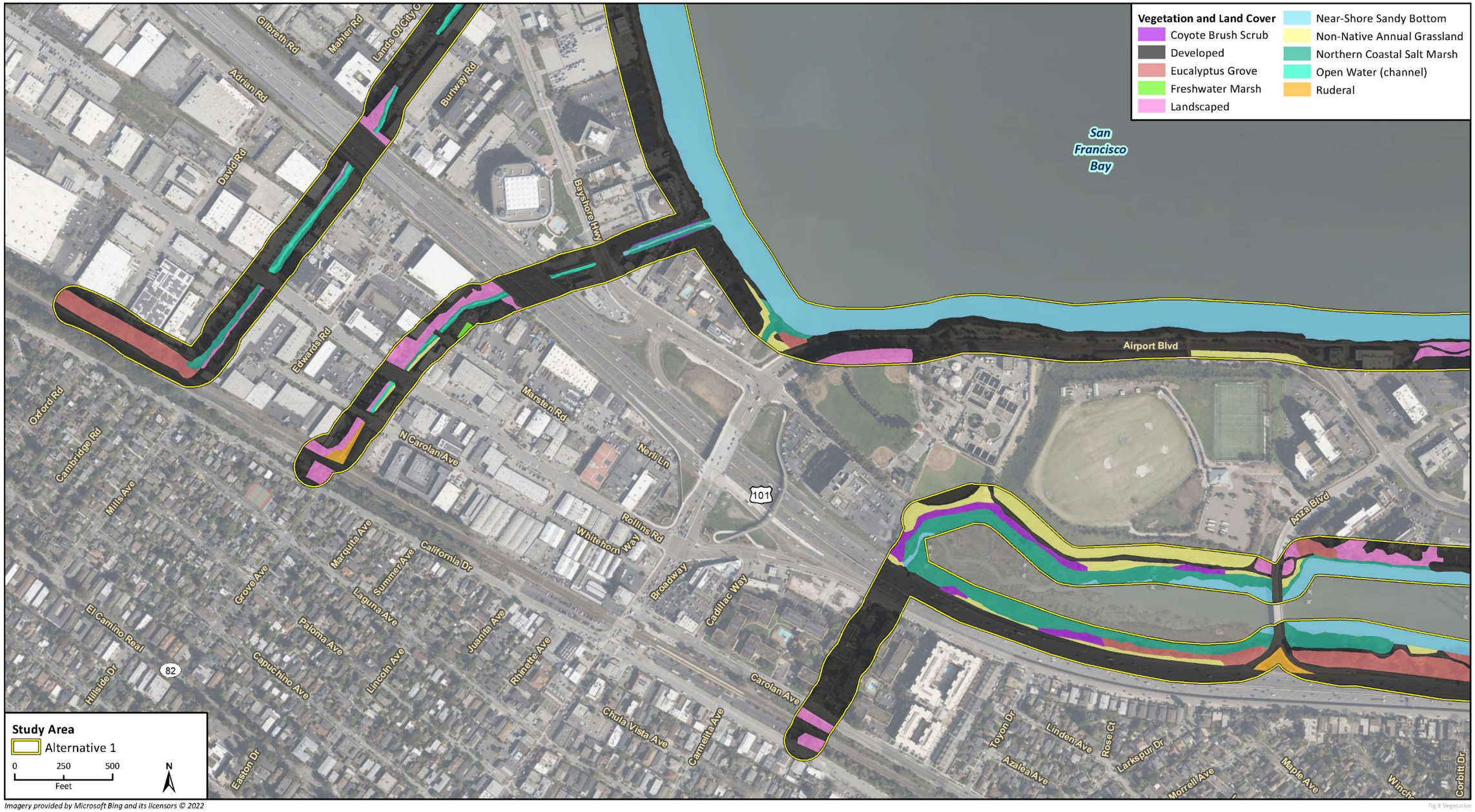

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Fig X Vegetation

Figure 11 Vegetation Communities and Land Cover Types in the Alternative 1 Study Area, Continued

Figure 15 Vegetation Communities and Land Cover Types in the Alternative 2 Study Area

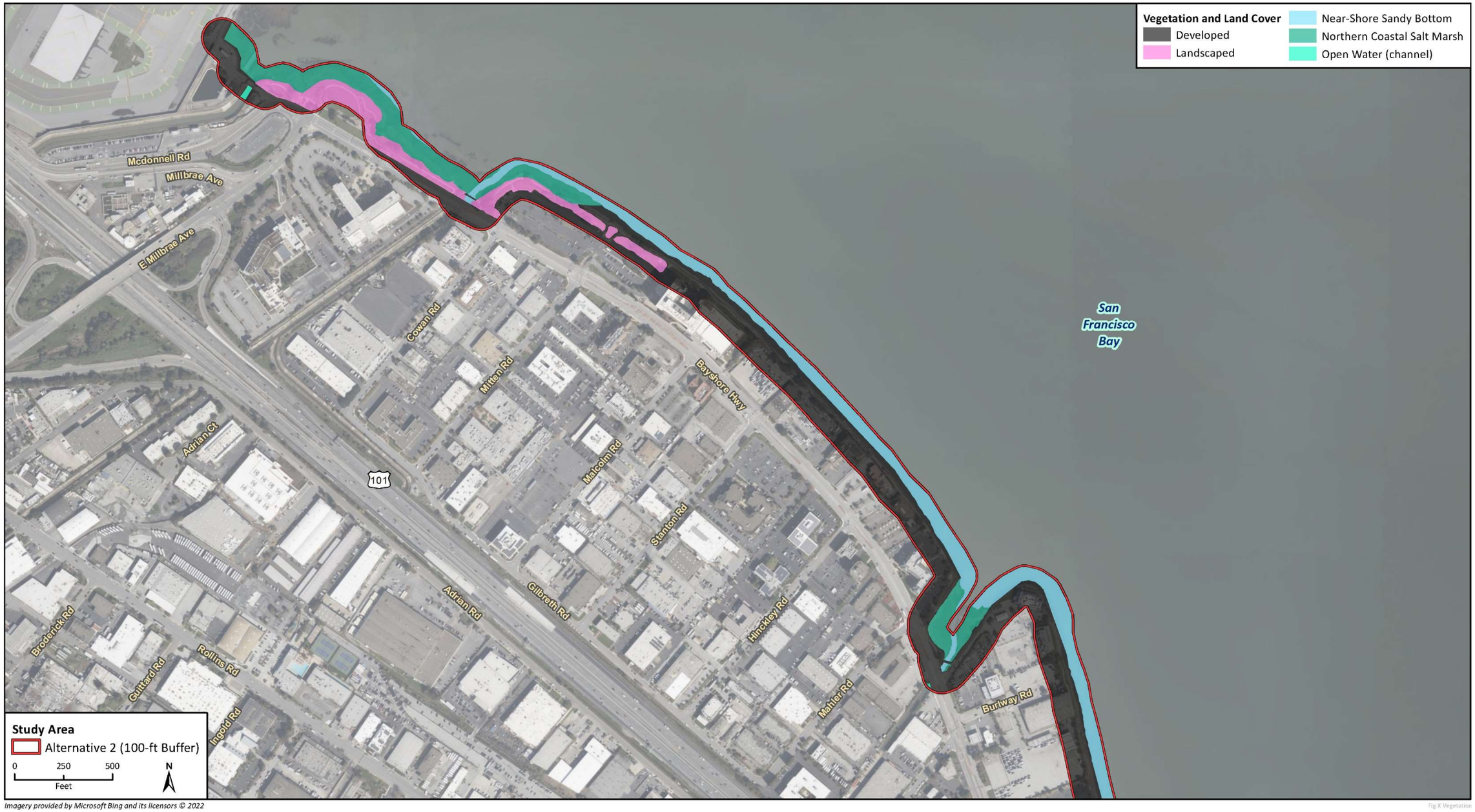

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Fig X Vegetation

Figure 16 Vegetation Communities and Land Cover Types in the Alternative 2 Study Area, Continued

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Fig X Vegetation

Figure 17 Vegetation Communities and Land Cover Types in the Alternative 2 Study Area, Continued

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Fig X Vegetatior

Figure 18 Vegetation Communities and Land Cover Types in the Alternatives 3-5 Study Area

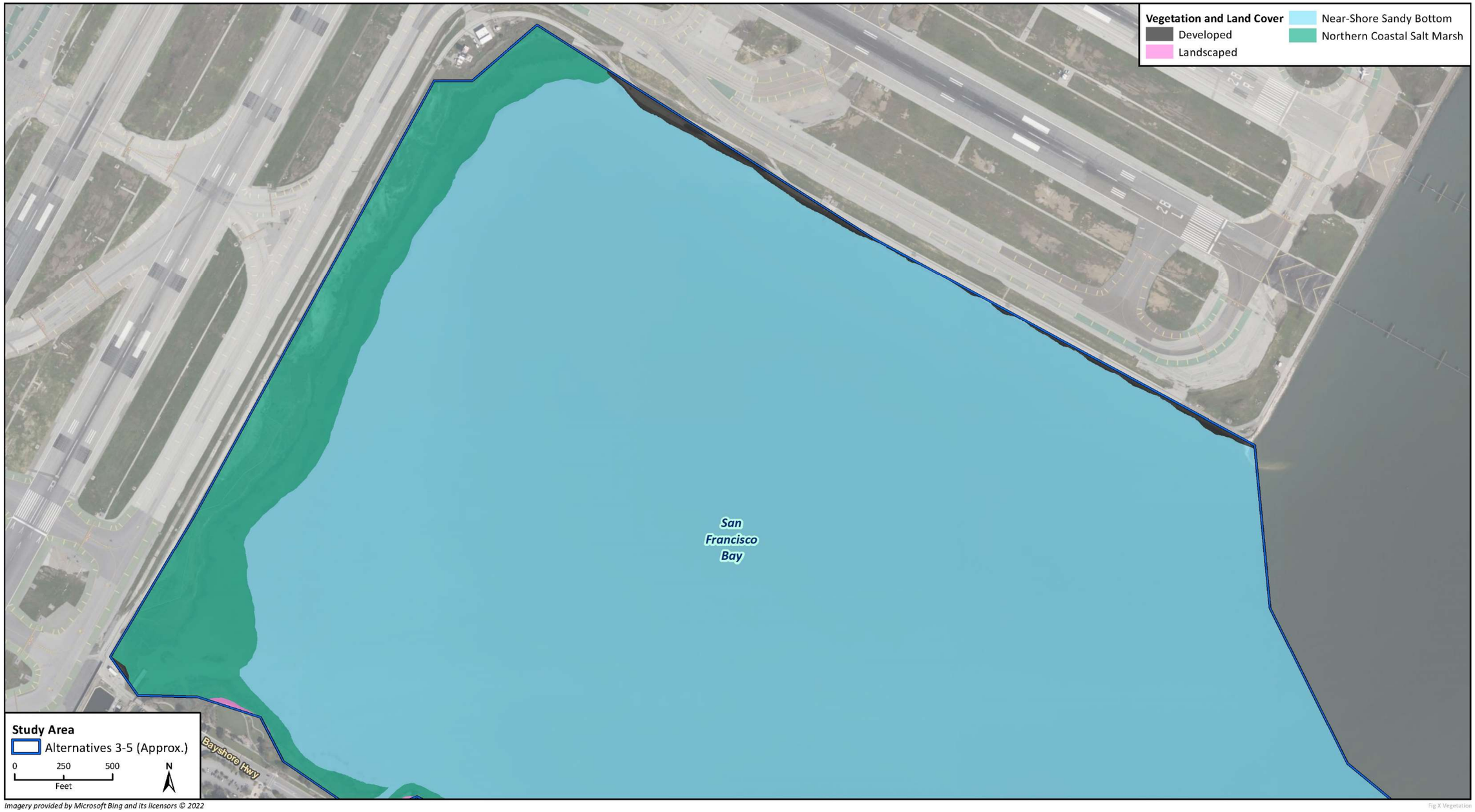

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Fig X Vegetation

Figure 19 Vegetation Communities and Land Cover Types in the Alternatives 3-5 Study Area, Continued

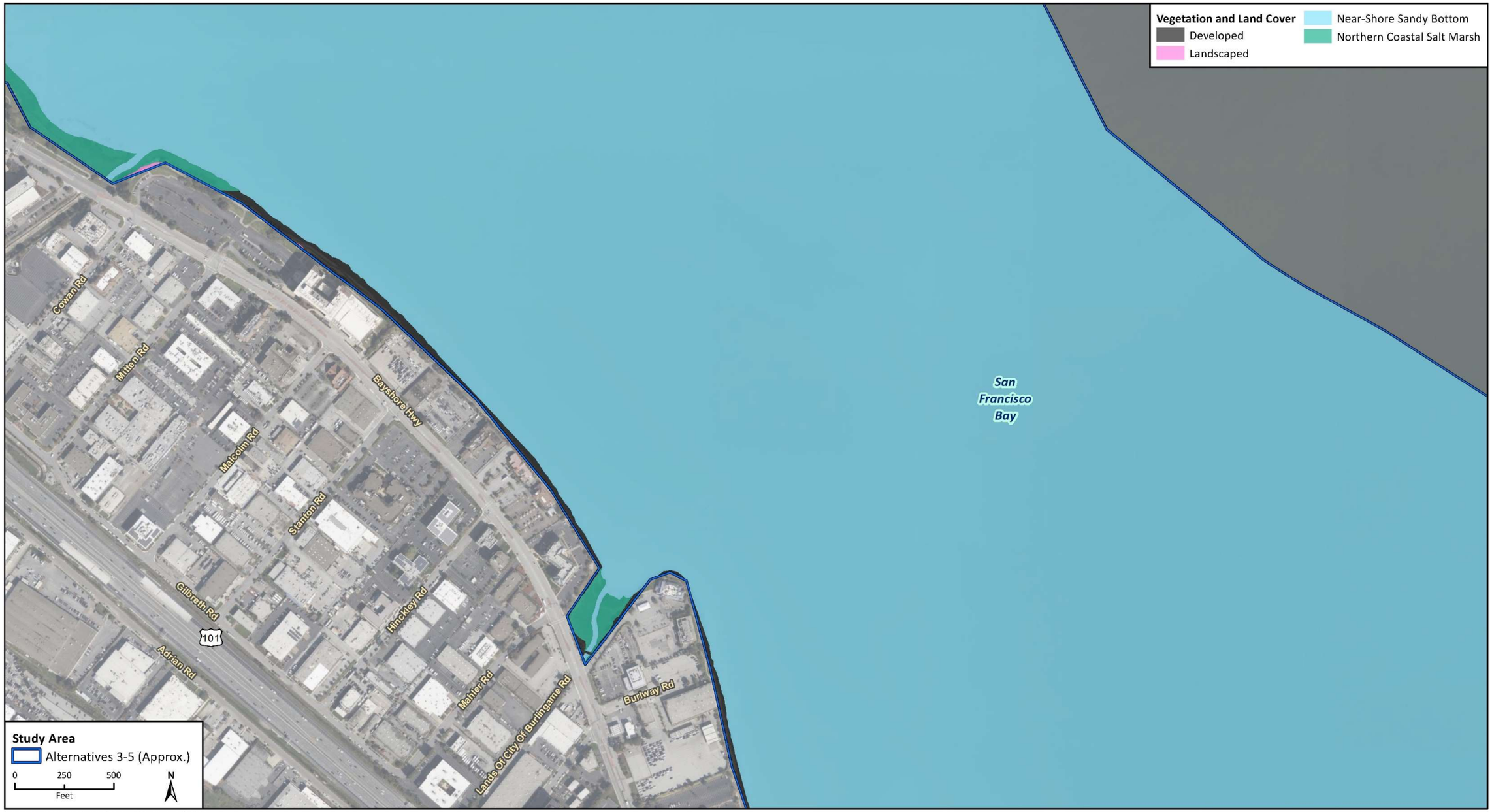

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Fig X Vegetation

Figure 20 Vegetation Communities and Land Cover Types in the Alternatives 3-5 Study Area, Continued

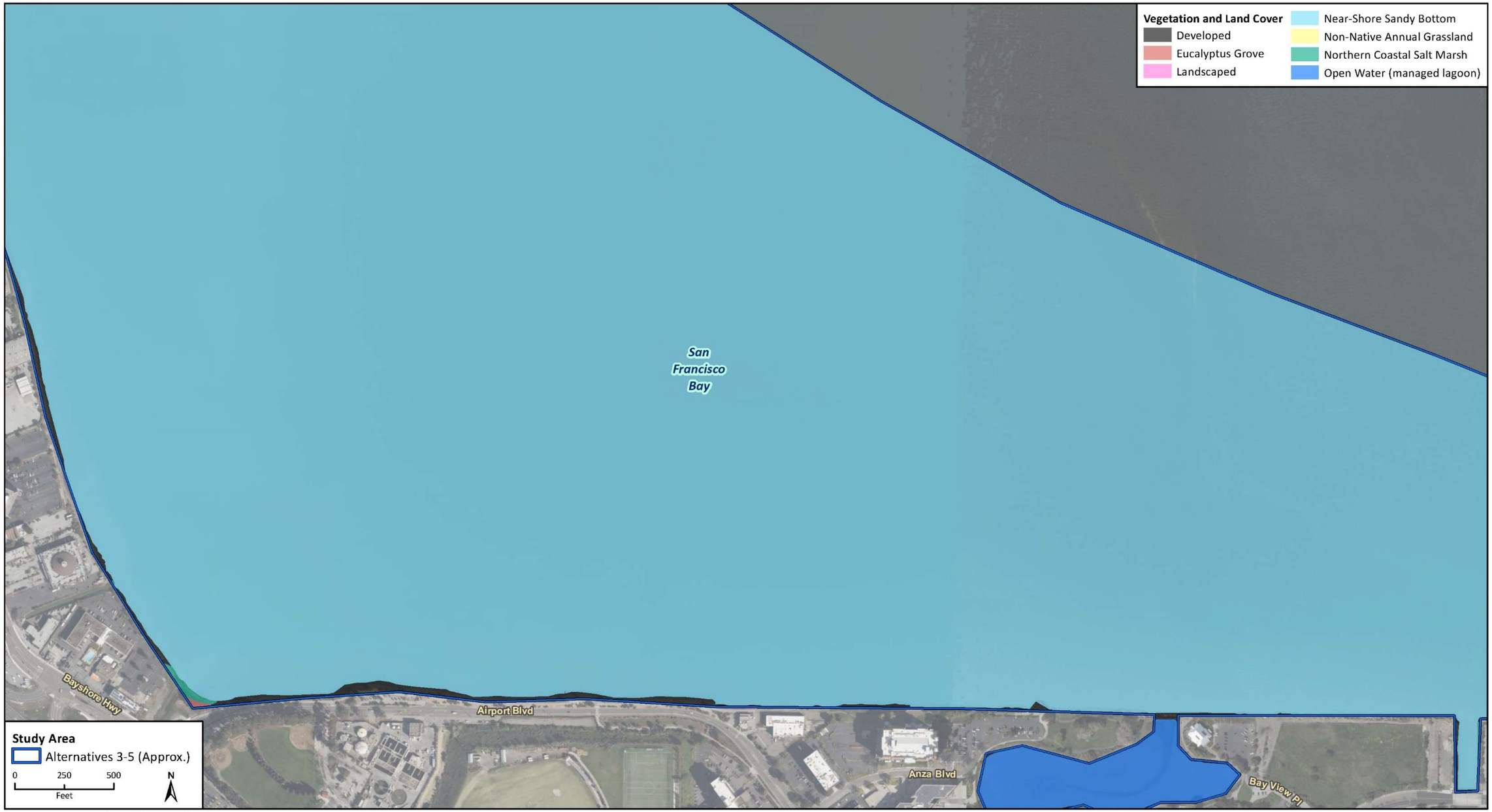

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Fig X Vegetation

Figure 21 Vegetation Communities and Land Cover Types in the Alternatives 3-5 Study Area, Continued

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Fig X Vegetation

Table 3 Terrestrial Vegetation Communities and Land Cover Types in Study Areas

	Study Area[1]		
Vegetation Community or Land Cover Type	Alternative 1	Alternative 2	Alternatives 3, 4, & 5
Beach	1.12	0.37	1.47
Coyote Brush Scrub	1.55	0.07	0
Developed	143.85	52.80	10.94
Eucalyptus Grove	4.90	0.15	0.07
Freshwater Marsh	0.10	0	0
Landscaped	18.51	9.70	0.36
Non-native Annual Grassland	7.33	2.02	0.02
Northern Coastal Salt Marsh	18.67	6.22	38.59
Ruderal	2.38	0.10	0.10

[1] Area of vegetation community or land cover type within the study area for each alternative reported in acreage.

Compiled by Rincon Consultants, Inc. 2023

Beach

Beach land cover type only occurs along the shoreline at the easternmost extent of the study area(s) just north of Airport Boulevard (Table 3). This area of sandy beach is exposed at low tide and submerged at high tide. Vegetation within this area is sparse and consists of small amounts of scattered perennial pepperweed (*Lepidium latifolium*), ripgut brome (*Bromus diandrus*), sea rocket (*Cakile maritima*), beach bur (*Ambrosia chamissonis*), Algerian sea lavender (*Limonium ramosissimum*), oats (*Avena* sp.), crown daisy (*Glebionis coronaria*), plantain (*Plantago* sp.), salt grass (*Distichlis spicata*), marsh jaumea (*Jaumea carnosa*) and iceplant (*Carpobrotus edulis*). The lower elevations contained more concentrations of marsh plant species, while the dune and non-native grass species, as well as iceplant were observed at higher elevations on the beach. Many shore birds use this area for foraging during low tide. Beach shoreline is not described in the MCV2 (Sawyer et al. 2009) classification system.

Coyote Brush Scrub

Riparian coyote brush scrub present within the study areas aligns most closely with the coyote brush scrub *Baccharis pilularis* Shrubland Alliance (Sawyer et al. 2009). This habitat type can be variable, but key features include proximity to stream sides, a shrub layer dominated by coyote brush (*Baccharis pilularis*), a sparse to absent overstory, and a variable understory. Riparian coyote brush scrub occurs primarily in the upland areas surrounding Sanchez Marsh at the southern extent of the study areas (Table 3). Additional species associated with this habitat type within the study areas include California sagebrush (*Artemisia californica*), Himalayan blackberry (*Rubus armeniacus*), coast live oak (*Quercus agrifolia*), and Oregon gumweed (*Grindelia stricta*).

Developed

Developed areas are not naturally occurring and are not described in the MCV2 (Sawyer et al. 2009) classification system. Terrestrial developed portions of the study areas include the paved parking lots, city roadways, U.S. 101, rip-rap placed along the shoreline and lagoons for flood protection, concrete lined drainage canals, and developed buildings and structures throughout the study areas

(Table 3). Most developed areas were devoid of vegetation and are either completely or almost entirely paved. Some small areas of landscaping or ruderal vegetation may be included in these developed areas but do not provide adequate cover for wildlife use.

Eucalyptus Grove

The eucalyptus groves within the study areas most closely align to the E*ucalyptus* spp. - *Ailanthus altissima* - *Robinia pseudoacacia* Woodland Semi-Natural Alliance (Sawyer et al. 2009). This habitat type is characterized by an overstory entirely comprised of non-native gum trees (*Eucalyptus* spp.), with a sparse to absent shrub and herbaceous layer. Eucalyptus groves are not native to California and were planted in this location, likely for a windbreak or for use as lumber. Eucalyptus trees are dominant in this community and preclude other plant species from growing in the understory. Although the trees are non-native, they do provide habitat for a variety of native wildlife species including nesting birds and monarch butterfly. This habitat type is present primarily as landscaping along U.S. 101 on the southern edge of Sanchez Marsh and Burlingame Lagoon (Table 3).

Freshwater Marsh

Freshwater marsh occurs in the study area for Alternative 1 in the concrete lined Highline Canal and at a Burlingame wastewater utility plant along Marsten Road that was identified as a freshwater marsh based on vegetation present during the field survey (Table 3). The freshwater plant communities present within the study area are primarily due to soil accumulation within drainage canals and ponded areas at the wastewater utility plant. Freshwater vegetation communities are characterized by the presence of emergent hydrophytic plant species including sedges, rushes, cattails, and grass species. Dominant species present in this vegetation community in the study area include narrowleaf cattail (*Typha angustifolia*), perennial pepperweed, lanceleaf water plantain (*Alisma lanceolatum*), and tall cyperus (*Cyperus eragrostis*). This vegetation community most closely corresponds to the *Typha* (*angustifolia*, *domingensis*, *latifolia*) Herbaceous Alliance in MCV2 (Sawyer et al. 2009).

Landscaped

Landscaped areas are not naturally occurring and are not described in the MCV2 (Sawyer et al. 2009) classification system. Landscaped portions of the study areas occur around various parking areas and developed commercial and hotel buildings throughout the study areas. Landscaped plant species include Italian stone pine (*Pinus pinea*), acacias (*Acacia* spp.), English ivy (*Hedera helix*), weeping willow (*Salix babylonica*), olive (*Olea europaea*), and California lilacs (*Ceanothus* spp.).

Non-Native Annual Grassland

The non-native annual grassland vegetation community most closely corresponds to the *Avena* spp. - *Bromus* spp. Herbaceous Semi-Natural Alliance in MCV2 (Sawyer et al. 2009). It is dominated by slender wild oat (*Avena barbata*), ripgut brome and other non-native grasses and forbs listed on the California Invasive Plant Counsel's inventory of invasive species. Other grasses observed in this community include Italian rye grass (*Festuca perennis*), wall barley (*Hordeum murinum*), Bermuda grass (*Cynodon dactylon*) and Canada wild rye (*Elymus canadensis*). Patches of non-native annual grassland is located throughout the study areas at the southern extent along the shoreline near Anza Lagoon, and in the upland areas surrounding Sanchez Marsh (Table 3).

Northern Coastal Salt Marsh

Northern coastal salt marsh is primarily found along the Bay shoreline, within Sanchez Marsh, in estuaries where creeks and canals drain into the Bay and in Mills and Easton creeks (Table 3). This vegetation community is dominated by herbaceous, salt-tolerant hydrophytes, typically forming a dense mat of vegetation up to three feet high. The plant species most characteristic of the northern coastal salt marsh within the study areas is pickleweed (*Salicornia pacifica*). Other native salt marsh species co-dominant in these areas include salt grass, marsh jaumea, California cordgrass (*Spartina foliosa*), alkali heath (*Frankenia salina*), and Oregon gumweed. Non-native species present included the hybrid of smooth cordgrass and native California cordgrass (*Spartina alterniflora* x *foliosa*) as well as Algerian sea lavender. The largest concentrations of northern coastal salt marsh within the study areas are located at the mouth of Mills Creek as it flows into the Bay and along Bayfront Park in Millbrae near SFO just north of Old Bayshore Highway. The estuary of Mills Creek is also designated as the City of Burlingame's Shorebird Sanctuary, as this area supports several native shorebirds such as egret, stilt, and sandpiper. This vegetation community most closely corresponds to the *Salicornia pacifica* Herbaceous Alliance in MCV2 (Sawyer et al. 2009).

Ruderal

Ruderal areas consist of vegetation that has been heavily disturbed or altered such that natural vegetation has largely been removed and non-native plant species are dominant. These sites do not correspond well with the Sawyer et al. (2009) classification system. Ruderal portions of the study areas exist along roadway margins of U.S. 101 and Anza Boulevard and in the industrial areas near the Highline Canal and El Portal Canal (Table 3). A small patch of ruderal vegetation also exists along the southwestern extent of Easton Creek. Plant species within these areas include non-native bromes (*Bromus* spp.), wild radish (*Raphanus sativus*), common dandelion (*Taraxacum officinale*), wall barley, and bristly oxtongue (*Helminthotheca echioides*).

4.2.4 General Wildlife

Wildlife observed during the terrestrial field survey were typical of shoreline habitats and developed areas. Common avian species observed in and adjacent to the urban developed areas of the study areas, as well as further inland from the study area include house finch (*Haemorhous mexicanus*), mourning dove (*Zenaida macroura*), American crow (*Corvus brachyrhynchos*), Anna's hummingbird (*Calypte anna*), and California scrub-jay (*Aphelocoma californica*). Other avian species observed included several shorebirds, wetland bird species, and birds characteristic of coastal environments such as killdeer (*Charadrius vociferus*), mallard duck (*Anas platyrhynchos*), snowy egret (*Egretta thula*), great egret (*Ardea alba*), least sandpiper (*Calidris minutilla*), western gull (*Larus occidentalis*), black-necked stilt (*Himantopus mexicanus*), and Canada goose (*Branta canadensis*). Two species of mammals were observed during the survey: California ground squirrel (*Otospermophilus beecheyi*) and raccoon (*Procyon lotor*).

4.3 Overview of Marine Features

This section provides an overview of existing marine conditions within the study areas for all alternatives, including oceanographic and physical characteristics, and marine habitat types.

4.3.1 Oceanographic Characteristics

The marine portion of the study areas consists of periodically inundated shoreline on the Millbrae-Burlingame border of the San Francisco Bay. At high tides, the rip-rap rock placed along the shoreline within the study areas is also partially inundated. Water temperature in San Francisco Bay ranges from 53 °F to 60 °F. According to 2022 U.S. Environmental Protection Agency (USEPA) Waterbody Reports, water quality along the San Francisco Bay Estuaries watershed is considered a CWA Section 303d impaired waterbody, while the Coyote Point County Park shoreline located within the study area for alternatives 3, 4, and 5 is listed in good condition with no listed impairments (USEPA 2022). Water quality at these locations is monitored for physical, chemical, and biological factors. The assessment of the water quality is analyzed against USEPA-approved water standards or thresholds, and water quality can either be categorized as good or impaired. The water quality parameters evaluated along the San Francisco Bay shoreline were dioxins, mercury, polychlorinated biphenyls, pesticides, foreign plants and/or animals, and trash.

4.3.2 Marine Habitat Types

Portions of the study areas for all alternatives include marine areas that provide habitat for a variety of marine species. Marine habitat types within the study areas for all alternatives include Near-Shore Sandy Bottom and Rocky Intertidal (Figure through Figure). Each of these marine habitats are described in detail below. Table 4 shows the marine habitats by study area for each alternative.

Nearshore Sandy Bottom

Nearshore sandy bottom marine habitat is found throughout the study areas for all alternatives. This habitat consists mainly of sands, mud, and sedimentary particles in locations of lower water movement. Benthic organisms are associated with soft sediment habitat, primarily invertebrate species. Benthic organisms are an important component of the food web and are indicators of environmental quality. Benthic areas within this habitat type may be occupied by a variety of regionally occurring invertebrates, such as polychaete worms (including *Mediomastus californiensis* and *Polydora kempi*), shrimp (*Neomysis rayii, Bathyleberis* sp., and *Euphilomedes carcharodonta*), crabs (including *Hemigrapsus nudus*), bivalves (including *Macoma secta* and *Transennella tantilla*), seastars (including *Amphiodia* sp.), gammarid amphipods (including *Aoroides columbiae* and *Corophium acherusicum*), and other sessile and suspension feeding organisms.

Water column within the study areas can provide foraging habitat for juvenile and adult fish species, such as salmonids (most notably, steelhead [*Oncorhynchus mykiss*]), starry flounder (*Platichthys stellatus*), barred surfperch (*Amphistichus argenteus*), and rockfishes (S*ebastes* spp.). Schools of Pacific herring (*Clupea pallassii*), Pacific sardine (*Sardinops sagax caerulea*), and Pacific mackerel (*Scomber japonicus*) are also known to transit and feed within the study areas. A variety of seabirds also utilize this habitat, including California brown pelican (*Pelecanus occidentalis californicus*), osprey (*Pandion haliaetus*), western sandpiper (*Calidris mauri*), and western grebe (*Aechmophorus occidentalis*).

Eelgrass Beds

Nearshore sandy bottom habitat is necessary for eelgrass beds to be present. There are previously documented eelgrass beds throughout the study areas for all alternatives. Common eelgrass (*Zostera marina*) thrives in soft seafloor environments, typically found in shallow bays and estuaries. Eelgrass beds can transform unstructured shallow-water areas into physically structured habitat

that can support a wide variety of organisms. The complexity of this habitat can support residents that have a variety of life histories and feeding modes. Eelgrass beds provide foraging and refuge habitat for juvenile fish species including salmonids, Pacific herring, and rockfish species. A variety of seabirds utilize this habitat, including double-crested cormorant (*Nannopterum auritum*), great egret, and black oystercatcher (*Haematopus bachmani*). This marine habitat was not mapped during the survey. For accurate acreage of the eelgrass beds, scientific SCUBA diving surveys need to occur to map the specific locations of eelgrass beds throughout the study areas.

Rocky Intertidal

Rocky intertidal habitat is located along Coyote Point. Rocky intertidal areas provide habitat for a wide diversity of marine invertebrate and algal species. This marine habitat was not mapped during the survey. Based on previous site observations, this habitat includes California mussel (*Mytilus californianus*), limpet (*Lottia gigantea* and *Acmaea* spp.), and barnacle (*Balanus* spp. and *Chthamalus* spp.).

Table 4 Marine Habitat Types in Study Areas

	Study Area[1]		
Marine Habitat Type	**Alternative 1**	**Alternative 2**	**Alternatives 3, 4, & 5**
Nearshore Sandy Bottom[2]	75.94	26.42	1,112.98
Rocky Intertidal	0	0	0.31

[1] Area of habitat type within the study area for each alternative reported in acreage.

[2] Previously documented eelgrass beds throughout nearshore sandy bottom could be present throughout the study areas.

Compiled by Rincon Consultants, Inc. 2023

4.4 Summary of Existing Conditions by Alternative

This section provides a description of the existing conditions as they apply to each alternative within the study areas. A summary of terrestrial vegetation communities and land cover types relevant to each alternative is shown in Table 3 and a summary of marine habitat types in each alternative study area are shown in Table 4, above.

4.4.1 Alternative 1: Shoreline and Creek Barriers

The study area for Alternative 1 is located along the Millbrae-Burlingame shoreline from SFO-Millbrae border to the San Mateo-Burlingame city boundary (Figure 8). This study area is located within the San Francisco Bay Estuaries Subwatershed and includes several creeks, tidal canals, and drainages. These include: Highline Canal, Lomita Canal, El Portal Canal, Mills Creek, Easton Creek, and Sanchez Creek. This study area also includes Burlingame Lagoon and Anza Lagoon. Vegetation communities and land cover types identified within the study area for Alternative 1 include Beach, Coyote Brush Scrub, Developed, Eucalyptus Grove, Freshwater Marsh, Landscaped, Ruderal, Non-native Annual Grassland, Northern Coastal Salt Marsh, and Nearshore Sandy Bottom (Table 3 and Table 4).

4.4.2 Alternative 2: Shoreline Barrier and Creek Pump Stations

The study area for Alternative 2 includes the shoreline from SFO to the San Mateo Burlingame city boundary, but does not include inland creeks, drainages, or canals (Figure 9). This study area does include Anza Lagoon but does not extend south to Burlingame Lagoon. Vegetation communities and land cover types identified within the study area for Alternative 2 include Beach, Coyote Brush Scrub, Developed, Eucalyptus Grove, Landscaped, Ruderal, Non-native Annual Grassland, Northern Coastal Salt Marsh, and Near-Shore Sandy Bottom (Table 3 and Table 4).

4.4.3 Alternative 3: Shoreline Barrier with Reef Wave Break

The study area for Alternative 3 extends along the Millbrae-Burlingame shoreline from SFO to Coyote Point State Beach in the City of San Mateo (Figure 10). This study area also includes a portion of the Bay located immediately off this extent of shoreline. This study area is primarily located within the San Francisco Bay and therefore primarily marine habitat. Vegetation communities and land cover types including marine habitats located within the study area are Beach, Developed, Landscaped, Ruderal, Eucalyptus Grove, Non-native Annual Grassland, Near-Shore Sandy Bottom, Rocky Intertidal, and Northern Coastal Salt Marsh (Table 3 and Table 4).

4.4.4 Alternative 4: Tidal Lagoon with Barrier Reef

The study area and existing conditions for Alternative 4 are the same as those described above for Alternative 3.

4.4.5 Alternative 5: Tidal Lagoon with Barrier Reef and Shoreline Enhancement

The study area and existing conditions for Alternative 5 are the same as those described above for Alternative 3.

5 Sensitive Biological Resources

Local, state, and federal agencies regulate special status species and other sensitive biological resources and require an assessment of their presence or potential presence to be conducted on-site prior to the approval of development. This section discusses sensitive biological resources observed within the study area and evaluates the potential for the alternatives to support sensitive biological resources. Assessments for the potential occurrence of special status species are based upon known ranges, habitat preferences for the species, species occurrence records from the CNDDB, species occurrence records from other sites in the vicinity of the survey area, previous reports for the study areas, and the results of surveys of the study areas. The potential for each special status species to occur in the study area was evaluated according to the following criteria:

- **No Potential.** Habitat on and adjacent to the site is clearly unsuitable for the species requirements (foraging, breeding, cover, substrate, elevation, hydrology, plant community, site history, disturbance regime), and species would have been identifiable on-site if present (e.g., oak trees). Protocol surveys (if conducted) did not detect species.
- **Low Potential.** Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the site is unsuitable or of very poor quality. The species is not likely to be found on the site. Protocol surveys (if conducted) did not detect species.
- **Moderate Potential**. Some of the habitat components meeting the species requirements are present, and/or only some of the habitat on or adjacent to the site is unsuitable. The species has a moderate probability of being found on the site.
- **High Potential.** All of the habitat components meeting the species requirements are present and/or most of the habitat on or adjacent to the site is highly suitable. The species has a high probability of being found on the site.
- **Present.** Species is observed on the site or has been recorded (e.g., CNDDB, other reports) on the site recently (within the last 5 years).

5.1 Special Status Species

5.1.1 Terrestrial Species

Special Status Plant Species

Based on the database and literature review, 69 special status plant species were documented within the *San Mateo, California* USGS 7.5-minute quadrangle and surrounding eight quadrangles. Of these, 35 species have known occurrences within five miles of the study areas for all alternatives, of which seven are listed as threatened or endangered and the remaining 28 are solely classified as California Rare Plant Rank (CRPR) 1.B1-3 (Appendix B). Of these species, only one special status plant was determined to have a moderate potential to occur within the study areas (Point Reyes bird's-beak [*Chloropyron maritimum* ssp. *palustre*]; CRPR 1B.2). This species is discussed in the following subsection.

None of the other terrestrial species documented in the nine-quadrangle search have the potential to occur in the study areas due to the absence of suitable habitat, lack of suitable soils, and/or

historical development and disturbance within the study areas (see Appendix B). The species occurring within the five-mile radius of the study areas are either likely extirpated historic occurrences or have been documented in natural communities such as grasslands or coastal scrub, often protected as part of Golden Gate National Recreation Area or California State Parks lands. No special status plant species were observed during the survey conducted in July 2022.

Point Reyes Bird's-Beak

Point Reyes bird's-beak is a parasitic annual that occurs in coastal salt marshes and swamps at elevations that range from zero to 35 feet above mean sea level. This species blooms from June through October. The known range of Point Reyes bird's-beak includes Alameda, Humboldt, Marin, Santa Clara, San Mateo, and Sonoma counties. It also occurs in Oregon. This species is noted for having seeds that are two to three millimeters long, 4 stamens, a notched inner bract, and stems that are not highly branched. There is one documented occurrence of this species within less than five miles of the study area for all alternatives. The northern coastal salt marsh habitats within the study areas, along the shoreline, and in drainage canals and creeks are suitable habitat for this species. Although this species was not observed on-site during the survey, several associated species, including pickleweed, salt grass, jaumea, and cordgrass were observed along the San Francisco Bay shoreline.

Special Status Animal Species

Rincon evaluated 62 special status wildlife species for their potential to occur within the study areas for all alternatives (Appendix B), of which 14 have the potential to occur within the terrestrial portions of the study areas. Table 5 lists each of these species, their federal and/or State status, and their potential to occur within the study area for each alternative.

The remaining terrestrial species evaluated are not expected to occur in the study areas or their immediate vicinity based on the absence of grassland, woodland, chaparral, vernal pool, or other suitable natural habitats or vegetation communities, and/or because the range of the species does not overlap with the study areas. Special status wildlife species that have a moderate or high potential to occur, or are present on site, are discussed in further detail below. State and/or federally listed species with a low potential to occur on-site will also be discussed in further detail. For the purposes of the constraints analysis, special status species that are not State or federally listed and have a low potential to occur will not be addressed further in this section.

Table 5 Special Status Wildlife Species with Potential to Occur within Terrestrial Portions of the Study Areas

Scientific Name Common Name	Status	Potential to Occur		
		Alternative 1	Alternative 2	Alternatives 3, 4, & 5
Invertebrates				
Danaus plexippus Monarch butterfly – California overwintering population	FC	Low Potential (non-roosting)	Low Potential (non-roosting)	Moderate Potential
Amphibians				
Rana draytonii California red-legged frog	FT, SSC	Moderate Potential	Not Expected	Not Expected
Reptiles				
Thamnophis sirtalis tetrataenia San Francisco garter snake	FE/SE, FP	High Potential	Moderate Potential (non-breeding)	Moderate Potential (non-breeding)
Birds				
Accipiter cooperii Cooper's hawk	WL	High Potential	High Potential	High Potential
Charadrius nivosus western snowy plover	FT, SSC	Moderate Potential (non-breeding)	Moderate Potential (non-breeding)	Moderate Potential (non-breeding)
Elanus leucurus white-tailed kite	FP	Moderate Potential (non-breeding)	Moderate Potential (non-breeding)	Moderate Potential (non-breeding)
Falco columbarius merlin	WL	High Potential (non-breeding)	High Potential (non-breeding)	High Potential (non-breeding)
Falco peregrinus anatum American peregrine falcon	FP	Moderate Potential (non-breeding)	Moderate Potential (non-breeding)	Moderate Potential (non-breeding)
Laterallus jamaicensis coturniculus California black rail	ST, FP	Low Potential	Low Potential	Low Potential
Melospiza melodia pusillula Alameda song sparrow	SSC	High Potential	High Potential	High Potential
Phalacrocorax auratus double-crested cormorant	WL	High Potential	High Potential	High Potential
Rallus obsoletus obsoletus California Ridgway's rail	FE/SE, FP	High Potential	High Potential	High Potential
Mammals				
Antrozous pallidus pallid bat	SSC	Moderate Potential	Moderate Potential	Moderate Potential
Reithrodontomys raviventris salt-marsh harvest mouse	FE/SE, FP	Low Potential	Low Potential	Low Potential

FE = Federally Endangered
FT= Federally Threatened
FC = Federal Candidate
SE = State Endangered
ST = State Threatened
FP = State Fully Protected
SSC = CDFW Species of Special Concern
WL = CDFW Watch List

Sources: Compiled by Rincon Consultants, Inc. 2023 from the CNDDB (CDFW 2022a), BIOS (CDFW 2022b), Critical Habitat Portal (USFWS 2022a), and IPaC (USFWS 2022b)

Monarch Butterfly

The California overwintering population of monarch butterfly is a candidate for federal listing. Monarchs overwinter in roost sites that extend along the Pacific coast from northern Mendocino County to Baja California, Mexico. Roosts are in wind-protected tree groves (typically eucalyptus, Monterey pine, or Monterey cypress), with nectar and water sources nearby (Xerces Society 2022).

A few eucalyptus groves are present along the southern edge of Sanchez Marsh and Burlingame Lagoon, as well as in Coyote Point Recreation Area. There is one potential overwintering site documented at Coyote Point Recreation Area, which occurs at the southeastern extent of the study area for alternatives 3, 4, and 5 (Xerces Society 2022). However, no occurrences of the species have been documented in the CNDDB within five miles of the study areas (CDFW 2022a), and no individuals were observed during the field survey. As such, there is a low potential for individuals to pass through the study areas for alternatives 1 and 2, and a moderate potential for individuals to overwinter in the study area for alternatives 3, 4, and 5.

California Red-Legged Frog

The California red-legged frog (CRLF) is a federally threatened species that occurs in lowlands and foothills in or near permanent sources of deep water with dense, shrubby, or emergent riparian vegetation. It typically inhabits quiet pools of streams, marshes, and ponds. All life history stages are most likely to be encountered in and around breeding sites, which include coastal lagoons, marshes, springs, permanent and semi-permanent natural ponds, and ponded and backwater portions of streams, as well as artificial impoundments such as stock ponds, irrigation ponds, and siltation ponds. Eggs are typically deposited in permanent pools, attached to emergent vegetation. This species typically requires 11 to 20 weeks of permanent water for larval development and must have access to estivation habitat. Suitable upland habitat must provide sufficient moisture to prevent desiccation and sufficient cover to provide protection from predators. Typical upland habitat consists of densely vegetated areas, downed woody vegetation, leaf litter, small mammal burrows, and human-made structures (i.e., culverts, livestock troughs, spring-boxes, abandoned sheds) (USFWS 2002).

Suitable habitat for the CRLF is present in the creeks and drainages that flow into the San Francisco Bay within the study area for Alterative 1. Particularly, the unchanneled portions of Mills and Easton creeks provide some estivation habitat and permanent water for larval development. There are 33 occurrences of the species documented in the CNDDB within five miles (CDFW 2022a), though most of these occur further inland than the extent of the study areas. In addition, the study areas are surrounded by paved roads and development, which limit species dispersal to natural habitats. The CRLF has a moderate potential to occur transiently within the study area for Alternative 1, and critical habitat for this species occurs two miles west of the study area. However, this species is not expected to occur within the study areas for alternatives 2 through 5 due to lack of stream and freshwater habitats.

San Francisco Garter Snake

The San Francisco garter snake is a federally and State endangered species and State fully protected species whose historical range is entirely within San Mateo County. The two main components of San Francisco garter snake habitat are: 1) wetlands supporting its prey species (e.g., California red-legged frog and Pacific chorus frog [*Pseudacris regilla*]); and 2) surrounding uplands that support small mammal burrows used by the snakes for escape cover (USFWS 2006). San Francisco garter snakes inhabit various aquatic habitats, including reservoirs, freshwater marshes, creeks, drainage

ditches, ponds, and lakes. Less ideal habitats can also be used by San Francisco garter snake, such as ditches and other waterways, or floating algal or rush mats. Suitable breeding habitat includes shallow marshlands with an abundance of emergent vegetation. Grasslands are also an important upland habitat for this species, as they provide areas for thermoregulation and cover. Prey items for this species include California red-legged frog, Pacific chorus frogs, and earthworms. Small mammal burrows are used by San Francisco garter snake during hibernation. During the warm days of summer, most activity occurs during the morning and afternoon. Preferred nocturnal retreats are thought to be holes, especially mammal burrows, crevices, and surface objects (USFWS 2007).

Dense vegetative cover and freshwater emergent wetland habitat is present within the study area for Alternative 1, particularly south of U.S. 101 and SFO along Lomita Canal. Although this area was not accessible to survey during the reconnaissance field survey, 22 occurrences of San Francisco garter snake are recorded from this portion of the study area (CDFW 2022a). Additionally, biologists contracted with SFO currently conduct trapping surveys for this species along Lomita Canal and the open space immediately adjacent to U.S. 101. This species has a high potential to occur within the study area for Alternative 1. However, there is only a moderate potential for this species to occur in the study areas for alternatives 2 through 5 during dispersal because breeding habitat is not present in these areas.

Cooper's Hawk

The Cooper's hawk is a CDFW watchlist species that typically inhabits woodlands and forest edges but can also be found in urban parks and neighborhoods where trees are present. Nests are constructed 25-50 feet high in a variety of tree species, including pines, oaks, beeches, and spruces. Nests are made of sticks and are often lined with bark flakes and green twigs. Cooper's hawks are aerial predators that feed primarily on medium-sized birds, such as mourning dove (*Zenaida macroura*), American robin (*Turdus migratorius*), California quail (*Callipepla californica*), and European starling (*Sturnus vulgaris*). In addition to preying on adult birds, Cooper's hawks will also occasionally rob nests and hunt rabbits, rodents, and bats (Cornell Lab of Ornithology 2022a).

Suitable foraging habitat for the species is present throughout the study areas, and suitable nesting habitat for the species exists within riparian areas along drainages, eucalyptus groves, and other mature trees present within the study areas for all alternatives. There are no occurrences of the species documented in the CNDDB within five miles of the study areas (CDFW 2022a). Multiple occurrences of the species are documented within one mile of the study areas in eBird (Cornell Lab of Ornithology 2022b). The Cooper's hawk has a high potential to forage and a moderate potential to nest within the study areas for all alternatives. The location of nesting habitat in and near urban developed areas, with persistent anthropogenic disturbance and noise, limits the potential for nesting within the study areas to moderate.

Western Snowy Plover

The western snowy plover is federally threatened and a CDFW SSC. This small shorebird is about six inches long, with a thin dark bill, pale brown to gray upper parts, white or buff colored belly, and darker patches on its shoulders and head, and white forehead and eyebrow. The Pacific coast population of the western snowy plover breeds primarily on coastal beaches from southern Washington to southern Baja California, Mexico. The population breeds above the high tide line on coastal beaches, sand spits, dune-backed beaches, sparsely vegetated dunes, beaches at creek and river mouths, and salt pans at lagoons and estuaries (USFWS 2022d).

A very limited amount of sandy beach is present along the shoreline at the easternmost extent of the study areas just north of Airport Boulevard, but it is heavily impacted by recreational use and does not provide suitable breeding habitat for the species. There is one occurrence of the species documented in the CNDDB, approximately 4.5 miles southeast of the study areas for all alternatives, near Redwood Shores State Marina Park (CDFW 2022a). There is a moderate potential for the western snowy plover to fly over or forage within the study area for all alternatives, particularly along the shoreline.

White-Tailed Kite

The white-tailed kite is a State fully protected species that occurs in open grasslands, meadows, open woodlands, marshes, and cultivated areas. Nests are built near the top of dense-topped trees. Diet consists primarily of small mammals and the species hunts by facing into the wind and hovering (or "kiting") above the ground while scanning the ground for movement (Cornell Lab of Ornithology 2022a).

The white-tailed kite is unlikely to nest or roost in trees on site given the high level of human activity. However, multiple non-breeding occurrences of the species are documented in eBird within and around the study areas (Cornell Lab of Ornithology 2022b) and there is a moderate potential for the species to fly over or forage within the study area for all alternatives.

Merlin

The merlin is a CDFW watchlist species that typically occurs in grasslands, open forests, and coastal areas. Breeding historically occurred in shrubs and trees in coastal areas and along rivers, but increasingly, the species lays its eggs in abandoned crow or hawk nests in urban areas. Diet consists primarily of birds, which are typically captured midair during high-speed attacks (Cornell Lab of Ornithology 2022a).

There is a high potential for the merlin to forage for shore birds within the study areas and there are multiple non-breeding occurrences of the species documented in eBird within five miles of the study areas for all alternatives (Cornell Lab of Ornithology 2022b). Breeding typically occurs in far northern reaches of North America and the species is not expected to nest within the study areas.

American Peregrine Falcon

The American peregrine falcon is a federally and State delisted species and a State fully protected species that occurs in urban areas and open habitats, including coastlines, mudflats, lake edges, and mountain sides (Cornell Lab of Ornithology 2022a). American peregrine falcon populations were nearly exterminated from 1940-1970 due to wide-spread use of organochlorine pesticides. In 1970, the species was listed as federally endangered and conservation efforts began. Following the ban of the pesticide DDT and the implementation of captive breeding programs, American peregrine falcon populations have rebounded and the species was delisted in 1999. Prey includes a wide variety of bird species and nest sites are typically in rocky cliffs faces but can also be located on transmission towers, skyscrapers, bridges, or other human-made structures (Cornell Lab of Ornithology 2022a).

Suitable nesting habitat for the species is not present within the study areas. Multiple occurrences of the species are documented within five miles of the study area for all alternatives in eBird (Cornell Lab of Ornithology 2022b) and there is a moderate potential for the species to fly over or forage in the study area for all alternatives.

California Black Rail

California black rail is a State threatened and fully protected species that is considered a yearlong resident throughout their limited range in California. This species resides in saline, brackish, and freshwater wetland habitats, though it is most often associated with tidal marshes, which are dominated by saltgrass and pickleweed. Its range includes the northern San Francisco Bay estuary, Bodega Bay, Tomales Bay, Bolinas Lagoon, the Sacramento-San Joaquin Delta, Morro Bay, and a few other isolated locations within the Salton Sea, and the lower Colorado River near the California/Arizona border. California black rails begin breeding in February and they nest in tall thickets of vegetation. The breeding season extends through June. This species is highly sensitive when nesting and is known to abandon its nests if disturbed.

The nearest documented occurrence of California black rail is located approximately 4.8 miles southeast of the study area, in Belmont Slough (CDFW 2022a). The northern coastal salt marsh and wetlands within the study areas may provide some marginal nesting and/or foraging habitats for this species. However, this habitat is fragmented by development and this species has a low potential to occur within the study area for all alternatives.

Alameda Song Sparrow

The Alameda song sparrow is a CDFW SSC, is one of seven subspecies known to occur in California, and is one of three subspecies that is endemic to the Bay. The Alameda song sparrow inhabits salt marsh and brackish marsh habitats and other tidally influenced fringe areas such as dikes, landfills, and waste yards that abut salt or brackish waters, where marsh vegetation can occur. The range of this subspecies is restricted to the southern and eastern edges of the San Francisco Bay. It has been documented within Alameda, Contra Costa, San Mateo, and Santa Clara counties. The Alameda song sparrow breeding season is thought to begin in March and April. It nests on the ground, in clumps of pickleweed, among stalks of cordgrass, or in the axes of gumweed.

There are four documented occurrences of this species in the CNDDB within less than five miles of the study area (CDFW 2022a). The nearest of the two is approximately 0.5-mile northwest of the northern extent of the study areas. The northern coastal salt marsh with salt grass and gumweed bushes within the study area for all alternatives provides suitable nesting and/or foraging habitat for this species, and there is a high potential for this species to occur.

Double-Crested Cormorant

The double-crested cormorant is a CDFW watchlist species that forms breeding colonies in clusters of trees near large bodies of water. Their diet consists primarily of fish, which they catch by diving and chasing underwater with powerful propulsion from webbed feet. After fishing, the birds rest on high, airy perches to dry off and digest (Cornell Lab of Ornithology 2022a).

This species has been frequently documented along Bayfront Park within the study areas (Cornell Lab of Ornithology 2022b). There is a high potential of for this species to nest within the eucalyptus trees along the shoreline, and along Sanchez Marsh and Burlingame Lagoon.

California Ridgway's Rail

The California Ridgway’s rail is a federally and State endangered species and State fully protected species that is regionally endemic to the San Francisco Bay area. This species forages in tidal marsh vegetation along brackish creeks, mudflats, and coastal areas. Suitable habitats typically are dominated by pickleweed and cordgrass. The range of the California Ridgway’s rail includes the

south and central Bay, the San Pablo Bay, and the Petaluma Marsh, Suisun Marsh, and Napa-Sonoma marshes within the North Bay. The breeding season of this subspecies is February through August. This subspecies is included in the *Recovery Plan for Tidal Marsh Ecosystems of Northern and Central California* (USFWS 2013).

This species has frequently been documented along the shoreline adjacent to SFO and in the tidal sloughs along the San Francisco Bay (CDFW 2022a, Cornell Lab of Ornithology 2022b). Six documented occurrence of California Ridgway's rail are recorded in the CNDDB within five miles of the study areas for all alternatives (CDFW 2022a). Several areas of fragmented salt marsh habitat suitable for nesting are present throughout the study areas. This species has a high potential to nest and forage within the study areas for all alternatives.

Pallid Bat

Pallid bats are a CDFW SSC. They are known to inhabit deserts, grasslands, shrublands, woodlands and forests. This species most commonly occurs in open, dry habitats with rocky areas for roosting (caves, mines, etc.). Day roosts are in caves, crevices, mines, and occasionally in hollow trees and buildings. Day roosts need deep cover to protect bats from high temperatures. Maternity colonies are established by early April and can vary in size from dozen to over 100 individuals (Zeiner et al. 1990).

There are two occurrences of this species documented within five miles of the study areas, one of which overlaps with the study areas for all alternatives (CDFW 2022a). The species is known to occur throughout all of California's lower elevations. The study area does not contain outcrops, caves, or the open, arid habitat favored by the species. There is a moderate potential for the species to roost in buildings and trees within the study areas for all alternatives.

Salt Marsh Harvest Mouse

The salt marsh harvest mouse is a federally and State endangered species and a State fully protected species that is a highly localized resident in California. It is one of two subspecies that occur in the San Francisco. Both subspecies occur in saline emergent wetland and tidal marsh habitats within the greater San Francisco. This species' preferred habitat is pickleweed, though they can also be found within stands of cordgrass and alkali bulrush. During high tide, salt marsh harvest mice move up into adjoining grassland habitats. This subspecies is included in the *Recovery Plan for Tidal Marsh Ecosystems of Northern and Central California* (USFWS 2013).

One documented occurrence of salt marsh harvest mouse is located approximately 4.8 miles southeast of the study areas. Although fragmented, the coastal salt marsh within the study areas may be considered marginally suitable habitat for this species and it may move out into the adjacent habitats during high tides. Therefore, this species is considered to have a low potential to occur within the study area for all alternatives.

Nesting Birds

Migratory birds protected under the MBTA, and nesting birds and raptors protected under CFGC Section 3503 have the potential to breed and forage throughout the study area. Nesting habitat could include landscaped or ornamental trees, eucalyptus, native coast live oaks, willows, other vegetation, human-made structures, and the ground surface. The nesting season generally extends from February through August in California but can vary based upon annual climatic conditions.

5.1.2 Marine Species

Special Status Marine Plant Species

Eelgrass is a flowering marine plant that is designated as a HAPC and EFH by NOAA. There are previously documented eelgrass beds throughout the study areas for all alternatives. Eelgrass is a type of marine flowering seagrass. Common eelgrass thrives in soft seafloor environments, typically found in shallow bay and estuaries. Eelgrass is a highly productive species and is considered to be a foundation or habitat-forming species (NOAA 2014a).

Special Status Marine and Anadromous Wildlife Species

For the purpose of this constraints analysis, special status species are defined as those defined in Section 3.1.1. CEQA Guidelines, Section 15125(a), also directs that special emphasis should be placed on resources that are rare or unique to the region. Therefore, species included in the World Conservation Union's Red List of Vulnerable Species (IUCN), protected under the Convention of International Trade in Endangered Species of Fauna and Flora (CITES), protected by the Convention on Migratory Species (CMS), and protected under the Marine Mammal Protection Act (MMPA) are also listed here.

Rincon evaluated 22 special status marine species for their potential to occur within the study area for all alternatives (Appendix B), of which 11 have the potential to occur within the marine portions of the study areas. Table 6 lists each of these species, their federal and/or State status, and their potential to occur within the study area for each alternative. The species that can be reasonably anticipated to occur were determined based on the published ranges of the species, and the type, extent, and condition of habitat available at the study areas for all alternatives.

Special status marine species that have a moderate or high potential to occur, or are present on site, are discussed in further detail below. State and/or federally listed species with a low potential to occur on-site will also be discussed in further detail. For the purposes of the constraints analysis, special status species that are not State or federally listed and have a low potential to occur will not be addressed further in this section.

Table 6 Special Status Wildlife Species with Potential to Occur within Marine Portions of the Study Areas

Scientific Name Common Name	Status	Potential to Occur		
		Alternative 1	Alternative 2	Alternatives 3, 4, & 5
Fish				
Acipenser medirostris pop. 1 green sturgeon – southern DPS	FT	Moderate Potential	Moderate Potential	High Potential
Acipenser transmontanus white sturgeon	SSC	Moderate Potential (non-breeding)	Moderate Potential (non-breeding)	Moderate Potential (non-breeding)
Oncorhynchus mykiss irideus pop. 8 steelhead – central California DPS	FT	Moderate Potential (non-breeding)	Moderate Potential (non-breeding)	Moderate Potential (non-breeding)
Spirinchus thaleichthys longfin smelt	FC/ST	High Potential	High Potential	High Potential
Mammals				
Eschrichtius robustus gray whale-Eastern North Pacific DPS	FD, MMPA	Low Potential (non-breeding)	Low Potential (non-breeding)	Moderate Potential (non-breeding)
Megaptera novaeangliae humpback whale - Central America DPS	FE, MMPA	Not Expected	Not Expected	Low Potential
Megaptera novaeangliae humpback whale - Mexico DPS	FT, MMPA	Not Expected	Not Expected	Low Potential
Phoca vitulina richardii harbor seal	MMPA	Low Potential	Low Potential	High Potential
Phocoena phocoena harbor porpoise	MMPA	Low Potential	Low Potential	Moderate Potential
Tursiops truncatus common bottlenose dolphin	MMPA	Low Potential	Low Potential	Moderate Potential

Scientific Name Common Name	Status	Potential to Occur		
		Alternative 1	Alternative 2	Alternatives 3, 4, & 5
Fish				
Acipenser medirostris pop. 1 green sturgeon – southern DPS	FT	Moderate Potential	Moderate Potential	High Potential
Acipenser transmontanus white sturgeon	SSC	Moderate Potential (non-breeding)	Moderate Potential (non-breeding)	Moderate Potential (non-breeding)
Oncorhynchus mykiss irideus pop. 8 steelhead – central California DPS	FT	Moderate Potential (non-breeding)	Moderate Potential (non-breeding)	Moderate Potential (non-breeding)
Spirinchus thaleichthys longfin smelt	FC/ST	High Potential	High Potential	High Potential
Zalophus californianus California sea lion	MMPA	Moderate Potential	Moderate Potential	High Potential

FE = Federally Endangered
FT= Federally Threatened
FC = Federal Candidate
SE = State Endangered
ST = State Threatened
FP = State Fully Protected
SSC = CDFW Species of Special Concern
WL = CDFW Watch List
FD = Federally Delisted
MMPA = Marine Mammal Protection Act

Sources: Compiled by Rincon Consultants, Inc. 2023 from the CNDDB (CDFW 2022a), BIOS (CDFW 2022b), California Species List Tool (NMFS 2022a), and EFH Mapper (NMFS 2022b)

Special Status Fishes

Green Sturgeon – Southern DPS

Green sturgeon in this region are part of the southern DPS and are federally threatened. The species are a prehistoric cartilaginous fish that inhabit the waters along the west coast of North America. Green sturgeon are among the largest and longest living species found in freshwater, living up to 70 years and weighing up to 350 pounds. The species has a cartilaginous skeleton and possesses rows of bony plates for protection rather than scales. Green sturgeons are olive green in color and are highly adapted for feeding on bottom-dwelling species. During spawning runs, adult fish enter San Francisco Bay between mid-February and early May and migrate up the Sacramento River. Green sturgeon spawn in water temperature between 12-15 degrees Celsius (°C). In the fall the post spawn adults migrate back down the river and re-enter the ocean.

The southern DPS of green sturgeon occupies coastal bays and estuaries from Monterey Bay, California to Puget Sound, Washington. Critical habitat has been designated to include Coastal U.S. marine waters within 60 fathoms depth from Monterey Bay, California (including Monterey Bay), north to Cape Flattery, Washington, including the Strait of Juan de Fuca, Washington, to its United States boundary. Additionally, several large watersheds flowing into San Francisco Bay and north are

also individually included. The shoreline along the Bay within the study areas for all alternatives falls within designated critical habitat for the southern DPS of green sturgeon. As such, there is a moderate potential for individuals to migrate through the study areas for alternatives 1 and 2, and a high potential for individuals to forage and transit within the study areas for alternatives 3, 4, and 5.

White Sturgeon

The white sturgeon is a CDFW SSC. White sturgeon are the largest freshwater fish in North America. The species can grow to 10 feet and weigh up to 400 pounds. The species has a cartilaginous skeleton and possesses five rows of bony plates. White sturgeon have light gray coloring on their dorsal side and white on their ventral side. Adult white sturgeon migrate from the estuary into the river in the winter and spawn from February to June.

The white sturgeon is an anadromous fish spending most of its life in coastal waters from Ensenada, Mexico to Alaska and found in large rivers and their associated estuaries. White sturgeon in the Sacramento-San Joaquin system represent the southernmost spawning population of the species. Adult white sturgeon have been observed moving throughout the San Francisco Bay Estuary, occasionally making forays into coastal waters. There is a moderate potential for individuals to forage and transit within the study areas for alternatives 1 through 5.

Steelhead – Central California Coast DPS

The Central California Coast DPS of steelhead is federally threatened. This DPS includes all naturally spawned populations of steelhead (and their progeny) in streams from the Russian River to Aptos Creek, Santa Cruz County, California. Steelhead is the term used to denote the anadromous life-history form of rainbow trout (*O. mykiss*).[1] Central California Coast steelhead are winter-run salmonids, meaning that adults enter freshwater between November and April to spawn. Steelhead are capable of surviving in a wide range of temperature conditions within freshwater and estuarine environments but prefer temperatures less than 57 °F. Eggs tend to experience mortality at temperatures greater than 55 °F, and steelhead appear to have difficulty obtaining sufficient oxygen from water temperatures greater than 70 °F. Elevated summer water temperatures within have been identified as a problem. Steelhead do best where dissolved oxygen concentrations are at least seven parts per million. In streams, deep low-velocity pools are important wintering habitats. Spawning habitat consists of gravel substrates that are free of excessive silt (NMFS 2005).

There is a moderate potential for the species to forage and transit within the study areas for alternatives 1 through 5. Critical habitat located approximately 4.3 miles south of the study area; San Pedro Creek and Pialrcitos Creek. There is a historic run (Mill Creek), which falls into the study area for all alternatives. However, during recent studies no steelhead have been observed in Mill Creek (Leidy 2005). Suitable freshwater breeding habitat for the species does not occur within the study areas. However, the San Francisco Bay habitat within the study areas provides migrating habitat for this species.

Longfin Smelt

Longfin smelt is a candidate for federal listing and is a state threatened fish species. This species is characterized by long pectoral fins that reach to the base of the pelvic fins, silver sides, and dorsal coloration ranging from olive to pinkish. Longfin smelt typically live for two years. Larvae move

[1] Because both anadromous and resident O. mykiss may potentially occur in a given watershed, the term O. mykiss is used in situations where distinguishing juvenile steelhead from resident rainbow trout would be problematic. Preservation of both life-history forms is considered a high priority in the Final Coastal Multispecies Recovery Plan (NOAA 2016).

throughout the water column to maintain position within the mixing zone of the estuary where they forage on small shrimp-like crustaceans. Longfin smelt spawn from November through May and generally spawning peaks from February to April. Longfin smelt is found along the Pacific coast from Alaska to California. Longfin smelt were once one of the most abundant open-water fish in the San Francisco Bay Estuary. The species was historically found in the San Francisco Bay estuary and the Sacramento-San Joaquin Delta, Humboldt Bay, and the estuaries of the Eel River and Klamath River. As such, there is a high potential for the species to forage and transit within the study areas for alternatives 1 through 5.

Marine Mammals

Gray Whale – Eastern North Pacific DPS

The eastern North Pacific DPS population was once federally listed but has successfully recovered and was delisted in 1994 (NOAA 1994, 2022c). Gray whales are found mainly in shallow coastal waters in the North Pacific Ocean and most spend the summers feeding in the northern Bering and Chukchi seas. Some gray whales also feed along the Pacific coast from southeast Alaska to northern California during the summer. Gray whales are primarily bottom feeders that consume a wide range of benthic and epibenthic invertebrates by sucking in sediment from the sea floor and filtering it through coarse baleen plates. In the fall, gray whales migrate from their summer feeding grounds, heading south along the coast of North America to spend the winter in their wintering and calving areas off the coast of Baja California, Mexico. Calves are born during migration or in the shallow lagoons and bays of Mexico from early January to mid-February. From mid-February to May, gray whales can be seen migrating northward along the west coast of California (NOAA 2022c). While the study areas do not contain breeding or foraging habitat, the species is frequently observed within the San Francisco Bay (NOAA 1999). There is a low potential for individuals to migrate through the study areas for alternatives 1 and 2, and a moderate potential for individuals to forage and transit within the study areas for alternatives 3, 4, and 5.

Humpback Whale

Humpback whales are divided into 14 DPSs, four of which are listed as federally endangered, with one listed as federally threatened. The Central American DPS (federally endangered) of humpback whale feeds and travels off the coast of California during the spring, summer, and fall (NOAA 2022c). The Mexico DPS (federally threatened) of humpback whale feeds across a broad range from California to the Aleutian Islands in Alaska and breeds along the Pacific coast of Mexico and the Revillagigedo Islands (NOAA 2022c). While calving, humpbacks prefer shallow, warm waters commonly near offshore reef systems or shores. Humpback whale feeding grounds are generally in cold, productive waters. Some humpback whales migrate from Alaska to Hawaii, while others migrate from Alaska to Mexico (NOAA 2022c). Migrations between winter regions and feeding areas off the coast of California do not follow a simple pattern, though humpbacks are most often seen feeding in nearshore areas along the California coast during the summer. While there is no breeding or foraging habitat present, there are recent occurrences in the northern part of the bay and the species could easily travel through the study area. There is no potential for individuals to migrate through the study areas for alternatives 1 and 2, and a low potential for individuals to forage and transit within the study areas for alternatives 3, 4, and 5.

Harbor Seal

The harbor seal is protected by the MMPA and inhabits temperate coastal habitats along the entire coast of California. The species hauls out on rocks, reefs, and beaches to rest, regulate body temperature, give birth, nurse pups, and molt. Harbor seals feed in both deep and shallow coastal waters and their diet consists primarily of fish, crustaceans, and mollusks (NOAA 2022c). There are haul-out sites are located throughout the Bay. The closest one is at Coyote Point Yacht Harbor approximately 0.3 mile south of the study area (iNaturalist 2022). There is low potential for individuals to migrate through the study areas for alternatives 1 and 2, and a high potential for individuals to forage and transit within the study areas for alternatives 3, 4, and 5.

Harbor Porpoise

The harbor porpoise is protected by the MMPA and occurs globally in temperate, subarctic, and arctic coastal and offshore waters. The species is commonly found in coastal areas, bays, estuaries, harbors, and fjords and is most often seen in groups of under ten individuals. Diet consists primarily of schooling fish and occasionally includes squid and octopus (NOAA 2022c). There are several occurrences recorded in the entrances of San Francisco Bay (iNaturalist 2022). There is low potential for individuals to migrate through the study areas for alternatives 1 and 2, and a moderate potential for individuals to forage and transit within the study areas for alternatives 3, 4, and 5.

Common Bottlenose Dolphin

The common bottlenose dolphin is protected by the MMPA and occurs in temperate and tropical waters around the world. The species inhabits a wide variety of habitats, including harbors, bays, gulfs, and estuaries, as well as nearshore coastal waters, deeper waters over the continental shelf, and even far offshore in the open ocean. Diet consists of a variety of prey species, including fish, squid, and crustaceans (NOAA 2022c). There are multiple occurrences recorded in the entrances of San Francisco Bay (iNaturalist 2022). There is low potential for individuals to migrate through the study areas for alternatives 1 and 2, and a moderate potential for individuals to forage and transit within the study areas for alternatives 3, 4, and 5.

California Sea Lion

The California sea lion is protected by the MMPA and occurs in the shallow waters of the eastern North Pacific Ocean. The species prefers sandy beaches or rocky coves for breeding and hauling out, though they also occur on marina docks, jetties, and buoys along the west coast. Their primary breeding range is from the Channel Islands to central Mexico. California sea lions primarily feed offshore on a variety of prey species, including squid, anchovies, mackerel, rockfish, and sardines (NOAA 2022c). There are several occurrences recorded throughout Bay. There are haul-out sites are located throughout the Bay. The closest one is at Coyote Point Yacht Harbor approximately 0.3 mile south of the study area (iNaturalist 2022). There is moderate potential for individuals to migrate through the study areas for alternatives 1 and 2, and a high potential for individuals to forage and transit within the study areas for alternatives 3, 4, and 5.

5.2 Sensitive Plant Communities and Critical Habitats

5.2.1 Sensitive Natural Communities and Riparian Habitat

Sensitive natural communities are vegetation types, associations, or sub-associations that support concentrations of special status plant and/or wildlife species, are of relatively limited distribution, and/or are of particular value to wildlife. Currently, CDFW publishes the California Sensitive Natural Communities List online (CDFW 2022e). Natural Communities are evaluated using NatureServe's Heritage Methodology, the same system used to assign global and State rarity ranks for plant and animal species in the CNDDB. Evaluation is done at both the Global (full natural range within and outside of California) and State (within California) levels resulting in a single G (global) and S (State) rank, ranging from 1 (very rare and threatened) to 5 (demonstrably secure). According to the CDFW Vegetation Program, Natural Communities with State ranks of S1-S3 and certain other specified associations are considered imperiled, and thus, potentially of special concern. Natural Communities with these ranks are generally addressed during CEQA environmental review with compensatory mitigation prescribed for impacts as applicable. Riparian areas are also considered sensitive natural communities by CDFW.

Four sensitive natural communities were listed by CNDDB within five miles of the study area for all alternatives. These include northern maritime chaparral, serpentine bunchgrass, northern coastal salt marsh, and valley needlegrass grassland. Northern coastal salt marsh was identified in several areas throughout the study areas and is mapped in Figure through Figure . This sensitive natural community was identified in estuaries where creeks and drainages flow into the San Francisco Bay throughout the study areas. Areas of northern coastal salt marsh are also found within Sanchez Marsh, and in Mills and Easton creeks. Small areas of riparian habitat or coyote brush scrub are located within the study area for Alternative 1. This habitat occurs primarily along the creeks and drainages throughout the study area for Alternative 1.

5.2.2 Terrestrial and Marine Critical Habitat

Critical habitat is a term used in the ESA and is defined as a specific geographic area (or areas) that contain features essential for the conservation of a threatened or endangered species and that may require special management and protection. Critical habitat may include an area that is not currently occupied by the species but that will be needed for its recovery. These areas provide notice to the public and land managers of the importance of these areas to the conservation of a listed species. Special protections and/or restrictions are possible in these areas when federal funding, permits, licenses, authorizations, or actions occur or are required.

Critical habitat is designated for the southern DPS of green sturgeon within the study area for Alternative 1 in the Highline Canal to the northeast of U.S. 101 and along the shoreline of the Bay within all alternative study areas (USFWS 2022a, NOAA 2022b). Additionally, the following five species have federally designated critical habitats within five miles of the study areas:

- **Bay checkerspot butterfly (*Euphydrydas 66merge bayensis*):** Designated on San Bruno Mountain, approximately 4.5 miles northwest of the study areas for all alternatives.
- **Coho salmon – central California coast ESU (*Oncorhynchus kisutch*):** Designated in San Pedro and Pilarcitos creeks approximately 3.8 and 4.7 miles from the study areas for all alternatives, respectively.

- **Steelhead – central California coast DPS**: Designated in San Pedro and Pilarcitos creeks approximately 4.3 and 4.7 miles from the study areas for all alternatives, respectively.
- **California red-legged frog**: Designated approximately two miles west of the study areas for all alternatives.
- **Marbled murrelet (*Brachyramphus marmoratus*):** Designated 4.2 miles southwest of the study areas for all alternatives.

5.2.3 Essential Fish Habitat

Essential Fish Habitat (EFH) is defined as those waters and substrate necessary to fish for spawning, breeding, feeding, or growing to maturity. Substrate includes the sediment, hard bottom, structures underlying the waters and the associated biological communities.

The freshwater EFH for Chinook salmon and Coho salmon consists of four major components: spawning and incubation, juvenile rearing, juvenile migration corridors, and adult migration and holding habitat. Important features for the marine and estuarine EFH are good water quality, cool water temperatures, abundant prey species and foraging habitat, connectivity with terrestrial ecosystems, and adequate depth and habitat complexity, including marine vegetation and algae in estuarine and nearshore habitats. The east-west geographic boundary of EFH for each individual CPS finfish and market squid is defined to be all marine and estuarine water from the shoreline along the coasts of California.

5.2.4 Habitat Areas of Particular Concern

Estuaries and marine and estuarine submerged aquatic vegetation (SAV) are considered habitat areas of particular concern (HAPC) for Chinook salmon, Coho salmon, groundfish and CPS finfish. Estuaries HAPC are defined by NOAA as the inland extent of the estuary or the upriver extent of saltwater intrusion, defined as upstream and landward to where ocean-derived salts measure less than 0.5 parts per thousand (ppt) during the period of average annual low flow (NOAA 2014b, 2021, 2022d). The seaward extent is an imaginary line closing the mouth of a river, bay, or sound; and to the seaward limit of wetland emergent shrubs, or trees occurring beyond the lines closing rivers, bays, or sounds. This HAPC also includes those estuary-influenced offshore areas of continuously diluted seawater. Marine and estuarine SAV or seagrass HAPC is defined as habitat those waters, substrates and other biogenic features associated with eelgrass species (*Zostera* spp.), widgeon grass (*Ruppia maritima*), or surfgrass (*Phyllospadix* spp.)

San Francisco Bay is the largest estuary on the west coast of North America. Estuaries are complex systems that encompass a variety of habitat types within a small area, including sand and gravel beaches, mudflats, tidal creeks, shallow nearshore waters, pocket estuaries and mixing zones. All are vital to the growth and survival of salmon, mainly during the juvenile phase of the species. Juvenile salmon utilize estuaries for three purposes: a rich nursery capable of sustaining increase growth rates, temporary refuge from marine predators, and a physiological transition zone where juveniles can gradually acclimate to saltwater. Chinook salmon are well known for utilizing natal river tidal deltas, non-natal “pocket estuaries” (nearshore lagoon and marshes), and other estuarine habitats. Estuaries tend to be shallow, protected nearshore areas, influenced by the ocean and freshwater. Tidal cycles and freshwater runoff create nutrient-rich and biologically productive habitats important for groundfish species, including kelp greenling (*Hexagrammos decagrammus*), starry flounder, and cabezon (*Scorpaenichthys marmorthus*).

Estuarine SAV habitats, including eelgrass and widgeon grass beds, have been previously documented by the CNDDB throughout the study areas for all alternatives (Figure). The presence of nearshore sandy bottom habitat provides the potential for eelgrass beds to occur in areas outside of those previously documented areas. Figure shows both previously documented eelgrass habitats, as well as areas with potential eelgrass habitat within the study areas. These habitats provide important nurseries, feeding grounds, and shelter to a variety of fish species including salmon and groundfish species. Juvenile salmon utilize eelgrass beds as migratory corridors during their transition to the open ocean. Eelgrass and widgeon grass beds also provide refuge from predators and an abundant food supply.

Figure 22 Historical CDFW Eelgrass Bed Locations and Potential Habitat

Imagery provided by Microsoft Bing and its licensors © 2022.
Additional Imagery and data provided by Cooper Aerial Services, 2022.

5.3 Jurisdictional Waters and Wetlands

The United States Army Corps of Engineers (USACE) asserts jurisdiction under Section 404 of the Clean Water Act (CWA) over non-wetland (e.g., streams, lakes, oceans) and wetland (e.g., marshes, estuaries) waters of the U.S. that typically exhibit a hydrologic connection to traditionally navigable waters. The limits of jurisdiction extend to the Ordinary High Water Mark (OHWM) for non-tidal waters or High Tide Line (HTL) for tidal waters, and to the edge of those wetlands abutting or, in some cases, adjacent to non-wetland waters of the U.S. that exhibit all three criteria defining federal wetlands: hydric soils, hydrophytic vegetation, and wetland hydrology. The Regional Water Quality Control Board (RWQCB) has jurisdiction over waters of the U.S. under Section 401 of the CWA. The RWQCB may also assert jurisdiction over waters of the State, typically considered "isolated," under the Porter-Cologne Water Quality Control Act (Porter-Cologne Act). The CDFW has regulatory authority over activities that divert, obstruct, or alter the channel, bed, or bank of any river, stream, or lake under Section 1600 et seq. of the CFGC. Therefore, lakes, ponds, perennial, intermittent and ephemeral streams, and associated riparian vegetation also fall under the jurisdiction of the CDFW. Tidally influenced areas are not subject to CDFW jurisdiction.

5.3.1 Terrestrial

Potentially jurisdictional areas include the creeks, canals, and freshwater emergent wetlands located throughout the terrestrial portions of the study areas. There are six riverine features in the terrestrial portions of the study areas: Highline Canal, Lomita Canal, El Portal Canal, Mills Creek, Easton Creek, and Sanchez Creek (USFWS 2022c). Several freshwater emergent wetlands also occur near Lomita Canal just south of SFO. Additionally, areas of freshwater marsh occur within a constructed basin at a Burlingame wastewater utility plant along Marsten Road that was identified based on vegetation during the field survey and within the Highline Canal. These features are potentially subject to USACE, RWQCB, CDFW, and BCDC oversight pursuant to regulations described in Section 5.3 and in Appendix A.

5.3.2 Marine

All alternative study areas are in the San Francisco Bay, which is protected under Section 404 of the CWA and Section 10 of the Rivers and Harbors Act of 1899; Section 401 of the CWA; McAteer-Petris Act;, and Public Trust Doctrine administered by the USACE, RWQCB, BCDC, and SLC, respectively; as well as the plans and policies set forth in the San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan); and the State Water Resources Control Board (SWRCB) Ocean Plan. Navigable waters of the U.S. are also regulated under Section 10 of the Rivers and Harbors Act and most proposed activities within the limits defined for navigable waters of the U.S. require a Department of the Army permit, especially if the placement of a new structure or work affects the course, location, or condition of the water body.

5.4 Wildlife Movement

Wildlife movement corridors, or habitat linkages, are generally defined as connections between areas of suitable habitat that allow for physical and genetic exchange between otherwise isolated wildlife populations. Such linkages may serve a local purpose, such as providing a linkage between foraging and denning areas, or they may be regional in nature. Some habitat linkages may serve as

migration corridors, wherein wildlife periodically move away from an area and then subsequently return. Others may be important as dispersal corridors for young wildlife. A group of habitat linkages in an area can form a wildlife corridor network. The California Essential Habitat Connectivity Project, commissioned by the California Department of Transportation (Caltrans) and CDFW, identifies "Natural Landscape Blocks" which support native biodiversity and the "Essential Connectivity Areas" which link them (Spencer et al. 2010).

5.4.1 Terrestrial

Most of the study areas are developed and urbanized and do not provide for wildlife movement corridors. Although the study areas are not located within an Essential Connectivity Area, one runs along the southern border of the cities of Millbrae and Burlingame and connects the San Francisco Peninsula south to the Santa Cruz Mountain range. Locally, the drainages and riverine habitats in Mills Creek, Easton Creek, El Portal Canal, and Highline Canal provide potential fish and other aquatic wildlife movement habitat. Sanchez Creek, Sanchez Marsh, and Burlingame Lagoon also offer potential aquatic and marsh habitat for fish species. Within the developed portions of the study areas, patches of landscaped and ornamental trees, as well as the eucalyptus groves, may provide habitat for migratory and nesting bird species.

5.4.2 Marine

Marine portions of the study areas for all alternatives provide wildlife movement opportunities for resident, nearshore, and pelagic species. Resident marine species may move between microhabitats within San Francisco Bay Estuary, while nearshore and pelagic marine species may utilize the area for feeding, refuge, or nursery grounds. The study areas also fall within designated EFH for groundfish, CPS finfish, and salmonids. (NOAA 2022b).

5.5 Resources Protected By Local Policies and Ordinances

The study areas for all alternatives occur within the cities of Millbrae, Burlingame, and San Mateo and are subject to all Millbrae, Burlingame, and San Mateo General Plan policies and city ordinances. These plans and city codes all include policies and regulations protecting biological resources such as sensitive species and their habitats, aquatic resources, wildlife movement, water quality, and city trees. Additionally, the BCDC and SLC have jurisdiction over the San Francisco Bay including the shoreline and the Bay itself. As such, the alternatives would be subject to all policies included in the 2017-2020 Strategic Plan Update (BCDC 2017), San Francisco Bay Subtidal Habitat Goals Report, A 50-Year Conservation Plan, and Public Trust Doctrine. Further information on specific policies and ordinances which address issues of terrestrial and marine environmental protection are outlined in Appendix A.

5.6 Adopted or Approved Plans

5.6.1 Terrestrial

The terrestrial portions of the study area for all alternatives do not occur within a Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. Therefore, conservation plans are not addressed further in this analysis.

5.6.2 Marine Protected Areas

There are no Marine Protected Areas (MPAs) within the study areas for all alternatives. However, the sounds and vibration from project activities associated with marine portions of the project could affect species within the MPAs approximately five miles to the south of the study areas.

6 Summary and Recommended Additional Actions

This section presents a summary of constraints and opportunities, as well as recommendations for each alternative. Constraints represent the potential adverse impacts/effects while opportunities represent the potential beneficial impacts/effects that may occur with implementation of each of the five alternatives.

6.1 Summary

Based on the research, field survey and analyses conducted for this constraints analysis, terrestrial and marine biological resources constraints and opportunities are summarized in Table 7.

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Table 7 Project Constraints and Opportunities Summary for Biological Resources

	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5
Special Status Species					
Terrestrial Species	One special status terrestrial plant, Point Reyes bird's-beak, was determined to have a moderate potential to occur within the study area for Alternative 1.	One special status terrestrial plant, Point Reyes bird's-beak, was determined to have a moderate potential to occur within the study area for Alternative 2.	One special status terrestrial plant, Point Reyes bird's-beak, was determined to have a moderate potential to occur within the study area for Alternative 3.	One special status terrestrial plant, Point Reyes bird's-beak, was determined to have a moderate potential to occur within the study area for Alternative 4.	One special status terrestrial plant, Point Reyes bird's-beak, was determined to have a moderate potential to occur within the study area for Alternative 5.
	Fourteen (14) special status terrestrial wildlife species were determined to have potential to occur within the study area for Alternative 1; six of these species are either State or federally listed.	Thirteen (13) special status terrestrial wildlife species were determined to have potential to occur within the study area for Alternative 2; six of these species are either State or federally listed.	Thirteen (13) special status terrestrial wildlife species were determined to have potential to occur within the study area for Alternative 3; six of these species are either State or federally listed.	Thirteen (13) special status terrestrial wildlife species were determined to have potential to occur within the study area for Alternative 4; six of these species are either State or federally listed.	Thirteen (13) special status terrestrial wildlife species were determined to have potential to occur within the study area for Alternative 5; six of these species are either State or federally listed.
	California red-legged frog (FT) has a moderate potential to occur in Alternative 1.	California red-legged frog (FT) is not expected to occur in Alternative 2.	California red-legged frog (FT) is not expected to occur in Alternative 3.	California red-legged frog (FT) is not expected to occur in Alternative 4. The shoreline habitat enhancements proposed in this alternative have the potential to increase the habitat suitability and food source availability for special status species including foraging shorebirds such as western snowy plover, double-crested cormorant, and California Ridgway's rail.	California red-legged frog (FT) is not expected to occur in Alternative 5. The shoreline habitat enhancements proposed in this alternative have the potential to increase the habitat suitability and food source availability for special status species including foraging shorebirds such as western snowy plover, double-crested cormorant, and California Ridgway's rail.
Marine Species	One special status marine plant, eelgrass, has a high potential to occur within the project area for Alternative 1.	One special status marine plant, eelgrass, has a high potential to occur within the project area for Alternative 2.	One special status marine plant, eelgrass, has a high potential to occur within the project area for Alternative 3.	One special status marine plant, eelgrass, has a high potential to occur within the project area for Alternative 4.	One special status marine plant, eelgrass, has a high potential to occur within the project area for Alternative 5.
	Six special status marine wildlife species were determined to have potential to occur within the study area for Alternative 1; three of these species are either State or federally listed.	Six special status marine wildlife species were determined to have potential to occur within the study area for Alternative 2; three of these species are either State or federally listed.	Eleven (11) special status marine wildlife species were determined to have potential to occur withing the study area for Alternative 3; five of these species are either State or federally listed.	Eleven (11) special status marine wildlife species were determined to have potential to occur withing the study area for Alternative 4; five of these species are either State or federally listed.	Eleven (11) special status marine wildlife species were determined to have potential to occur withing the study area for Alternative 5; five of these species are either State or federally listed.
	Humpback whale - Central America DPS (FE) and humpback whale - Mexico DPS (FT) are not expected to occur in Alternative 1.	Humpback whale - Central America DPS (FE) and humpback whale - Mexico DPS (FT) are not expected to occur in Alternative 2.	Humpback whale - Central America DPS (FE) and humpback whale - Mexico DPS (FT) have potential to occur in Alternative 3. There is potential for the "living breakwater" to provide refuge and foraging habitat from the artificial structure for juvenile stages of groundfish, CPS finfish, and salmonids. The floating breakwater will allow for continuous access to the creeks within the study area, as well as not permanently obstruct tidal movement and wildlife migration.	Humpback whale - Central America DPS (FE) and humpback whale - Mexico DPS (FT) have potential to occur in Alternative 4. The installation of a permanent breakwater has the potential to increase the rocky reef habitat for the native Olympia oyster and refuge and foraging habitat for native fish species. A permanent breakwater may limit aquatic migration.	Humpback whale - Central America DPS (FE) and humpback whale - Mexico DPS (FT) have potential to occur in Alternative 5. The installation of a permanent breakwater has the potential to increase the rocky reef habitat for the native Olympia oyster and refuge and foraging habitat for native fish species A permanent breakwater may limit aquatic migration.
Sensitive Communities					
Riparian Habitat	Some riparian habitat (coyote brush scrub) is located within the study area for Alternative 1. This habitat occurs primarily in the upland areas surrounding Sanchez Marsh at the southern extent of the study area. Avoidance of the upland areas surrounding Sanchez Marsh would result in complete avoidance of riparian habitat.	No riparian habitat occurs within the study area for Alternative 2.	No riparian habitat occurs within the study area for Alternative 3.	No riparian habitat occurs within the study area for Alternative 4.	No riparian habitat occurs within the study area for Alternative 5.

	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5
Sensitive Natural Communities	Northern coastal salt marsh occurs throughout the study area for Alternative 1.	Northern coastal salt marsh occurs along the Bay shoreline within the study area for Alternative 2.	Northern coastal salt marsh occurs along the Bay shoreline within the study area for Alternative 3.	Northern coastal salt marsh occurs along the Bay shoreline within the study area for Alternative 4.	Northern coastal salt marsh occurs along the Bay shoreline within the study area for Alternative 5.
Terrestrial and Marine Critical Habitat	Critical habitat for green sturgeon occurs in the study area for Alternative 1 within Highline Canal to the northeast of U.S. 101 and the along the Bay shoreline. NMFS has categorized the area with a conservation value of high. No other species has designated critical habitat within the study area for Alternative 1.	Critical habitat for green sturgeon occurs in the study area for Alternative 2 along the Bay shoreline. NMFS has categorized the area with a conservation value of high. No other species has designated critical habitat within the study area for Alternative 2.	Critical habitat for green sturgeon occurs in the study area for Alternative 3 along the Bay shoreline. NMFS has categorized the area with a conservation value of high. No other species has designated critical habitat within the study area for Alternative 3.	Critical habitat for green sturgeon occurs in the study area for Alternative 4 along the Bay shoreline. NMFS has categorized the area with a conservation value of high. No other species has designated critical habitat within the study area for Alternative 4.	Critical habitat for green sturgeon occurs in the study area for Alternative 5 along the Bay shoreline. NMFS has categorized the area with a conservation value of high. No other species has designated critical habitat within the study area for Alternative 5.
	No tide gates would be installed at the mouth of the Highline Canal; therefore, this alternative would preserve access to historical spawning areas for green sturgeon.	The proposed construction of the tide gates at the mouth of the Highline Canal may limit or remove access to historical spawning areas for green sturgeon.	The proposed construction of the tide gates at the mouth of the Highline Canal may limit or remove access to historical spawning areas for green sturgeon.	The proposed construction of the tidal lagoon may limit access to historical spawning areas for green sturgeon.	The proposed construction of the tidal lagoon may limit access to historical spawning areas for green sturgeon.
Habitat Areas of Particular Concern	HAPC - Estuary and Seagrasses are documented within the study area for Alternative 1. HAPC covers the entire Bay portion for all proposed alternative footprints.	HAPC - Estuary and Seagrasses are documented within the study area for Alternative 2. HAPC covers the entire Bay portion for all proposed alternative footprints.	HAPC - Estuary and Seagrasses are documented within the study area for Alternative 3. HAPC covers the entire Bay portion for all proposed alternative footprints.	HAPC - Estuary and Seagrasses are documented within the study area for Alternative 4. HAPC covers the entire Bay portion for all proposed alternative footprints.	HAPC - Estuary and Seagrasses are documented within the study area for Alternative 5. HAPC covers the entire Bay portion for all proposed alternative footprints.
	Alternative 1 is within the San Francisco Bay South Bay estuary and eelgrass habitat is located at Robert E. Woolley State Park, near the fishing scaffolding area. The proposed creek and shoreline barriers may limit the freshwater input into the South Bay estuary and remove available eelgrass habitat.	Alternative 2 is within the San Francisco Bay South Bay estuary and eelgrass habitat is located at Robert E. Woolley State Park, near the fishing scaffolding area. The proposed shoreline barriers and tidal gates may limit the freshwater input into the South Bay estuary and remove available eelgrass habitat.	Alternative 3 is within the San Francisco Bay South Bay estuary and eelgrass habitat is located at Robert E. Woolley State Park, near the fishing scaffolding area and in the offshore area where the "living breakwater" is proposed. The proposed shoreline barriers and tidal gates may limit the freshwater input into the South Bay estuary and remove available eelgrass habitat. The installation of a floating breakwater may increase shading in soft bottom habitat limiting the potential habitat for eelgrass. Overall, Alternative 3 would provide a net improvement in conditions for establishment and persistence of eelgrass based primarily on reduction in wave action and resulting reduction in turbidity.	Alternative 4 is within the San Francisco Bay South Bay estuary and eelgrass habitat is located in the offshore area where the tidal lagoon breakwater is proposed. The proposed permanent breakwater may decrease tidal circulation and increase sediment accumulation within the tidal lagoon altering water chemistry of the South Bay estuary. The installation of a permanent breakwater may remove available soft bottom habitat and limit the potential habitat for eelgrass.	Alternative 5 is within the San Francisco Bay South Bay estuary and eelgrass habitat is located at Robert E. Woolley State Park, near the fishing scaffolding area and in the offshore area where the tidal lagoon breakwater is proposed. The proposed creek and shoreline barriers may limit the freshwater input into the South Bay estuary and remove available eelgrass habitat. The proposed permanent breakwater may decrease tidal circulation and increase sediment accumulation within the tidal lagoon altering water chemistry of the South Bay estuary. The installation of a permanent breakwater may remove available soft bottom habitat and limit the potential habitat for eelgrass.
	No offshore barrier or "living breakwater" would be installed as a part of Alternative 1. Therefore, no potential resulting increase in refuge or foraging habitat would occur in the estuary.	No offshore barrier or "living breakwater" would be installed as a part of Alternative 2. Therefore, no potential resulting increase in refuge or foraging habitat would occur in the estuary.	The installation of the "living breakwater" has the potential to increase the refuge and foraging habitat within the estuary. The floating breakwater will allow for the estuary habitat to maintain tidal influence and water movement.	The installation of a permanent breakwater has the potential to increase the rocky reef habitat for the native Olympia oyster and refuge and foraging habitat for native fish species. In addition to potentially increasing rocky reef habitat, the water quality within the study area has the potential to increase due to the increase population of oysters and other filter-feeders (e.g., acorn barnacles, California mussel). With the installation of the permanent breakwater, there is potential for sediment runoff from the creeks to either benefit or impact the estuary and eelgrass habitat. Depending on the sediment output from the	The installation of a permanent breakwater has the potential to increase the rocky reef habitat for the native Olympia oyster and refuge and foraging habitat for native fish species. In addition to potentially increasing rocky reef habitat, the water quality within the study area has the potential to increase due to the increase population of oysters and other filter-feeders (e.g., acorn barnacles, California mussel). With the installation of the permanent breakwater, there is potential for sediment runoff from the creeks to either benefit or impact the estuary and eelgrass habitat. Depending on the sediment output from the

	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5
				creeks, the depth could change which could increase the potential habitat for eelgrass; however, if there is too much sediment output then this could negatively impact eelgrass population density by burial.	creeks, the depth could change which could increase the potential habitat for eelgrass; however, if there is too much sediment output then this could negatively impact eelgrass population density by burial.
Essential Fish Habitat	EFH is designated within the study area for Alternative 1. EFH covers the entire Bay portion for all proposed alternative footprints. There is mapped tidal flats along the extent of the study area and known eelgrass beds that are ideal feeding and rearing areas for juvenile fish within the EFH. The proposed creek and shoreline barriers may limit the available physical habitat for the juvenile stages of salmonids, groundfish, and/or CPS.	EFH is designated within the study area for Alternative 2. EFH covers the entire Bay portion for all proposed alternative footprints. There is mapped tidal flats along the extent of the study area and known eelgrass beds that are ideal feeding and rearing areas for juvenile fish within the EFH. The proposed shoreline barriers and tidal gates may limit the available physical habitat for the juvenile stages of salmonids, groundfish, and/or CPS. Additionally, the shoreline barriers and tidal gates may limit access to freshwater spawning habitat required for salmonids.	EFH is designated within the study area for Alternative 3. EFH covers the entire Bay portion for all proposed alternative footprints. There is mapped tidal flats along the extend of the study area and known eelgrass beds that are ideal feeding and rearing areas for juvenile fish within the EFH. The proposed shoreline barriers and tidal gates may limit the available physical habitat for the juvenile stages of salmonids, groundfish, and/or CPS. The installation of the "living breakwater" could provide artificial structure that has the potential to increase the refuge and foraging habitat for juvenile stages of salmonids, CPS and groundfish.	EFH is designated within the study area for Alternative 4. EFH covers the entire Bay portion for all proposed alternative footprints. There is mapped tidal flats along the extend of the study area and known eelgrass beds that are ideal feeding and rearing areas for juvenile fish within the EFH. The proposed tidal lagoon breakwater may limit the available physical habitat for the juvenile stages of salmonids, groundfish, and/or CPS.	EFH is designated within the study area for Alternative 5. EFH covers the entire Bay portion for all proposed alternative footprints. There is mapped tidal flats along the extend of the study area and known eelgrass beds that are ideal feeding and rearing areas for juvenile fish within the EFH. The proposed shoreline barriers, tidal gates, and tidal lagoon breakwater may limit the available physical habitat for the juvenile stages of salmonids, groundfish, and/or CPS.
Areas of Special Biological Significance	No ASBS areas are mapped within Alternative 1.	No ASBS areas are mapped within Alternative 2.	No ASBS areas are mapped within Alternative 3.	No ASBS areas are mapped within Alternative 4.	No ASBS areas are mapped within Alternative 5.
Jurisdictional Waters and Wetlands					
Terrestrial	Alternative 1 contains potentially jurisdictional waters regulated by the USACE under Section 404 of the CWA and/or Section 10 of the Rivers and Harbors Act, RWQCB under Section 401 of the CWA and/or the Porter-Cologne Act, and policies set forth by the BCDC pursuant to the McAteer-Petris Act.	Alternative 2 contains potentially jurisdictional waters regulated by the USACE under Section 404 of the CWA and/or Section 10 of the Rivers and Harbors Act, RWQCB under Section 401 of the CWA and/or the Porter-Cologne Act, and policies set forth by the BCDC pursuant to the McAteer-Petris Act.	Alternative 3 contains potentially jurisdictional waters regulated by the USACE under Section 404 of the CWA and Section 10 of the Rivers and Harbors Act, RWQCB under Section 401 of the CWA and/or the Porter-Cologne Act, and policies set forth by the BCDC pursuant to the McAteer-Petris Act.	Alternative 4 contains potentially jurisdictional waters regulated by the USACE under Section 404 of the CWA and Section 10 of the Rivers and Harbors Act, RWQCB under Section 401 of the CWA and/or the Porter-Cologne Act, and policies set forth by the BCDC pursuant to the McAteer-Petris Act.	Alternative 5 contains potentially jurisdictional waters regulated by the USACE under Section 404 of the CWA and Section 10 of the Rivers and Harbors Act, RWQCB under Section 401 of the CWA and/or the Porter-Cologne Act, and policies set forth by the BCDC pursuant to the McAteer-Petris Act.
	Alternative 1 also contains potentially jurisdictional waters regulated by CDFW pursuant to Section 1600 et seq. of CFGC.	Alternative 2 does not contain potentially jurisdictional waters regulated by CDFW pursuant to Section 1600 et seq. of CFGC.	Alternative 3 does not contain potentially jurisdictional waters regulated by CDFW pursuant to Section 1600 et seq. of CFGC.	Alternative 4 does not contain potentially jurisdictional waters regulated by CDFW pursuant to Section 1600 et seq. of CFGC.	Alternative 5 does not contain potentially jurisdictional waters regulated by CDFW pursuant to Section 1600 et seq. of CFGC.
Marine	Alternative 1 contains jurisdictional waters regulated by the USACE under Section 404 of the CWA and Section 10 of the Rivers and Harbors Act, RWQCB under Section 401 of the CWA, and the policies set forth by the BCDC pursuant to the McAteer-Petris Act, SLC pursuant to the Public Trust Doctrine, and SWRCB/RWQCB in accordance with the Ocean Plan.	Alternative 2 contains jurisdictional waters regulated by the USACE under Section 404 of the CWA and Section 10 of the Rivers and Harbors Act, RWQCB under Section 401 of the CWA, and the policies set forth by the BCDC pursuant to the McAteer-Petris Act, SLC pursuant to the Public Trust Doctrine, and SWRCB/RWQCB in accordance with the Ocean Plan.	Alternative 3 contains jurisdictional waters regulated by USACE under Section 404 of the CWA and Section 10 of the Rivers and Harbors Act, RWQCB under Section 401 of the CWA, and the policies set forth by the BCDC pursuant to the McAteer-Petris Act, SLC pursuant to the Public Trust Doctrine, and SWRCB/RWQCB in accordance with the Ocean Plan.	Alternative 4 contains jurisdictional waters regulated by USACE under Section 404 of the CWA and Section 10 of the Rivers and Harbors Act, RWQCB under Section 401 of the CWA, and the policies set forth by the BCDC pursuant to the McAteer-Petris Act, SLC pursuant to the Public Trust Doctrine, and SWRCB/RWQCB in accordance with the Ocean Plan.	Alternative 5 contains jurisdictional waters regulated by USACE under Section 404 of the CWA and Section 10 of the Rivers and Harbors Act, RWQCB under Section 401 of the CWA, and the policies set forth by the BCDC pursuant to the McAteer-Petris Act, SLC pursuant to the Public Trust Doctrine, and SWRCB/RWQCB in accordance with the Ocean Plan.
Wildlife Movement					
Terrestrial	Drainages and riverine habitats in Mills Creek, Easton Creek, El Portal Canal, Highline Canal, as well as marsh provide potential fish and other aquatic wildlife movement habitat. Sanchez Creek, Sanchez Marsh, and Burlingame Lagoon also offer potential aquatic and marsh habitat for fish species.	The shoreline and marsh habitats in the study area for Alternative 2 provide potential movement habitat for shorebirds, fish, and other aquatic species. The developed portions of the study area for Alternative 2 include patches of landscaped and	The shoreline and marsh habitats in the study area for Alternative 3 provide potential movement habitat for shorebirds, fish, and other aquatic species. The developed portions of the study area for Alternative 3 include patches of landscaped and	The shoreline and marsh habitats in the study area for Alternative 4 provide potential movement habitat for shorebirds, fish, and other aquatic species.	The shoreline and marsh habitats in the study area for Alternative 5 provide potential movement habitat for shorebirds, fish, and other aquatic species. The developed portions of the study area for Alternative 5 include patches of landscaped and

	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5
	The shoreline and marsh habitats in the study area for Alternative 1 provide potential movement habitat for shorebirds, fish, and other aquatic species. The developed portions of the study area for Alternative 1 include patches of landscaped and ornamental trees as well as the eucalyptus groves that may provide habitat for migratory and nesting bird species.	ornamental trees that may provide habitat for migratory and nesting bird species.	ornamental trees that may provide habitat for migratory and nesting bird species.		ornamental trees that may provide habitat for migratory and nesting bird species.

	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5
Marine Migratory Corridors	The creeks within the study area for Alternative 1 may provide migratory corridors to freshwater spawning habitat for longfin smelt, green and white sturgeon, and steelhead. This alternative would preserve access to migratory corridors to freshwater spawning habitat	The study area for Alternative 2 contains the mouths of several creeks that may serve as migratory corridors to freshwater spawning habitat for longfin smelt, green and white sturgeon, and steelhead. The proposed shoreline barriers and tidal gates may limit and/or interfere with access to and from the Bay.	The study area for Alternative 3 contains the mouths of several creeks that may serve as migratory corridors to freshwater spawning habitat for longfin smelt, green and white sturgeon, and steelhead. The proposed shoreline barriers, tidal gates may limit and/or interfere with access to and from the Bay. The floating breakwater will allow for continuous access to the creeks within the study area, as well as not permanently obstruct wildlife migration within the study area. Compared to Alternatives 4 & 5: Tide gates may interfere with water flow and passage of anadromous wildlife thereby limiting access to habitat in the creeks.	The study area for Alternative 4 contains the mouths of several creeks that may serve as migratory corridors to freshwater spawning habitat for longfin smelt, green and white sturgeon, and steelhead. The proposed tidal lagoon breakwater may limit and/or interfere with access to and from the Bay (i.e., may interfere with migratory corridors for these species). Alternatives 4 has the following additional constraints compared to Alternative 3: A change in the tidal regime may affect the salt marsh lining the edges/outfalls of the creeks. The barrier reef may act as a physical obstacle that alters/limits sediment transport and marine/anadromous wildlife movement. Self-regulating tide gates may still restrict tidal flow and interfere with movement of one of more life stages for native fish; even tide gates that are upgraded to facilitate fish passage may still adversely affect movement of juvenile and adult fish.	The study area for Alternative 5 contains the mouths of several creeks that may serve as migratory corridors to freshwater spawning habitat for longfin smelt, green and white sturgeon, and steelhead. The proposed tidal lagoon breakwater may interfere with migratory corridors for these species. Alternatives 5 has the following additional constraints compared to Alternative 3: A change in the tidal regime may affect the salt marsh lining the edges/outfalls of the creeks. The barrier reef may act as a physical obstacle that alters/limits sediment transport and marine/anadromous wildlife movement. Self-regulating tide gates may still restrict tidal flow and interfere with movement of one of more life stages for native fish; even tide gates that are upgraded to facilitate fish passage may still adversely affect movement of juvenile and adult fish.
Conflict with Adopted or Approved Plans					
Terrestrial	The Alternative 1 study area does not occur within a Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.	The Alternative 2 study area does not occur within a Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.	The Alternative 3 study area does not occur within a Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.	The Alternative 4 study area does not occur within a Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.	The Alternative 5 study area does not occur within a Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.
Marine Protected Areas	There are no MPAs within the Alternative 1 study area.	There are no MPAs within the Alternative 2 study area.	There are no MPAs within the Alternative 3 study area.	There are no MPAs within the Alternative 4 study area.	There are no MPAs within the Alternative 5 study area.

Notes:

FT = Federally Threatened; FE = Federally Endangered; HAPC = Habitat areas of Particular Concern; EFH = Essential Fish Habitat; ASBS = Areas of Special Biological Significance; USACE = U.S. Army Corps of Engineers; CWA = Clean Water Act; RWQCB = Regional Water Quality Control Board; BCDC = San Francisco Bay Conservation and Development Commission; CDFW = California Department of Fish and Wildlife; SLC = State Lands Commission; SWRCB = State Water Resources Control Board; MPAs = Marine Protected Areas

Source: Compiled by Rincon Consultants, Inc. 2023

6.2 Recommended Additional Actions

This section details the potential additional studies recommended to further facilitate the environmental review and regulatory permitting processes for each of the five alternatives.

6.2.1 Alternative 1

- Additional protocol-level species surveys may be required by resource agencies for federally and/or State listed species within the Alternative 1 study area.
- A formal Aquatic Resources Delineation is needed to determine the limits of the aquatic resources within the Alternative 1 study area.
- Regulatory permits may be required for impacts to sensitive biological resources including:
  - ITP from the CDFW under Section 2081 of the CESA
  - Formal consultation(s) with USFWS and/or NMFS under Section 7 of the ESA
  - Formal consultation with NMFS under Section 305(b)(2) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA)
  - Permit from the USACE under Section 10 of the Rivers and Harbors Act
  - Permit from the USACE under Section 404 of the CWA
  - Water Quality Certification and/or Waste Discharge Requirements (WDRs) Permit from the RWQCB under Section 401 of the CWA and/or the Porter-Cologne Act, respectively
  - Permit from the BCDC under the McAteer-Petris Act
  - Lease Agreement from the SLC pursuant to the Public Trust Doctrine
  - Lake and Streambed Alteration Agreement from the CDFW under Section 1600 et seq. of the CFGC

6.2.2 Alternative 2

- Additional protocol-level species surveys may be required by resource agencies for federally and/or state listed species within the Alternative 2 study area.
- A formal Aquatic Resources Delineation is needed to determine the limits of the aquatic resources within the Alternative 2 study area.
- Regulatory permits may be required for impacts to sensitive biological resources including:
  - ITP from the CDFW under Section 2081 of the CESA
  - Formal consultation(s) with the USFWS and/or NMFS under Section 7 of the ESA
  - Formal consultation with the NMFS under Section 305(b)(2) of the MSA
  - Permit from the USACE under Section 10 of the Rivers and Harbors Act
  - Permit from the USACE under Section 404 of the CWA
  - Water Quality Certification and/or Waste Discharge Requirements (WDRs) Permit from the RWQCB under Section 401 of the CWA and/or the Porter-Cologne Act, respectively
  - Permit from the BCDC under the McAteer-Petris Act
  - Lease Agreement from the SLC pursuant to the Public Trust Doctrine

6.2.3 Alternative 3

- Additional protocol-level species surveys may be required by resource agencies for federally and/or state listed species within the Alternative 3 study area.
- A formal Aquatic Resources Delineation is needed to determine the limits of the aquatic resources within the Alternative 3 study area.
- Regulatory permits may be required for impacts to sensitive biological resources including:
  - ITP from the CDFW under Section 2081 of the CESA
  - Formal consultation(s) with the USFWS and/or NMFS under Section 7 of the ESA
  - Formal consultation with the NMFS under Section 305(b)(2) of the MSA
  - Permit from the USACE under Section 10 of the Rivers and Harbors Act
  - Permit from the USACE under Section 404 of the CWA
  - Water Quality Certification and/or Waste Discharge Requirements (WDRs) Permit from the RWQCB under Section 401 of the CWA and/or the Porter-Cologne Act, respectively
  - Permit from the BCDC under the McAteer-Petris Act
  - Lease Agreement from the SLC pursuant to the Public Trust Doctrine
  - Incidental Harassment Authorization (IHA) or Letter of Authorization (LOA) from the NMFS pursuant to the Marine Mammal Protection Act

6.2.4 Alternative 4

- Additional protocol-level species surveys may be required by resource agencies for federally and/or state listed species within the Alternative 4 study area.
- A formal Aquatic Resources Delineation is needed to determine the limits of the aquatic resources within the Alternative 4 study area.
- Regulatory permits may be required for impacts to sensitive biological resources including:
  - ITP from the CDFW under Section 2081 of the CESA
  - Formal consultation(s) with the USFWS and/or NMFS under Section 7 of the ESA
  - Formal consultation with the NMFS under Section 305(b)(2) of the MSA
  - Permit from the USACE under Section 10 of the Rivers and Harbors Act
  - Permit from the USACE under Section 404 of the CWA
  - Water Quality Certification and/or Waste Discharge Requirements (WDRs) Permit from the RWQCB under Section 401 of the CWA and/or the Porter-Cologne Act, respectively
  - Permit from the BCDC under the McAteer-Petris Act
  - Lease Agreement from the SLC pursuant to the Public Trust Doctrine
  - IHA or LOA from the NMFS pursuant to the Marine Mammal Protection Act

6.2.5 Alternative 5

- Additional protocol-level species surveys may be required by resource agencies for federally and/or state listed species within the Alternative 5 study area.
- A formal Aquatic Resources Delineation is needed to determine the limits of the aquatic resources within the Alternative 5 study area.

- Regulatory permits may be required for impacts to sensitive biological resources including:
  - ITP from the CDFW under Section 2081 of the CESA
  - Formal consultation(s) with the USFWS and/or NMFS under Section 7 of the ESA
  - Formal consultation with the NMFS under Section 305(b)(2) of the MSA
  - Permit from the USACE under Section 10 of the Rivers and Harbors Act
  - Permit from the USACE under Section 404 of the CWA
  - Water Quality Certification and/or Waste Discharge Requirements (WDRs) Permit from the RWQCB under Section 401 of the CWA and/or the Porter-Cologne Act, respectively
  - Permit from the BCDC under the McAteer-Petris Act
  - Lease Agreement from the SLC pursuant to the Public Trust Doctrine
  - IHA or LOA from the NMFS pursuant to the Marine Mammal Protection Act

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Appendix A

Regulatory Setting

Regulatory Setting

The following is a brief summary of the regulatory context under which biological resources are managed at the federal, state, and local levels. A number of federal and state statutes provide a regulatory structure that guides the protection of biological resources. Agencies with the responsibility for protection of biological resources within the project site include:

- U.S. Army Corps of Engineers (wetlands and other waters of the United States);
- San Francisco Regional Water Quality Control Board (waters of the State);
- U.S. Fish and Wildlife Service (federally listed species and migratory birds);
- National Marine Fisheries Service (marine animals and anadromous fishes);
- California Department Fish and Wildlife (riparian areas, streambeds, and lakes; State-listed species; nesting birds, marine resources);
- San Francisco Bay Conservation and Development Commission (Bay and shoreline of the Bay);
- California State Lands Commission (sovereign lands); and
- Cities of Millbrae, Burlingame, and San Mateo.

Terrestrial and Marine

- California Environmental Quality Act (CEQA)
- Federal Endangered Species Act (ESA)
- California Endangered Species Act (CESA)
- Federal Clean Water Act (CWA)
- California Fish and Game Code (CFGC)
- Porter-Cologne Water Quality Control Act
- City of Millbrae 2040 General Plan
- City of Burlingame General Plan
- City of San Mateo General Plan
- Millbrae Municipal Code
- Burlingame Municipal Code
- San Mateo Municipal Code

Terrestrial

- Migratory Bird Treaty Act (MBTA)
- The Bald and Golden Eagle Protection Act
- Natural Communities Conservation Planning Act
- Native Plant Protection Act

Marine

- Marine Mammal Protection Act (MMPA)
- Rivers and Harbors Act of 1899

- Magnuson-Stevens Fishery Conservation and Management Act
- Pacific Salmonid Fishery Management Plan
- Coastal Pelagic Species (CPS) Fishery Management Plan
- Pacific Coast Groundfish Fishery Management Plan
- California Eelgrass Mitigation Policy and Implementation Guidelines
- Marine Life Protection Act
- Marine Life Management Act
- California Ocean Plan
- Marine Invasive Species Act
- San Francisco Bay Subtidal Habitat 50-Year Conservation Plan
- McAteer-Petris Act
- Public Trust Doctrine

United States Army Corps of Engineers

The United States Army Corps of Engineers (USACE) is responsible for administering several federal programs related to ensuring the quality and navigability of the nation's waters.

Clean Water Act Section 404

Congress enacted the Clean Water Act (CWA) "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." Section 404 of the CWA authorizes the Secretary of the Army, acting through the USACE, to issue permits regulating the discharge of dredged or fill materials into the "navigable waters at specified disposal sites."

Section 502 of the CWA further defines "navigable waters" as "waters of the United States, including the territorial seas." "Waters of the United States" are broadly defined at 33 CFR Part 328.3 to include navigable waters, perennial and intermittent streams, lakes, rivers, ponds, as well as wetlands, marshes, and wet meadows. In recent years the USACE and US Environmental Protection Agency (USEPA) have undertaken several efforts to modernize their regulations defining "waters of the United States" (e.g., the 2015 Clean Water Rule and 2020 Navigable Waters Protection Rule), but these efforts have been frustrated by legal challenges which have invalidated the updated regulations. Thus, the agencies' longstanding definition of "waters of the United States," which dates from 1986, remains in effect albeit with supplemental guidance interpreting applicable court decisions as described below.

Waters of the U.S.

In summary, USACE and USEPA regulations define "waters of the United States" as follows:

1. All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
2. All interstate waters including interstate wetlands;
3. All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural

ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters:

i. Which are or could be used by interstate or foreign travelers for recreational or other purposes; or

ii. From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or

iii. Which are used or could be used for industrial purpose by industries in interstate commerce;

4. All impoundments of waters otherwise defined as waters of the United States;
5. Tributaries of waters identified in paragraphs (a)(1)-(4) of this section;
6. The territorial sea;
7. Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in items 1-6 above.

Waters of the United States do not include prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the CWA, the final authority regarding CWA jurisdiction remains with the USEPA.

Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA are not waters of the United States.

The lateral limits of USACE jurisdiction in non-tidal waters is defined by the "ordinary high-water mark" (OHWM) unless adjacent wetlands are present. The OHWM is a line on the shore or edge of a channel established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed upon the bank, shelving, changes in the character of soil, destruction of vegetation, or the presence of debris (33 CFR 328.3(e)). As such, waters are recognized in the field by the presence of a defined watercourse with appropriate physical and topographic features. If wetlands occur within, or adjacent to, waters of the United States, the lateral limits of USACE jurisdiction extend beyond the OHWM to the outer edge of the wetlands (33 CFR 328.4 (c)). The upstream limit of jurisdiction in the absence of adjacent wetlands is the point beyond which the OHWM is no longer perceptible (33 CFR 328.4; see also 51 FR 41217).

Wetlands

The USACE defines wetlands as “those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions” (33 CFR 328.3). The USACE’s delineation procedures identify wetlands in the field based on indicators of three wetland parameters: hydrophytic vegetation, hydric soils, and wetland hydrology. The following is a discussion of each of these parameters.

Hydrophytic Vegetation

Hydrophytic vegetation dominates areas where frequency and duration of inundation or soil saturation exerts a controlling influence on the plant species present. Plant species are assigned wetland indicator status according to the probability of their occurring in wetlands. More than fifty percent of the dominant plant species must have a wetland indicator status to meet the hydrophytic vegetation criterion. The USACE published the National Wetland Plant List (USACE 2018), which

separates vascular plants into the following four basic categories based on plant species frequency of occurrence in wetlands:

- **Obligate Wetland (OBL).** Almost always occur in wetlands
- **Facultative Wetland (FACW).** Usually occur in wetlands, but occasionally found in non-wetlands
- **Facultative (FAC).** Occur in wetlands or non-wetlands
- **Facultative Upland (FACU).** Usually occur in non-wetlands, but may occur in wetlands
- **Obligate Upland (UPL).** Almost never occur in wetlands

The USACE considers OBL, FACW and FAC species to be indicators of wetlands. An area is considered to have hydrophytic vegetation when greater than 50 percent of the dominant species in each vegetative stratum (tree, shrub, and herb) fall within these categories. Any species not appearing on the United States Fish and Wildlife Service's list is assumed to be an upland species, almost never occurring in wetlands. In addition, an area needs to contain at least 5% vegetative cover to be considered as a vegetated wetland.

Hydric Soils

Hydric soils are saturated or inundated for a sufficient duration during the growing season to develop anaerobic or reducing conditions that favor the growth and regeneration of hydrophytic vegetation. Field indicators of wetland soils include observations of ponding, inundation, saturation, dark (low chroma) soil colors, bright mottles (concentrations of oxidized minerals such as iron), gleying (indicates reducing conditions by a blue-grey color), or accumulation of organic material. Additional supporting information includes documentation of soil as hydric or reference to wet conditions in the local soils survey, both of which must be verified in the field.

Wetland Hydrology

Wetland hydrology is inundation or soil saturation with a frequency and duration long enough to cause the development of hydric soils and plant communities dominated by hydrophytic vegetation. If direct observation of wetland hydrology is not possible (as in seasonal wetlands), or records of wetland hydrology are not available (such as stream gauges), assessment of wetland hydrology is frequently supported by field indicators, such as water marks, drift lines, sediment deposits, or drainage patterns in wetlands.

Applicable Case Law and Agency Guidance

The USACE's regulations defining "waters of the United States" have been subject to legal interpretation, and two influential Supreme Court decisions have narrowed the definition to exclude certain classes of waters that bear an insufficient connection to navigable waters. In *Solid Waste Agency of Northern Cook County v. Army Corps of Engineers* (2001), the United States Supreme Court stated that the USACE's CWA jurisdiction does not extend to ponds that "are not adjacent to open water." In reaching its decision, the Court concluded that the "Migratory Bird Rule," which served as the basis for the USACE's asserted jurisdiction, was not supported by the CWA. The Migratory Bird Rule extended CWA jurisdiction to intrastate waters "which are or would be used as habitat by birds protected by Migratory Bird Treaties or which are or would be used as habitat by other migratory birds which cross state lines…" The Court was concerned that application of the Migratory Bird Rule resulted in "reading the term 'navigable waters' out of the statute. Highlighting the language of the CWA to determine the statute's jurisdictional reach, the Court stated, "the term

'navigable' has at least the import of showing us what Congress had in mind as its authority for enacting the CWA: its traditional jurisdiction over waters that were or had been navigable in fact or which could reasonably be so made." This decision stands for the proposition that non-navigable isolated, intrastate waters are not waters of the United States and thus are not jurisdictional under the CWA.

In 2006, the United States Supreme Court decided *Rapanos v. United States* and *Carabell v. United States* (collectively "Rapanos"), which were consolidated cases determining the extent of CWA jurisdiction over waters that carry only an infrequent surface flow. The court issued no majority opinion in Rapanos. Instead, the justices authored five separate opinions including the "plurality" opinion, authored by Justice Scalia (joined by three other justices), and a concurring opinion by Justice Kennedy. To guide implementation of the decision, the USACE and USEPA issued a joint guidance memorandum ("Rapanos Guidance Memorandum") in 2008 stating that "regulatory jurisdiction under the CWA exists over a water body if either the plurality's or Justice Kennedy's standard is satisfied."

According to the plurality opinion in Rapanos, "the waters of the United States include only relatively permanent, standing or flowing bodies of water" and do not include "ordinarily dry channels through which water occasionally or intermittently flows." In addition, while all wetlands that meet the USACE definition are considered adjacent wetlands, only those adjacent wetlands that have a continuous surface connection because they directly abut the tributary (e.g., they are not separated by uplands, a berm, dike, or similar feature) are considered jurisdictional under the plurality standard.

Under Justice Kennedy's opinion, "the USACE's jurisdiction over wetlands depends upon the existence of a significant nexus between the wetlands in question and navigable waters in the traditional sense. Wetlands possess the requisite nexus, and thus come within the statutory phrase 'navigable waters,' if the wetlands, either alone or in combination with similarly situated lands in the region, significantly affect the chemical, physical, and biological integrity of other covered waters more readily understood as 'navigable.' When, in contrast, wetlands' effects on water quality are speculative or insubstantial, they fall outside the zone fairly encompassed by the statutory term 'navigable waters.'" Justice Kennedy identified "pollutant trapping, flood control, and runoff storage" as some of the critical functions wetlands can perform relative to other waters. He concluded that, given wetlands' ecological role, "mere adjacency" to a non-navigable tributary was insufficient to establish CWA jurisdiction, and that "a more specific inquiry, based on the significant nexus standard, is therefore necessary."

Interpreting these decisions, and according to the Rapanos Guidance Memorandum, the USACE and USEPA will assert jurisdiction over the following waters:

- Traditional navigable waters;
- Wetlands adjacent to traditional navigable waters;
- Non-navigable tributaries of traditional navigable waters that are relatively permanent where the tributaries typically flow year-round or have continuous flow at least seasonally (e.g., typically three months); and,
- Wetlands that directly abut such tributaries.

The USACE and USEPA will decide jurisdiction over the following waters based on a fact-specific analysis to determine whether they have a significant nexus with a traditional navigable water:

- Non-navigable tributaries that are not relatively permanent;

- Wetlands adjacent to non-navigable tributaries that are not relatively permanent; and,
- Wetlands adjacent to but that do not directly abut a relatively permanent non-navigable tributary.

Where a significant nexus analysis is required, the USACE and USEPA will apply the significant nexus standard as follows:

- A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by all wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical and biological integrity of downstream traditional navigable waters; and,
- Significant nexus includes consideration of hydrologic and ecologic factors.

The USACE and USEPA generally will not assert jurisdiction over the following features:

- Swales or erosional features (e.g., gullies, small washes characterized by low volume, infrequent, or short duration flow); and,
- Ditches (including roadside ditches) excavated wholly in and draining only uplands and that do not carry a relatively permanent flow of water.

Rivers and Harbors Act Section 10

Section 10 of the Rivers and Harbors Act of 1899 requires authorization from the USACE for the construction of any structure in or over any navigable water of the United States. Structures or work outside the limits defined for navigable waters of the United States require a Section 10 permit if the structure or work affects the course, location, or condition of the water body. The law applies to any dredging or disposal of dredged materials, excavation, filling, re-channelization, or any other modification of a navigable water of the United States and applies to all structures and work. It further includes, without limitation, any wharf, dolphin, weir, boom breakwater, jetty, groin, bank protection (e.g., riprap, revetment, bulkhead), mooring structures such as pilings, aerial or subaqueous power transmission lines, intake or outfall pipes, permanently moored floating vessel, tunnel, artificial canal, boat ramp, aids to navigation, and any other permanent, or semi-permanent obstacle or obstruction. It is important to note that Section 10 applies only to navigable waters, and thus does not apply to work in non-navigable wetlands or tributaries. In some cases, Section 10 authorization is issued by the USACE concurrently with CWA Section 404 authorization, such as when certain Nationwide Permits are used.

Regional Water Quality Control Board

The State Water Resources Control Board (SWRCB) and nine Regional Water Quality Control Boards (RWQCBs) have jurisdiction over “waters of the State,” which are defined as any surface water or groundwater, including saline waters, within the boundaries of the state (California Water Code sec. 13050(e)). These agencies also have responsibilities for administering portions of the CWA.

Clean Water Act Section 401

Section 401 of the CWA requires an applicant requesting a federal license or permit for an activity that may result in any discharge into navigable waters (such as a Section 404 Permit) to provide

state certification that the proposed activity will not violate state and federal water quality standards. In California, CWA Section 401 Water Quality Certification (Section 401 Certification) is issued by the RWQCBs and by the SWRCB for multi-region projects. The process begins when an applicant submits an application to the RWQCB and informs the USACE (or the applicable agency from which a license or permit was requested) that an application has been submitted. The USACE will then determine a "reasonable period of time" for the RWQCB to act on the application; this is typically 60 days for routine projects and longer for complex projects but may not exceed one year. When the period has elapsed, if the RWQCB has not either issued or denied the application for Section 401 Certification, the USACE may determine that Certification has been waived and issue the requested permit. If a Section 401 Certification is issued it may include binding conditions, imposed either through the Certification itself or through the requested federal license or permit.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (Porter-Cologne Act) is the principal law governing water quality regulation in California. 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. Pursuant to the Porter-Cologne Act (California Water Code section 13000 et seq.), the policy of the State is as follows:

- The quality of all the waters of the State shall be protected
- All activities and factors affecting the quality of water shall be regulated to attain the highest water quality within reason
- The State must be prepared to exercise its full power and jurisdiction to protect the quality of water in the State from degradation

The Porter-Cologne Act established nine RWQCBs (based on watershed boundaries) and the SWRCB, which are charged with implementing its provisions and which have primary responsibility for protecting water quality in California. The SWRCB provides program guidance and oversight, allocates funds, and reviews RWQCB decisions. In addition, the SWRCB allocates rights to the use of surface water. The RWQCBs have primary responsibility for individual permitting, inspection, and enforcement actions within each of nine hydrologic regions. The SWRCB and RWQCBs have numerous nonpoint source related responsibilities, including monitoring and assessment, planning, financial assistance, and management.

Section 13260 of the Porter-Cologne Act requires any person discharging or proposing to discharge waste that could affect the quality of waters of the State to file a Report of Waste Discharge with the appropriate RWQCB. The RWQCB may then authorize the discharge, subject to conditions, by issuing Waste Discharge Requirements (WDRs). While this requirement was historically applied primarily to outfalls and similar point source discharges, the SWRCB's *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State*, effective May 2020, make it clear that the agency will apply the Porter-Cologne Act's requirements to discharges of dredge and fill material as well. The *Procedures* state that they are to be used in issuing CWA Section 401 Certifications and WDRs, and largely mirror the existing review requirements for CWA Section 404 Permits and Section 401 Certifications, incorporating most elements of the USEPA's *Section 404(b)(1) Guidelines*. Following issuance of the *Procedures*, the SWRCB produced a consolidated application form for dredge/fill discharges that can be used to obtain a CWA Section 401 Water Quality Certification, WDRs, or both.

Non-Wetland Waters of the State

The SWRCB and RWQCBs have not established regulations for field determinations of waters of the state except for wetlands currently. In many cases the RWQCBs interpret the limits of waters of the State to be bounded by the OHWM unless isolated conditions or ephemeral waters are present. However, in the absence of statewide guidance each RWQCB may interpret jurisdictional boundaries within their region and the SWRCB has encouraged applicants to confirm jurisdictional limits with their RWQCB before submitting applications. As determined by the RWQCB, waters of the State may include riparian areas or other locations outside the OHWM, leading to a larger jurisdictional area over a given water body compared to the USACE.

Wetland Waters of the State

Procedures for defining wetland waters of the State pursuant to the SWRCB's *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State* went into effect May 28, 2020. The SWRCB defines an area as wetland if, under normal circumstances:

(i) the area has continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both;

(ii) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and

(iii) the area's vegetation is dominated by hydrophytes or the area lacks vegetation.

The SWRCB's *Implementation Guidance for the Wetland Definition and Procedures for Discharges of Dredge and Fill Material to Waters of the State* (2020), states that waters of the U.S. and waters of the State should be delineated using the standard USACE delineation procedures, taking into consideration that the methods shall be modified only to allow for the fact that a lack of vegetation does not preclude an area from meeting the definition of a wetland.

United States Fish and Wildlife Service

The United States Fish and Wildlife Service (USFWS) implements several laws protecting the Nation's fish and wildlife resources, including the Endangered Species Act (ESA; 16 United States Code [USC] Sections 153 et seq.), the Migratory Bird Treaty Act (MBTA; 16 USC Sections 703-711) and the Bald and Golden Eagle Protection Act (16 USC Section 668).

Endangered Species Act

The USFWS and National Marine Fisheries Service (NMFS) share responsibility for implementing the ESA. Generally, the USFWS implements the FESA for terrestrial and freshwater species, while the NMFS implements the FESA for marine and anadromous species. Projects that would result in "take" of any threatened or endangered animal species, or a threatened or endangered plant species if occurring on federal land, are required to obtain permits from the USFWS or NMFS through either Section 7 (interagency consultation with a federal nexus) or Section 10 (Habitat Conservation Plan) of the ESA, depending on the involvement by the federal government in funding, authorizing, or carrying out the project. The permitting process is used to determine if a project would jeopardize the continued existence of a listed species and what measures would be required to avoid jeopardizing the species. "Take" under federal definition means to harass, harm (which includes habitat modification), pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to

engage in any such conduct. Proposed or candidate species do not have the full protection of the ESA; however, the USFWS and NMFS advise project applicants that they could be elevated to listed status at any time.

Migratory Bird Treaty Act

The MBTA of 1918 implements four international conservation treaties that the U.S. entered into with Canada in 1916, Mexico in 1936, Japan in 1972, and Russia in 1976. It is intended to ensure the sustainability of populations of all protected migratory bird species. The law has been amended with the signing of each treaty, as well as when any of the treaties were amended, such as with Mexico in 1976 and Canada in 1995. The MBTA prohibits the take (including killing, capturing, selling, trading, and transport) of protected migratory bird species without prior authorization by the USFWS.

The list of migratory bird species protected by the law, in regulations at 50 CFR Part 10.13, is primarily based on bird families and species included in the four international treaties. A migratory bird species is included on the list if it meets one or more of the following criteria:

1. It occurs in the United States or U.S. territories as the result of natural biological or ecological processes and is currently, or was previously listed as, a species or part of a family protected by one of the four international treaties or their amendments.
2. Revised taxonomy results in it being newly split from a species that was previously on the list, and the new species occurs in the United States or U.S. territories as the result of natural biological or ecological processes.
3. New evidence exists for its natural occurrence in the United States or U.S. territories resulting from natural distributional changes and the species occurs in a protected family.

In 2004, the Migratory Bird Treaty Reform Act limited the scope of the MBTA by stating the MBTA applies only to migratory bird species that are native to the United States or U.S. territories, and that a native migratory bird species is one that is present as a result of natural biological or ecological processes. The MBTRA requires the USFWS to publish a list of all nonnative, human-introduced bird species to which the MBTA does not apply, and an updated list was published in 2020. The 2020 update identifies species belonging to biological families referred to in treaties the MBTA implements but are not protected because their presence in the United States or U.S. territories is solely the result of intentional or unintentional human-assisted introductions.

Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act prohibits anyone, without a permit issued by the USFWS, from "taking" bald or golden eagles, including their parts (including feathers), nests, or eggs. The Act provides criminal penalties for persons who "take, possess, sell, purchase, barter, offer to sell, purchase or barter, transport, export or import, at any time or any manner, any bald eagle ... [or any golden eagle], alive or dead, or any part, nest, or egg thereof." The Act defines "take" as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb."

"Disturb" means “to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 1) injury to an eagle, 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior."

In addition to immediate impacts, this definition also covers impacts that result from human-induced alterations initiated around a previously used nest site during a time when eagles are not present, if, upon the eagle's return, such alterations agitate or bother an eagle to a degree that interferes with or interrupts normal breeding, feeding, or sheltering habits, and causes injury, death or nest abandonment.

California Department of Fish and Wildlife

The California Department of Fish and Wildlife (CDFW) derives its authority from the Fish and Game Code of California and administers several State laws protecting fish and wildlife resources and the habitats upon which they depend.

California Endangered Species Act

The California Endangered Species Act (CESA) (Fish and Game Code Section 2050 et. seq.) prohibits take of state listed threatened or endangered. Take under CESA is defined as “Hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill” (Fish and Game Code sec. 86). This definition does not prohibit indirect harm by way of habitat modification, except where such harm is the proximate cause of death of a listed species. Where incidental take would occur during construction or other lawful activities, CESA allows the CDFW to issue an Incidental Take Permit upon finding, among other requirements, that impacts to the species have been minimized and fully mitigated. Unlike the federal ESA, CESA’s protections extend to candidate species during the period (typically one year) while the California Fish and Game Commission decides whether the species warrants CESA listing.

Native Plant Protection Act

The CDFW also has authority to administer the Native Plant Protection Act (NPPA) (Fish and Game Code Section 1900 et seq.). The NPPA requires the CDFW to establish criteria for determining if a species, subspecies, or variety of native plant is endangered or rare, and prohibits the take of listed plant species. Effective in 2015, CDFW promulgated regulations (14 CCR 786.9) under the authority of the NPPA, establishing that the CESA’s permitting procedures would be applied to plants listed under the NPPA as "Rare." With this change, there is little practical difference for the regulated public between plants listed under CESA and those listed under the NPPA.

Fully Protected Species Laws

The CDFW enforces Sections 3511, 4700, 5050, and 5515 of the Fish and Game Code, which prohibit take of species designated as Fully Protected. The CDFW is not allowed to issue an Incidental Take Permit for Fully Protected species; therefore, impacts to these species must be avoided. The exception is situations where a Natural Community Conservation Plan (NCCP) is in place that authorizes take of the fully protected species.

Avian Protection Laws

California Fish and Game Code sections 3503, 3503.5, and 3513 describe unlawful take, possession, or destruction of native birds, nests, and eggs. Section 3503.5 of the Code protects all birds-of-prey and their eggs and nests against take, possession, or destruction of nests or eggs. Section 3513 makes it a state-level offense to take any bird in violation of the federal Migratory Bird Treaty Act.

Protection of Lakes and Streambeds

California Fish and Game Code section 1602 states that it is unlawful for any person to "substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake" without first notifying the California Department of Fish and Wildlife (CDFW) of that activity. Thereafter, if CDFW determines and informs the entity that the activity will not substantially adversely affect any existing fish or wildlife resources, the entity may commence the activity. If, however, CDFG determines that the activity may substantially adversely affect an existing fish or wildlife resource, the entity may be required to obtain from CDFW a Streambed Alteration Agreement (SAA), which will include reasonable measures necessary to protect the affected resource(s), before the entity may conduct the activity described in the notification. Upon receiving a complete Notification of Lake/Streambed Alteration, CDFW has 60 days to present the entity with a Draft SAA. Upon review of the Draft SAA by the applicant, any problematic terms are negotiated with CDFW, and a final SAA is executed.

The CDFW has not defined the term “stream” for the purposes of implementing its regulatory program under Section 1602, and the agency has not promulgated regulations directing how jurisdictional streambeds may be identified, or how their limits should be delineated. However, four relevant sources of information offer insight as to the appropriate limits of CDFW jurisdiction as discussed below.

- **The plain language of Section 1602 of CFGC** establishes the following general concepts:
  - References “river,” “stream,” and “lake”
  - References “natural flow”
  - References “bed,” “bank,” and “channel”
- **Applicable court decisions**, in particular *Rutherford v. State of California* (188 Cal App. 3d 1276 (1987), which interpreted Section 1602’s use of “stream” to be as defined in common law. The Court indicated that a “stream” is commonly understood to:
  - Have a source and a terminus
  - Have banks and a channel
  - Convey flow at least periodically, but need not flow continuously and may at times appear outwardly dry
  - Represent the depression between the banks worn by the regular and usual flow of the water
  - Include the area between the opposing banks measured from the foot of the banks from the top of the water at its ordinary stage, including intervening sand bars
  - Include the land that is covered by the water in its ordinary low stage
  - Include lands below the OHWM
- **CDFW regulations** defining “stream” for other purposes, including sport fishing (14 CCR 1.72) and streambed alterations associated with cannabis production (14 CCR 722(c)(21)), which indicate that a stream:
  - Flows at least periodically or intermittently
  - Flows through a bed or channel having banks
  - Supports fish or aquatic life
  - Can be dry for a period of time

- Includes watercourses where surface or subsurface flow supports or has supported riparian vegetation

- **Guidance documents**, *including A Field Guide to Lake and Streambed Alteration Agreements* (CDFG 1994) and *Methods to Describe and Delineate Episodic Stream Processes on Arid Landscapes for Permitting Utility-Scale Solar Power Plants* (Brady and Vyverberg 2013), which suggest the following:
  - A stream may flow perennially or episodically
  - A stream is defined by the course in which water currently flows, or has flowed during the historic hydrologic course regime (approximately the last 200 years)
  - Width of a stream course can reasonably be identified by physical or biological indicators
  - A stream may have one or more channels (single thread vs. compound form)
  - Features such as braided channels, low-flow channels, active channels, banks associated with secondary channels, floodplains, islands, and stream-associated vegetation, are interconnected parts of the watercourse
  - Canals, aqueducts, irrigation ditches, and other means of water conveyance can be considered streams if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife
  - Biologic components of a stream may include aquatic and riparian vegetation, all aquatic animals including fish, amphibians, reptiles, invertebrates, and terrestrial species which derive benefits from the stream system
  - The lateral extent of a stream can be measured in different ways depending on the particular situation and the type of fish or wildlife resource at risk

The tenets listed above, among others, are applied to establish the boundaries of streambeds in various environments. Importance of each factor may be weighted based on site-specific considerations and the applicability of the indicators to the streambed at hand.

Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act (FCMA), as amended (16 U.S.C. 1801 et seq.) established:

- A fishery conservation zone between the territorial seas of the United States and 200 nautical miles offshore;
- An exclusive U.S. fishery management authority over fish within the fishery conservation zone (excluding highly migratory species);
- Regulations for foreign fishing within the fishery conservation zone through international fishery agreements, permits, and import prohibitions; and
- National standards for fishery conservation and management and eight regional fishery management councils to apply those national standards in fishery management plans.

Congress enacted the 1996 amendments to the Act, known as the Sustainable Fisheries Act (SFA) (P.L. 104-297), to address the substantially reduced fish stocks that declined as a result of direct and indirect habitat loss. The SFA requires that BOEM and other agencies consult with the National

Oceanic and Atmospheric Administration's National Marine Fisheries Service concerning actions that may adversely impact Essential Fish Habitat (EFH).

In 2007, President Bush signed the Magnuson-Stevens Fishery Conservation and Management Reauthorization Act of 2006. It mandates the use of annual catch limits and accountability measures to end overfishing, provides for fishery management by a limited access program, and calls for increased international cooperation.

Pacific Salmonid Fishery Management Plan

The current Pacific Salmon FMP provides management protection for natural and hatchery salmon species off the coasts of Washington, Oregon, and California. These species include Chinook (*Oncorhynchus tshawytscha*), coho (*Oncorhynchus kisutch*), pink (*Oncorhynchus gorbuscha*) (in odd-numbered years), and all salmon protected under the ESA except steelhead. The EFH designated for these species includes marine waters from the shoreline to the boundary of the exclusive economic zone (EEZ; 200 miles offshore) and estuarine and freshwater habitat within Washington, Oregon, California, and Idaho.

Pacific Coast Groundfish Fisheries Management Plan

Pacific Coast Groundfish FMP provides protection 107 marine fish species (Elasmobranches species, roundfish species, rockfish species, flatfish species, endemic skates except longnose and big skate, endemic grenadiers, mesopelagic fish, silversides, smelts and pelagic squids). The overall extent of the groundfish EFH for all species is identified as all waters and substrate within the following areas: depths less than or equal to 3,500 meters to mean higher high level (MHHW) or the upriver extent of saltwater intrusion, defined as upstream and landward to where ocean-derived salt measure less than 0.5 ppt during the period of average annual low flow; seamounts in depths greater than 3,500 meters as mapped in the EFH assessment geographic information system; and areas designated as HAPCs not already identified.

Coastal Pelagic Species Fishery Management Plan

The Coastal Pelagic Species FMP provides protection for four finfish species: northern subpopulation of Pacific sardine (*Sardinops sagax*), Pacific mackerel (*Scomber japonicus*), northern anchovy (*Engraulis mordax),* jack mackerel (*Trachurus symmetricus*); one squid species: market squid (*Doryteuthis opalescens*) and eight krill species (*Euphausia pacifica, Thysanoessa spinifera, Nyctiphanes simplex, Nematocelis difficilis, Thysanoessa gregia, Euphausia recurve, Euphausia gibboides* and *Euphausia eximia*). The east-west geographic boundary of EFH for each individual CPS finfish and market squid is defined to be all marine and estuarine water from the shoreline along the coasts of California, Oregon and Washington offshore to the limits of the exclusive economic zone (EEZ) and above the thermocline where sea surface temperatures range between 10°C to 26 C

Marine Mammal Protection Act

The Marine Mammal Protection Act (MMPA) was enacted on October 21, 1972. All marine mammals are protected under the MMPA. The MMPA prohibits, with certain exceptions, the "take"

of marine mammals in U.S. waters and by U.S. citizens on the high seas, and the importation of marine mammals and marine mammal products into the U.S.

Jurisdiction for MMPA is shared by U.S. Fish and Wildlife Service (Service) and the National Marine Fisheries Service (NMFS). The Service's Branch of Permits is responsible for issuing take permits when exceptions are made to MMPA.

Marine Life Protection Act

The Marine Life Protection Act of 1999 directs the state to redesign California's system of marine protected areas (MPAs) to function as a network in order to: increase coherence and effectiveness in protecting the state's marine life and habitats, marine ecosystems, and marine natural heritage, as well as to improve recreational, educational and study opportunities provided by marine ecosystems subject to minimal human disturbance. Six goals guided the development of MPAs in the MLPA planning process:

- Protect the natural diversity and abundance of marine life, and the structure, function and integrity of marine ecosystems
- Help sustain, conserve and protect marine life populations, including those of economic value, and rebuild those that are depleted
- Improve recreational, educational and study opportunities provided by marine ecosystems that are subject to minimal human disturbance, and to manage these uses in a manner consistent with protecting biodiversity
- Protect marine natural heritage, including protection of representative and unique marine life habitats in CA waters for their intrinsic values
- Ensure California's MPAs have clearly defined objectives, effective management measures and adequate enforcement and are based on sound scientific guidelines
- Ensure the State's MPAs are designed and managed, to the extent possible, as a network

To help achieve these goals, three MPA designations (state marine reserves, state marine parks and state marine conservation areas), one marine managed area (state marine recreational management area) and special closures were used in the MPA planning process. For the purposes of MPA planning, a public-private partnership commonly referred to as the MLPA Initiative was established, and the state was split into five distinct regions (four coastal and the San Francisco Bay) each of which had its own MPA planning process. All four coastal regions have completed these individual planning processes. As a result, the coastal portion of California's MPA network is now in effect statewide. Options for a planning process in the fifth and final region, the San Francisco Bay, have been developed for consideration at a future date.

Marine Life Management Act

The Marine Life Management Act (MLMA), which became law on January 1, 1999, established a fishery management system for four groups of fisheries:

- The nearshore finfish fishery and the white seabass fishery
- Emerging fisheries - new and growing fisheries that are not currently subject to specific regulation

- Those fisheries for which the Fish and Game Commission held some management authority before January 1, 1999. Future regulations affecting these fisheries will need to conform to the MLMA
- Those commercial fisheries for which there is no statutory delegation of authority to the Commission and Department. (In the case of these fisheries, CDFW may prepare, and the Commission may adopt, a fishery management plan, but that plan cannot be implemented without a further delegation of authority through the legislative process)

Borrowing from experience with federal fishery management law, the MLMA initiated a comprehensive approach to fisheries management. The primary vehicle for this approach is the development of fishery management plans for all of the State's major recreational and commercial fisheries.

California Ocean Plan

Ocean standards protect the beneficial uses of California's marine waters through establishing water quality objectives and implementation provisions in statewide water quality control plans and polices. Ocean standards plans and policies include: the Water Quality Control Plan for Ocean Waters of California (Ocean Plan); the Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California (California Thermal Plan); and the Water Quality Control Policy on the Use of Coastal and Estuarine Waters for Power Plant cooling (Once-Through Cooling Policy).

The Ocean Standards Unit is responsible for developing and updating the statewide plans and policies involving marine waters and providing scientific support and inter-agency coordination regarding marine pollution and resource management.

Marine Invasive Species Act

The Marine Invasive Species Program began in 1999 with the passage of California's Ballast Water Management for Control of Nonindigenous Species Act, which addressed the threat of species introductions from vessels arriving at California's ports. In 2003, the Marine Invasive Species Act was passed, reauthorizing and expanding the 1999 Act. Subsequent amendments to the Act and additional legislation further expanded the Program's scope.

The Marine Invasive Species Program seeks to reduce the risk of aquatic nonindigenous species introduction into California's waters through:

- The development, implementation, and enforcement of vessel biofouling and vessel ballast water management strategies and polices
- The use of best available technology and peer reviewed science
- Partnerships with stakeholders to improve awareness of invasive species issues and assess program efficacy

Local and Regional Plans

San Francisco BCDC Strategic Plan Update 2017-2020

Objective 1.1 Encourage and implement Bay habitat restoration.

Proposed Actions:

- Encourage restoration programs and projects that align with the Baylands Ecosystem Habitat Goals Science Update and the San Francisco Bay Subtidal Habitat Goals Report.[1]
- Use the best available science to understand emerging trends in habitat connectivity among streams watersheds, and Bay habitats.
- Analyze and determine whether and how a policy amendment, regulation change, or other approach may enable a more efficient permitting process for restoration projects.
- Support BCDC's Wetland Habitat Assessment Team, in collaboration with other agencies, to develop consistent requirements for habitat projects.
- Better integrate data and information into lessons learned for future restoration projects.

Objective 1.2 Expand and promote diverse, high-quality public access.

Proposed Actions:

- Inventory existing public access and improve BCDC's public access tracking system.
- Evaluate the diversity of access and uses around the Bay and identify opportunities to enhance public access and public amenities.
- Update the Public Access Design Guidelines to implement a consistent regulatory approach to designing public access that maximizes its appropriate use.
- Collaborate with other organizations to develop and disseminate a comprehensive public access guide to shoreline public access.

Objective 2.1 Use the Adapting to Rising Tides (ART) Bay Area Program to lead the creation of a Regional Adaptation Plan (RAP) for rising sealevel.

Proposed Actions:

- Complete the ART county-level vulnerability analyses and proposed strategies to create a more resilient Bay shoreline.
- Form a RAP working group with public, private, and NGO organizations to understand regions vulnerabilities and recommend adaptation approaches.
- Host and facilitate public workshops to develop and refine the RAP recommendations.
- Use the RAP to identify resilience and adaptation actions that can be implemented locally and regionally.

Objective 2.2 Support local efforts to become more resilient to rising sea level, and pay special attention to environmental justice issues across the region.[2]

Proposed Actions:

- Use ART Bay Area to collaborate with a broad spectrum of stakeholders, including those from environmental justice communities, when developing the RAP.
- Continue to actively engage environmental justice communities in BCDC's planning and permitting processes.
- Inventory local climate resilience and assessment projects to help connect projects between and among sponsoring organizations.
- Continue training staff about environmental justice issues.

Objective 2.3 Better coordinate and integrate rising sea level planning and regulatory functions.

Proposed Actions:

- Develop intra- and inter-agency processes through which planning and regulatory information, requirements, and decisions are shared.
- Assign Planning staff to each major project and Regulatory staff to each plan, policy, or regulation amendment.
- Make rising sea level data products and practices more widely available.
- Work with the California Natural Resources Agency to integrate the Update on Sea-Level Rise Science into planning and permitting decisions specific to the Bay.

Objective 2.4 Increase beneficial reuse of sediment as a resource to help the Bay Area prepare for rising sea level.

Proposed Actions:

- Analyze and determine whether and how a policy amendment, regulation change, or other approach may increase beneficial reuse of sediment in the region.
- Encourage regulatory agencies, including the U.S. Army Corps of Engineers, and others in the dredging and restoration communities to maximize the beneficial reuse of sediment in restoration and shoreline adaptation projects.
- Continue to develop and then implement a Bay-wide Regional Sediment Management Plan

Objective 2.5 Promote adaptive management approaches to address scientific, economic, and social uncertainties inherent in analyzing responses to rising sea level.

Proposed Actions:

- Develop a permitting toolkit (with guidance, templates, etc.) to clarify how adaptive management plans should be incorporated in proposed projects, including compliance monitoring and enforcement.
- Analyze and determine whether and how a policy amendment, regulation change, or other approach may enable the use of adaptive management in appropriate projects.
- Determine how to integrate adaptive management compliance into BCDC's regulatory program.
- Continue to lead the Financing the Future Working Group to recommend how best to finance local adaptation projects and regionwide efforts.

Objective 2.6 Encourage the development of living shorelines where appropriate in the Bay.

Proposed Actions:

- Support creating a planning and regulatory "help desk" to connect living shorelines proponents, BCDC, and the public with technical experts.
- Analyze and determine whether and how a policy amendment, regulation change, or other approach may be necessary to address regulatory limitations on living shorelines and include strategies such as monitoring and triggers to ensure the long-term viability of these projects.
- Support the development of guidance for local governments and applicants regarding how best to design and implement living shorelines.

Objective 2.7 Develop an education campaign to increase the public's understanding of rising sea level vulnerabilities and resilience strategies.

Proposed Actions:

- Develop and implement, with partners, a public information program to inform the public about rising sea level vulnerabilities and resilience strategies.
- Use a wide range of communication tools, including social media, to inform as broad an audience as possible.
- Disseminate the best available rising sea level data and information through a web-based portal for the public.

San Francisco Bay Subtidal Habitat Goal Report, A 50-Year Conservation Plan

Soft Substrate Protection Goals

Consider the potential ecological effects of contaminated sediments when developing, planning, designing, and constructing restoration projects or other projects that disturb sediments.

Promote no net increase in disturbance to San Francisco soft bottom habitat.

Promote no net loss of San Francisco Bay subtidal and intertidal sand habitats.

Develop a coordinated, collaborative approach for regional sediment management of San Francisco Bay.

Encourage the application of sustainable techniques in sand habitat replenishment or restoration projects.

Encourage removal of artificial structures that have negative impacts on soft bottom habitat functions.

Artificial Structures Protection Goals

Enhance and protect habitat functions and the historical value of artificial structures in San Francisco Bay.

Improve San Francisco Bay subtidal habitats by minimizing placement of artificial structures that are detrimental to subtidal habitat function.

Where feasible, remove artificial structures from San Francisco Bay that have negative or minimal beneficial habitats functions.

Promote pilot projects to remove artificial structures and creosote pilings at targeted sites in combination with a living shoreline restoration design that will use natural bioengineering techniques (such as native oyster reefs, stone sills and eelgrass plantings) to replace lost habitat structure.

Shellfish Beds Protection Goals

Protect San Francisco Bay native shellfish habitats (particularly native oyster, *Ostrea lurida*) through no net loss existing habitat.

Protect areas in San Francisco Bay with potential shellfish expansion, restoration or creation.

Increase native oyster populations in San Francisco Bay with 8,000 acres of potential suitable subtidal area over a 50-year time frame through a phased approach conducted within a framework of adaptive management.

Submerged Aquatic Vegetation Goals

Protect existing eelgrass habitat in San Francisco Bay through no net loss to existing beds.

Establish eelgrass reserves. Potential reserve sites include the following eelgrass beds: Keil Cove, Point San Pablo, Point Molate, Richardson Bay, Crown Beach, Bay Farm Island, Eden Landing Ecological Reserve and Coyote Point.

Identify and protect areas in San Francisco Bay for future eelgrass expansion, restoration and creation.

Protect existing widgeon grass habitat in San Francisco Bay.

Protect existing sago pondweed habitat in San Francisco Bay.

Increase native eelgrass population in San Francisco Bay within 8,000 acres of suitable subtidal/intertidal area over a 50-year time frame using a phased approach under a program of adaptive management. Priority native eelgrass survey and restoration sites include Corte Madera Bay near the Corte Madera and Muzzi Marshes, San Rafael shoreline to quarry near Point San Pedro, Horeshoe Cove, Sausalito, Richardson Bay, West of Point San Pedro along the shoreline of China Camp State Park, North Richmond Bead from Richmond Bridge to Carquinez Bridge, Albany and Berkeley shorelines, Emeryville Crescent, Middle Harbor, Oakland, Alameda Naval Air Station, Hayward Shoreline, Eden Landing Ecological Reserve, Coyote Point area, San Mateo, and Near Piers 94 and 98.

California State Land Commission

The Commission manages 4 million acres of tide and submerged lands and the beds of natural navigable rivers, streams, lakes, bays, estuaries, inlets, and straits. These lands, often referred to as sovereign or Public Trust lands, stretch from the Klamath River and Goose Lake in the north to the Tijuana Estuary in the south, and the Colorado River in the east, and from the Pacific Coast 3 miles offshore in the west to world-famous Lake Tahoe in the east, and includes California's two longest rivers, the Sacramento and San Joaquin.

The Commission also monitors sovereign land granted in trust by the California Legislature to approximately 70 local jurisdictions that generally consist of prime waterfront lands and coastal waters. The Commission protects and enhances these lands and natural resources by issuing leases for use or development, providing public access, resolving boundaries between public and private

lands. Through its actions, the Commission secures and safeguards the public's access rights to natural navigable waterways and the coastline and preserves irreplaceable natural habitats for wildlife, vegetation, and biological communities.

The Commission also protects state waters from marine invasive species introductions and prevents oil spills by providing the best achievable protection of the marine environment at all marine oil terminals in California and offshore oil platforms and production facilities.

Environmental Planning and Management Division

The Environmental Planning and Management Division provides policy and technical analysis to the Commission and its Executive Officer and ensures compliance with the California Environmental Quality Act (CEQA). The Division prepares Environmental Impact Reports, Mitigated Negative Declarations, and other environmental or public trust documents for land use changes within the Commission's jurisdiction, and routinely comments on CEQA documents prepared by local, state, and federal agencies for projects impacting public trust lands and resources.

Marine Environmental Protection Division

The Marine Environmental Protection Division regulates and inspects all marine oil terminals in California and bulk oil operations at these terminals to provide the best achievable protection of the public health, safety, and the environment. Inspections are conducted on a daily, biennial, and annual basis and include marine pipeline inspections, review of oil spill prevention requirements, and operational personnel training. The Division also regulates large oceangoing vessels to protect against the introduction of invasive (nonindigenous) species into state waters.

City of Millbrae 2040 General Plan

Chapter 2 – Land Use and Built Environment Element

Goal LU-9 Ensure high-quality site planning, landscaping, and architectural design for all new construction, renovation, or remodeling.

Policy LU-9.4 Trees and Landscaping. The City shall protect the existing tree canopy and encourage tree planting including drought-tolerant landscaping and green infrastructure.

Chapter 5 – Recreation, Arts, and Culture Element

Goal RAC-3 Maintain, restore, and increase the existing trees and enhance the urban tree canopy into the future.

Policy RAC-3.1 Grow the Urban Forest. The City shall update the City's Tree Inventory and Management Report and adopt an associated implementation plan to support opportunities to grow the urban forest by planting new trees, managing and caring for publicly-owned trees, and working to retain healthy trees.

Policy RAC-3.2 Reduce Urban Forest Loss. The City shall support the identification and removal of aging or diseased trees near the end of their lifespan to prevent potential hazards and should support succession plantings to reduce net loss to the urban forest.

Policy RAC-3.3 **New Funding Sources**. The City shall explore new and innovative funding sources for tree planting and maintenance.

Policy RAC-3.4 **Tree City USA Designation**. The City shall strive to maintain its status as a Tree City USA community by continuing to meet the program's requirements.

Policy RAC-3.5 **City Tree Regulations.** The City shall update the Tree Protection and Urban Forestry Program Ordinance to include provisions for the protection of trees on private property.

Policy RAC-3.6 **Street Trees.** The City shall require new street trees as part of new development or other discretionary applications.

Chapter 6 – Natural Resource Conservation Element

Goal NRC-1 Protect, enhance, and restore undeveloped open space areas and biological resources so they can be sustained and remain viable

Policy NRC-1.1 **Open Space Preservation and Maintenance**. The City shall continue to preserve open space lands in the city, including scenic resources and environmentally-sensitive habitat areas, and maintain them as necessary to protect public health, safety, and welfare.

Policy NRC-1.2 **Permanent Open Space Dedication.** The City shall require permanent dedication of open space areas with habitat, visual, recreational, or archaeological value as a condition of new development approval. These areas should be owned and maintained by private parties unless they are appropriate for use as trails or other public-access uses.

Policy NRC-1.3 **Open Space Resource Acquisition**. The City shall explore possible resources for public acquisition of parcels with high habitat, visual, archaeological, or recreational values, including State and public trust funds, leases for private open space use, and additional bond measures.

Policy NRC-1.5 **Collaboration for Open Space Acquisition**. The City shall work with non-profit organizations and other public agencies to acquire and maintain open space areas, perform creek restoration, and support other projects related to open space preservation.

Policy NRC-1.6 **Open Space Funding.** The City shall work with local, regional, and State agencies, non-profit and community organizations, foundations, and grant sources to provide funding for open space land acquisition, maintenance, and programming.

Policy NRC-1.7 **Open Space Improvement.** The City shall strive to ensure that any improvements to open space areas maintain the open space and do not adversely impact habitats, views, and other open space resources.

Policy NRC-1.8 **Open Space Access.** The City shall pursue public access to open space lands through the Tentative Map process to require dedications, easements, and other mechanisms in the Conditions of Approval for a project.

Policy NRC-1.9 **Open Space Access Maintenance.** The City shall maintain and improve access to open space areas by clearly delineating areas that are appropriate for

public use and access and differentiating them from those areas to be protected from human disturbance. In areas where public use is appropriate, the City shall provide access points and accessible design features (e.g., trails and related facilities).

Policy NRC-1.10 **Habitat Protection.** The City shall protect sensitive biological resources, including habitats of State and Federally designated sensitive, rare, threatened, and endangered plant, fish, and wildlife species from urban development and incompatible land uses through analysis in the CEQA and permitting process. If new development results in impacts to any of these resources, loss of habitat should be fully compensated on-site whenever it is feasible to do so. If off-site mitigation is necessary, it should occur within the city of Millbrae whenever it is feasible to do so.

Policy NRC-1.11 **Development Setbacks.** The City shall protect lands adjacent to sensitive habitat areas as public or private permanent open space through dedication or easements. The City shall ensure new development adjacent to such areas provides adequate building setbacks to buffer against potential impacts, with adequate access easements to allow for necessary open space maintenance.

Goal NRC-2 **Improve water quality by protecting surface water resources and restoring creeks and rivers to their natural state.**

Policy NRC-2.1 **San Mateo Countywide Water Pollution Prevention Program**. The City shall continue to participate in the San Mateo Countywide Water Pollution Prevention Program.

Policy NRC-2.2 **Storm Water National Pollutant Discharge Elimination System (NPDES).** In coordination with the San Mateo City and County Association of Governments, the City shall continue to implement measures consistent with the Municipal Regional Stormwater NPDES Permit.

Policy NRC-2.3 **Best Management Practices to Reduce Water Pollution**. The City shall require implementation of Best Management Practices consistent with the Municipal Regional Stormwater NPDES Permit to reduce non-point source pollutants in the drainage system.

Policy NRC-2.4 **Green Infrastructure.** The City shall ensure all new developments implement green infrastructure, per the City's Green Infrastructure Plan, adopted by City Council in September 2019. Development, including public improvement projects, shall include "green" stormwater collection and treatment and employ Low Impact Development (LID) features that minimize surface water runoff and pollutants. LID features may include bioretention systems, swales, green roofs, infiltration systems, and permeable pavers.

City of Burlingame General Plan

Chapter 9 – Healthy People and Healthy Places

Goal HP-5 Protect, maintain, and improve biological resources in Burlingame, including hillside habitats, trees and plants, shoreline areas, and creeks.

Policy HP-5.1 **Wildlife Habitats.** Preserve critical habitat areas and sensitive species within riparian corridors, hillsides, canyon areas, tree canopies, and wetlands that are within the City's control. Consult with the California Department of Fish and Wildlife to identify and map significant habitat areas and focus protection measures on habitats with special status species. Protect declining or vulnerable habitat areas from disturbance during design and construction of new development.

Policy HP-5.2 **Migratory Birds**. Identify and protect habitats that contribute to the healthy propagation of migratory birds, including trees and natural corridors that serve as stopovers and nesting places. Avoid construction activities that involve tree removal between March and June unless a bird survey has been conducted to determine that the tree is unused during breeding season by avian species protected under California Fish and Game Codes 3503, 3503.5 and 3511.

Policy HP-5.3 **Riparian Corridors**. Protect and restore riparian corridors to ensure they function as healthy biological areas and wildlife habitats. Where appropriate, restore riparian habitat with native vegetation.

Policy HP-5.4 **Urban Creeks**. Encourage the restoration and daylighting of Burlingame's urban creeks where they have been undergrounded, and where such daylighting is appropriate for surrounding conditions. Coordinate with property owners and local interest groups in restoration efforts. Remove culverts and hardened creek channels where appropriate and avoid future culverting or channelization of creeks.

Policy HP-5.5 **Protection and Expansion of Tree Resources**. Continue to preserve and protect valuable native trees, and introduce species that contribute to the urban forest, but allow for the gradual replacement of trees for on-going natural renewal. Consider replacement with native species. Use zoning and building requirements to ensure that existing trees are integrated into new developments.

Policy HP-5.6 **Tree Preservation Ordinance**. Continue to adhere to the Burlingame Tree Preservation Ordinance (Burlingame Municipal Code Title 11); ensure the preservation of protected trees as designated by the ordinance and continue to be acknowledged by the Arbor Day Foundation as a Tree City USA.

Policy HP-5.7 **Urban Forest Management Plan**. Continue to update and use the Burlingame Urban Forest Management Plan, which integrates the environmental, economic, political, historical and social values for the community, for guidance on best management practices related to tree planting, removal, and maintenance, including onsite protection of extant trees and street trees during projects.

Policy HP-5.8 **Invasive Plant Species**. Discourage the use of invasive plant species in environmentally-sensitive areas. Where species have already invaded and

have been shown to be detrimental, establish plans for removal where appropriate. Ensure that new development obtains appropriate permits and approvals related to invasive species from the Army Corps of Engineers and other relevant agencies.

Policy HP-5.9 **Invasive Aquatic Species**. Work with the California Department of Fish and Wildlife's Invasive Species Program to identify invasive aquatic species within Burlingame and meet the Regional Monitoring Program's regulatory goals to reduce exotic species that threaten Bay Area water quality.

Policy HP-5.1 **Shoreline Protection and Enhancement**. Maintain and improve the quality of Burlingame's shoreline and support regulatory programs that protect Bayfront open space. Control shoreline uses to minimize erosion and use a combination of human-made and natural elements to establish flood barriers.

Policy HP-5.11 **Canyon and Hillside Protection**. Protect Burlingame's canyon and hillside areas by ensuring that construction adjacent to these spaces is environmentally sensitive and preserves natural topography and vegetation.

Policy HP-5.12 **Wetlands**. Preserve permanent, year-round wetland habitat and associated species in compliance with the federal "no net loss" policy. Where jurisdiction allows, establish buffer zones at the edge of wetland habitats, and restrict development in these zones. If development occurs adjacent to a wetlands area, ensure a qualified biologist has conducted a wetlands delineation in accordance with federal and State guidelines.

Policy HP-5.13 **Regional Coordination**. Coordinate efforts with the San Mateo County Flood Control District, Caltrans, San Francisco Airport, Peninsula Watershed lands, and Coyote Point Recreation Area to preserve and manage interconnecting wildlife movement corridors.

Policy HP-5.14 **Compliance with Environmental Laws**. Ensure that all projects affecting resources of regional concern satisfy regional, State, and federal laws.

Policy HP-5.15 **Access to Natural Areas**. Ensure public access to natural resources, particularly along the Bayfront and in Mills Canyon. Require new development in the Bayfront area to provide public access to the waterfront, and work with property owners to connect gaps in the Bay Trail.

City of San Mateo General Plan

Conservation and Open Space Element

Environmental Stewardship

Goal 1 **Protect and enhance the City's natural resource areas which provide plant and animal habitat.**

Goal 2 **Conserve and manage the City's natural resources to ensure that current and future generations will enjoy the environmental, social and economic benefits derived from our urban forest, parks and open spaces.**

Policy C/OS 1.4 **Shoreline Parks Master Plan**. Continue to seek funding for the implementation of the remaining phases of the Shoreline Parks Master Plan through RDA and grant funding.

Policy C/OS 1.5 **Conversion of Incompatible Uses**. Encourage the conversion of existing land uses which are not compatible with adjacent Lagoon or wetlands to permitted compatible uses.

Policy C/OS 2.1 **Aesthetic and Habitat Values – Public Creeks**. Preserve and enhance the aesthetic and habitat values of San Mateo, Laurel and Beresford creeks and other City-owned channels in all activities affecting these creeks.

Policy C/OS 2.2 **Aesthetic and Habitat Values – Private Creeks**. Preserve and enhance the aesthetic and habitat values of privately owned sections of all other creeks and channels, shown in Figure C/OS-2, whenever cost effective or whenever these values outweigh economic considerations.

Policy C/OS 2.3 **Hydrologic Impacts**. Ensure that improvement to creeks and other waterways do not cause adverse hydrologic impacts on upstream or downstream portions of the subject creek; comply with Safety Element Policy S-2.1 regarding flood control.

Policy C/OS 2.6 **Water Quality**. Continue to strive for the highest possible level of water quality reasonable for an urban environment in City creeks, channels, Marina Lagoon, and the Bay through the provision of administrative, maintenance, and treatment measures. At a minimum, water quality levels must meet Environmental Protection Agency (EPA) standards, allow for limited water recreation and sustain aquatic/wildlife habitat appropriate to the water flow. The more stringent requirements applicable to contact water recreation would apply to Marina Lagoon and beach areas.

Policy C/OS 5.1 **Interjurisdiction Coordination**. Promote coordination with adjacent jurisdictions to protect critical wildlife habitat.

Policy C/OS 5.2 **Site Evaluations**. Require independent professional evaluation of sites during the environmental review process for any public or private development located within known or potential habitat of species designated by state and federal agencies as rare, threatened, or endangered, as shown in Appendix G, and as amended if new species are so designated.

Policy C/OS 5.3 **Special-Status Species**. The City shall seek to preserve wetlands, habitat corridors, sensitive natural communities, and other essential habitat areas that may be adversely affected by public or private development projects where special-status plant and animal species are known to be present or potentially occurring based on City biological resource mapping or other technical material.

Policy C/OS 5.4 **Sensitive Natural Communities**. Seek to protect against direct and indirect impacts to riparian habitat and other sensitive natural communities by taking the following actions:

1. Restrict or modify proposed development in areas that contain wetlands or waters of the U.S., as defined by U.S. Army Corps of Engineers delineations, as

necessary to ensure the continued health and survival of special-status species and sensitive habitat areas. Development projects shall preferably be designed to avoid impacts on sensitive resources, or to adequately mitigate impacts by providing on-site replacement or (as a lowest priority) off-site replacement at a higher ratio. Modification in project design shall include adequate avoidance measures to ensure that no net loss of wetland acreage, function, water quality protection, and habitat value occurs. This may include the use of setbacks, buffers, and water quality, drainage control features, or other measures to maintain existing habitat and hydrologic functions of retained wetlands and waters of the U.S.

2. Design public access to avoid or minimize disturbance to sensitive resources, including necessary setback/buffer areas, while facilitating public use, enjoyment, and appreciation of wetlands.

3. Avoid wetlands development where feasible (as defined under State CEQA Guidelines Section 15364). Where complete avoidance of jurisdictional wetlands is not feasible (as defined under State CEQA Guidelines Section 15364), require provision of replacement habitat onsite through restoration and/or habitat creation that would ensure no net loss of wetland acreage, function, water quality protection, and habitat value. Allow restoration of wetlands off-site only when an applicant has demonstrated that no net loss of wetlands would occur, and that on-site restoration is not feasible. Off-site wetland mitigation preferably will consist of the same habitat type as the wetland area that would be lost.

Urban Resources

Goal 3 **Protect heritage trees and human-made elements of the urban environment which reflect the City's history and contribute to the quality of life.**

Goal 4 **Expand the aesthetic and functional contributions made to the urban environment by public open spaces, trail systems, scenic roadways, and street trees and plantings.**

Policy C/OS 6.1 **Tree Preservation**. Preserve heritage trees in accordance with the City's Heritage Tree Ordinance.

Policy C/OS 6.2 **Replacement Planting**. Require significant replacement planting when the removal of heritage trees is permitted.

Policy C/OS 6.8: **Street Tree Preservation**. Preserve existing street trees; ensure adequate siting, selection, and regular maintenance of City trees, including neighborhood participation, for the purpose of keeping the trees in a safe and aesthetic condition.

Millbrae Municipal Code

Chapter 8.60 of the Millbrae Municipal Code (MMC) is known as the tree protection and urban forestry program. This chapter establishes policies, regulations, and standards necessary to ensure that the City will continue to realize the benefits provided by its urban forest. This chapter adopts the City's Master Tree Plan prescribing regulations on the care, preservation, and proliferation of street trees within the City. Under this chapter, the planting, pruning, removal, alteration, or any

other work on a street tree without an authorized permit is prohibited. It makes property owners responsible for the care and maintenance of street trees fronting upon or abutting their property, including watering as needed. In addition, the City requires a permit for the removal or alteration of street trees.

Burlingame Municipal Code

Burlingame Municipal Code (BMC) Chapter 11.04, *Street Trees*, establishes the requirements for the alteration of any street tree, shrub, or plant in or upon any public street or public place in the City of Burlingame. Under this chapter, it is unlawful for any person to cut down, trim, prune, plant, remove, injure, or destroy any tree, shrub, or plant in or upon any street or public place in the city without a permit therefor from the director. BMC Chapter 11.06, *Urban Reforestation and Tree Protection* is intended to establish conditions and regulations for the removal and replacement of existing trees and installation of new trees in new construction and development. Chapter 11.06 establishes the definition of "protected trees" within the City and requires a tree permit for the removal or alteration of any protected tree, which may also require reforestation efforts following tree removal. In BMC Chapter 25.12.050: Public Access, Flood and Sea Level Rise Performance Guidelines, development within buffer zones around the San Francisco Bay and creeks is limited for sea level rise protection, flood protection, and public access. Under this section of code, creek buffers should be a minimum of 35 feet from the top of bank and buffers from San Francisco Bay, Anza Lagoon, Bay Front Channel, and Burlingame Lagoon should be a minimum of 100 feet from the shoreline in order to accommodate and maintain infrastructure.

San Mateo Municipal Code

The City of San Mateo Municipal Code (SMMC) Chapter 13.40, *Protected Trees*, establishes regulations for the protection of trees within San Mateo to retain as many trees as possible. This chapter establishes the definition of "heritage tree" and "protected tree" as they pertain to the ordinance and the requirements for removal or alteration of these trees within San Mateo. Under SMMC Section 13.40.090, a permit from the Director of Parks and Recreation is required before pruning or removal of a heritage, street, or protected tree can occur. If the permit is granted the applicant must also replace trees in accordance with the provisions of the permit or pay an in-lieu fee.

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Appendix B

Special Status Species Evaluation Tables

Special Status Plant and Lichen Species in the Regional Vicinity of the Study Areas

Scientific Name Common Name	Status Fed/State ESA CRPR	Habitat Requirements	Alternative 1	Alternative 2	Alternatives 3, 4, & 5
Acanthomintha duttonii San Mateo thorn-mint	FE/SCE G1/S1 1B.1	Annual herb. Chaparral, valley and foothill grassland. Serpentinite. Elevations: 165-985ft. (50-300m.) Blooms Apr-Jun.	**Not Expected**; Chaparral and valley and foothill grassland habitats do not exist within the study area. One documented occurrence of the species is within five miles of the study area (2022a), though it is located inland, in the open grassland habitats in the Lower Crystal Springs Reservoir open space approximately 4.5 miles to the south.	**Not Expected**; Chaparral and valley and foothill grassland habitats do not exist within the study area. One documented occurrence of the species is within five miles of the study area (2022a), though it is located inland, in the open grassland habitats in the Lower Crystal Springs Reservoir open space approximately 4.5 miles to the south.	**Not Expected**; Chaparral and valley and foothill grassland habitats do not exist within the study area. One documented occurrence of the species is within five miles of the study area (2022a), though it is located inland, in the open grassland habitats in the Lower Crystal Springs Reservoir open space approximately 4.5 miles to the south.
Agrostis blasdalei Blasdale's bent grass	None/None G2/S2 1B.2	Coastal bluff scrub, Coastal dunes, Coastal prairie. 0 - 150 m. perennial rhizomatous herb. Blooms May-Jul	**Not Expected**; Suitable coastal bluff scrub, dunes, or coastal prairie habitat does not occur within the study area and there are no documented occurrences within five miles of the study area (CDFW 2022a).	**Not Expected**; Suitable coastal bluff scrub, dunes, or coastal prairie habitat does not occur within the study area and there are no documented occurrences within five miles of the study area (CDFW 2022a).	**Not Expected**; Suitable coastal bluff scrub, dunes, or coastal prairie habitat does not occur within the study area and there are no documented occurrences within five miles of the study area (CDFW 2022a).
Allium peninsulare var. *franciscanum* Franciscan onion	None/None G5T2/S2 1B.2	Cismontane woodland, Valley and foothill grassland. clay, volcanic, often serpentinite. 52 - 305 m. perennial bulbiferous herb. Blooms (Apr)May-Jun	**Not Expected**; Cismontane woodland and valley and foothill grasslands do not occur within the study area. There are eight occurrences of the species documented within five miles of the study area (CDFW 2022a), however, the study area is outside of this species known elevation range.	**Not Expected**; Cismontane woodland and valley and foothill grasslands do not occur within the study area. There are eight occurrences of the species documented within five miles of the study area (CDFW 2022a), however, the study area is outside of this species known elevation range.	**Not Expected**; Cismontane woodland and valley and foothill grasslands do not occur within the study area. There are eight occurrences of the species documented within five miles of the study area (CDFW 2022a), however, the study area is outside of this species known elevation range.
Amsinckia lunaris bent-flowered fiddleneck	None/None G3/S3 1B.2	Coastal bluff scrub, Cismontane woodland, Valley and foothill grassland. 3 - 500 m. annual herb. Blooms Mar-Jun	**Not Expected**; Cismontane woodland, coastal bluff scrub and valley and foothill grassland habitats do not exist within the study area. There are four documented occurrences in the CNDDB (2022a) though all occur within inland, open grassland habitats near the open space surrounding San Andreas Lake to the west of the study area.	**Not Expected**; Cismontane woodland, coastal bluff scrub and valley and foothill grassland habitats do not exist within the study area. There are four documented occurrences in the CNDDB (2022a) though all occur within inland, open grassland habitats near the open space surrounding San Andreas Lake to the west of the study area.	**Not Expected**; Cismontane woodland, coastal bluff scrub and valley and foothill grassland habitats do not exist within the study area. There are four documented occurrences in the CNDDB (2022a) though all occur within inland, open grassland habitats near the open space surrounding San Andreas Lake to the west of the study area.
Arctostaphylos andersonii Anderson's manzanita	None/None G2/S2 1B.2	Perennial evergreen shrub. Broadleafed upland forest, chaparral, north coast coniferous forest. Edges, openings. Elevations: 195-2495ft. (60-760m.) Blooms Nov-May.	**Not Expected**; Suitable habitat does not occur within the study area and no manzanita species were observed during the reconnaissance survey.	**Not Expected**; Suitable habitat does not occur within the study area and no manzanita species were observed during the reconnaissance survey.	**Not Expected**; Suitable habitat does not occur within the study area and no manzanita species were observed during the reconnaissance survey.
Arctostaphylos franciscana Franciscan manzanita	FE/None GHC/S1 1B.1	Perennial evergreen shrub. Coastal scrub. Serpentine outcrops in chaparral. Elevations: 195-985ft. (60-300m.) Blooms Feb-Apr.	**Not Expected**; Suitable habitat does not occur within the study area and no manzanita species were observed during the reconnaissance survey.	**Not Expected**; Suitable habitat does not occur within the study area and no manzanita species were observed during the reconnaissance survey.	**Not Expected**; Suitable habitat does not occur within the study area and no manzanita species were observed during the reconnaissance survey.
Arctostaphylos imbricata San Bruno Mountain manzanita	None/SCE G1/S1 1B.1	Perennial evergreen shrub. Chaparral, coastal scrub. Rocky. Elevations: 900-1215ft. (275-370m.) Blooms Feb-May.	**Not Expected**; Chaparral and coastal scrub habitats do not occur within the study area. One occurrence of the species is documented within five miles of the study area (CDFW 2022a), although it was observed on the ridgeline of San Bruno Mountain above Brisbane approximately 4.7 miles north of the study area.	**Not Expected**; Chaparral and coastal scrub habitats do not occur within the study area. One occurrence of the species is documented within five miles of the study area (CDFW 2022a), although it was observed on the ridgeline of San Bruno Mountain above Brisbane approximately 4.7 miles north of the study area.	**Not Expected**; Chaparral and coastal scrub habitats do not occur within the study area. One occurrence of the species is documented within five miles of the study area (CDFW 2022a), although it was observed on the ridgeline of San Bruno Mountain above Brisbane approximately 4.7 miles north of the study area.
Arctostaphylos montana ssp. *ravenii* Presidio manzanita	FE/SCE G3T1/S1 1B.1	Perennial evergreen shrub. Chaparral, coastal prairie, coastal scrub. Open, rocky serpentine slopes. Elevations: 150-705ft. (45-215m.) Blooms Feb-Mar.	**Not Expected**; Suitable habitat does not occur within the study area and no manzanita species were observed during the reconnaissance survey.	**Not Expected**; Suitable habitat does not occur within the study area and no manzanita species were observed during the reconnaissance survey.	**Not Expected**; Suitable habitat does not occur within the study area and no manzanita species were observed during the reconnaissance survey.
Arctostaphylos montaraensis Montara manzanita	None/None G1/S1 1B.2	Perennial evergreen shrub. Chaparral, coastal scrub. Slopes and ridges. Elevations: 260-1640ft. (80-500m.) Blooms Jan-Mar.	**Not Expected**; Suitable habitat does not occur within the study area and no manzanita species were observed during the reconnaissance survey.	**Not Expected**; Suitable habitat does not occur within the study area and no manzanita species were observed during the reconnaissance survey.	**Not Expected**; Suitable habitat does not occur within the study area and no manzanita species were observed during the reconnaissance survey.
Arctostaphylos pacifica Pacific manzanita	None/SCE G1/S1 1B.1	Evergreen shrub. Chaparral, coastal scrub. Elevations: 1085-1085ft. (330-330m.) Blooms Feb-Apr.	**Not Expected**; Suitable habitat does not occur within the study area and no manzanita species were observed during the reconnaissance survey.	**Not Expected**; Suitable habitat does not occur within the study area and no manzanita species were observed during the reconnaissance survey.	**Not Expected**; Suitable habitat does not occur within the study area and no manzanita species were observed during the reconnaissance survey.

Scientific Name Common Name	Status Fed/State ESA CRPR	Habitat Requirements	Alternative 1	Alternative 2	Alternatives 3, 4, & 5
Arctostaphylos regismontana Kings Mountain manzanita	None/None G2/S2 1B.2	Perennial evergreen shrub. Broadleafed upland forest, chaparral, north coast coniferous forest. Granitic, sandstone. Elevations: 1000-2395ft. (305-730m.) Blooms Dec-Apr.	**Not Expected**; Upland and coniferous forests and chaparral are not present within the study area. One documented occurrence is located within five miles of the study area (CDFW 2022a), although it is documented from 1895 in the *Montara Mountain* USGS quad approximately four miles to the southwest of the study area.	**Not Expected**; Upland and coniferous forests and chaparral are not present within the study area. One documented occurrence is located within five miles of the study area (CDFW 2022a), although it is documented from 1895 in the *Montara Mountain* USGS quad approximately four miles to the southwest of the study area.	**Not Expected**; Upland and coniferous forests and chaparral are not present within the study area. One documented occurrence is located within five miles of the study area (CDFW 2022a), although it is documented from 1895 in the *Montara Mountain* USGS quad approximately four miles to the southwest of the study area.
Astragalus pycnostachyus var. *pycnostachyus* coastal marsh milk-vetch	None/None G2T2/S2 1B.2	Perennial herb. Coastal dunes, coastal scrub, marshes and swamps. Mesic sites in dunes or along streams or coastal salt marshes. Elevations: 0-100ft. (0-30m.) Blooms (Apr)Jun-Oct.	**Not Expected**; Some suitable habitat for the species occurs within the study area, although this species was not observed during the reconnaissance survey and is not documented within five miles of the study area (CDFW 2022a, Calflora 2022).	**Not Expected**; Some suitable habitat for the species occurs within the study area, although this species was not observed during the reconnaissance survey and is not documented within five miles of the study area (CDFW 2022a, Calflora 2022).	**Not Expected**; Some suitable habitat for the species occurs within the study area, although this species was not observed during the reconnaissance survey and is not documented within five miles of the study area (CDFW 2022a, Calflora 2022).
Astragalus tener var. *tener* alkali milk-vetch	None/None G2T1/S1 1B.2	Playas, Valley and foothill grassland (adobe clay), Vernal pools. alkaline. 1 - 60 m. annual herb. Blooms Mar-Jun	**Not Expected**; Playas, vernal pools, and valley and foothill grasslands are not present within the study area and there are no documented occurrences within five miles (CDFW 2022a, Calflora 2022).	**Not Expected**; Playas, vernal pools, and valley and foothill grasslands are not present within the study area and there are no documented occurrences within five miles (CDFW 2022a, Calflora 2022).	**Not Expected**; Playas, vernal pools, and valley and foothill grasslands are not present within the study area and there are no documented occurrences within five miles (CDFW 2022a, Calflora 2022).
Carex comosa bristly sedge	None/None G5/S2 2B.1	Coastal prairie, Marshes and swamps (lake margins), Valley and foothill grassland. 0 - 625 m. perennial rhizomatous herb. Blooms May-Sep	**Not Expected**; Some suitable habitat for the species occurs within the study area, although this species was not observed during the reconnaissance survey and there are no documented occurrences of the species within San Mateo County (CDFW 2022a, Calflora 2022).	**Not Expected**; Some suitable habitat for the species occurs within the study area, although this species was not observed during the reconnaissance survey and there are no documented occurrences of the species within San Mateo County (CDFW 2022a, Calflora 2022).	**Not Expected**; Some suitable habitat for the species occurs within the study area, although this species was not observed during the reconnaissance survey and there are no documented occurrences of the species within San Mateo County (CDFW 2022a, Calflora 2022).
Centromadia parryi ssp. *congdonii* Congdon's tarplant	None/None G3T1T2/S1S2 1B.1	Annual herb. Valley and foothill grassland. Alkaline soils sometimes described as heavy white clay. Elevations: 0-755ft. (0-230m.) Blooms May-Oct (Nov).	**Not Expected**; Valley and foothill grasslands are not present within the study area and there are no documented occurrences within five miles (CDFW 2022a, Calflora 2022).	**Not Expected**; Valley and foothill grasslands are not present within the study area and there are no documented occurrences within five miles (CDFW 2022a, Calflora 2022).	**Not Expected**; Valley and foothill grasslands are not present within the study area and there are no documented occurrences within five miles (CDFW 2022a, Calflora 2022).
Centromadia parryi ssp. *parryi* pappose tarplant	None/None G3T2/S2 1B.2	Chaparral, Coastal prairie, Meadows and seeps, Marshes and swamps (coastal salt), Valley and foothill grassland (vernally mesic). often alkaline. 0 - 420 m. annual herb. Blooms May-Nov	**Low Potential**; Some marginally suitable habitat for the species occurs within the tidal salt marshes along the shoreline in the study area. However, only one occurrence of this species is documented within in the vicinity of the study area and is on the coastline north of the city of Pacifica approximately five miles away (CDFW 2022a).	**Low Potential**; Some marginally suitable habitat for the species occurs within the tidal salt marshes along the shoreline in the study area. However, only one occurrence of this species is documented within in the vicinity of the study area and is on the coastline north of the city of Pacifica approximately five miles away (CDFW 2022a).	**Low Potential**; Some marginally suitable habitat for the species occurs within the tidal salt marshes along the shoreline in the study area. However, only one occurrence of this species is documented within in the vicinity of the study area and is on the coastline north of the city of Pacifica approximately five miles away (CDFW 2022a).
Chloropyron maritimum ssp. *palustre* Point Reyes salty bird's-beak	None/None G4?T2/S2 1B.2	Marshes and swamps (coastal salt). 0 - 10 m. annual herb (hemiparasitic). Blooms Jun-Oct	**Moderate Potential**; Potentially suitable habitat for this species occurs within the tidal salt marshes along the shoreline in the study area. Although this species was not observed during the reconnaissance surveys, coastal salt marsh with associated species including *Salicornia*, *Distichlis*, *Jaumea*, and *Spartina* was observed along the San Francisco Bay shoreline.	**Moderate Potential**; Potentially suitable habitat for this species occurs within the tidal salt marshes along the shoreline in the study area. Although this species was not observed during the reconnaissance surveys, coastal salt marsh with associated species including *Salicornia*, *Distichlis*, *Jaumea*, and *Spartina* was observed along the San Francisco Bay shoreline.	**Moderate Potential**; Potentially suitable habitat for this species occurs within the tidal salt marshes along the shoreline in the study area. Although this species was not observed during the reconnaissance surveys, coastal salt marsh with associated species including *Salicornia*, *Distichlis*, *Jaumea*, and *Spartina* was observed along the San Francisco Bay shoreline.
Chorizanthe cuspidata var. *cuspidata* San Francisco Bay spineflower	None/None G2T1/S1 1B.2	Coastal bluff scrub, Coastal dunes, Coastal prairie, Coastal scrub. sandy. 3 - 215 m. annual herb. Blooms Apr-Jul (Aug)	**Not Expected**; Some suitable habitat for the species occurs within the study area, although this species was not observed during the reconnaissance survey. One documented occurrence of the species is located approximately five miles from the study area (2022a) on the coastline near Pacifica.	**Not Expected**; Some suitable habitat for the species occurs within the study area, although this species was not observed during the reconnaissance survey. One documented occurrence of the species is located approximately five miles from the study area (2022a) on the coastline near Pacifica.	**Not Expected**; Some suitable habitat for the species occurs within the study area, although this species was not observed during the reconnaissance survey. One documented occurrence of the species is located approximately five miles from the study area (2022a) on the coastline near Pacifica.
Chorizanthe robusta var. *robusta* robust spineflower	FE/None G2T1/S1 1B.1	Annual herb. Chaparral, cismontane woodland, coastal dunes, coastal scrub. Gravelly (sometimes), sandy (sometimes). Elevations: 10-985ft. (3-300m.) Blooms Apr-Sep.	**Not Expected**; Some marginal coastal scrub habitat occurs along the shoreline within the study area; however, it is surrounded by heavy development and is disconnected from dunes habitat. One documented occurrence of the species is located within five miles of the study area (2022a), though it was observed in 1913 approximately 4.7 miles to the northwest of the study area.	**Not Expected**; Some marginal coastal scrub habitat occurs along the shoreline within the study area; however, it is surrounded by heavy development and is disconnected from dunes habitat. One documented occurrence of the species is located within five miles of the study area (2022a), though it was observed in 1913 approximately 4.7 miles to the northwest of the study area.	**Not Expected**; Some marginal coastal scrub habitat occurs along the shoreline within the study area; however, it is surrounded by heavy development and is disconnected from dunes habitat. One documented occurrence of the species is located within five miles of the study area (2022a), though it was observed in 1913 approximately 4.7 miles to the northwest of the study area.

Scientific Name Common Name	Status Fed/State ESA CRPR	Habitat Requirements	Alternative 1	Alternative 2	Alternatives 3, 4, & 5
Cirsium andrewsii Franciscan thistle	None/None G3/S3 1B.2	Broadleafed upland forest, Coastal bluff scrub, Coastal prairie, Coastal scrub. mesic, sometimes serpentinite. 0 - 150 m. perennial herb. Blooms Mar-Jul	**Not Expected**; Some marginal coastal scrub habitat occurs along the shoreline within the study area; however, it is surrounded by heavy development and is disconnected from dunes habitat. There are no documented occurrences of the species within five miles (CDFW 2022a, Calflora 2022).	**Not Expected**; Some marginal coastal scrub habitat occurs along the shoreline within the study area; however, it is surrounded by heavy development and is disconnected from dunes habitat. There are no documented occurrences of the species within five miles (CDFW 2022a, Calflora 2022).	**Not Expected**; Some marginal coastal scrub habitat occurs along the shoreline within the study area; however, it is surrounded by heavy development and is disconnected from dunes habitat. There are no documented occurrences of the species within five miles (CDFW 2022a, Calflora 2022).
Cirsium fontinale var. *fontinale* fountain thistle	FE/SCE G2T1/S1 1B.1	Perennial herb. Chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland. Seeps, serpentinite. Elevations: 150-575ft. (45-175m.) Blooms (Apr)May-Oct.	**Not Expected**; Chaparral, cismontane woodland, meadows and seeps and valley and foothill grassland habitats do not exist within the study area. One documented occurrence of the species is located within five miles of the study area (2022a), though it was observed in the serpentine seeps in hillsides in the Lower Crystal Springs Reservoir open space approximately 4.5 miles to the south of the study area.	**Not Expected**; Chaparral, cismontane woodland, meadows and seeps and valley and foothill grassland habitats do not exist within the study area. One documented occurrence of the species is located within five miles of the study area (2022a), though it was observed in the serpentine seeps in hillsides in the Lower Crystal Springs Reservoir open space approximately 4.5 miles to the south of the study area.	**Not Expected**; Chaparral, cismontane woodland, meadows and seeps and valley and foothill grassland habitats do not exist within the study area. One documented occurrence of the species is located within five miles of the study area (2022a), though it was observed in the serpentine seeps in hillsides in the Lower Crystal Springs Reservoir open space approximately 4.5 miles to the south of the study area.
Cirsium occidentale var. *compactum* compact cobwebby thistle	None/None G3G4T2/S2 1B.2	Perennial herb. Chaparral, coastal dunes, coastal prairie, coastal scrub. On dunes and on clay in chaparral; also in grassland. Elevations: 15-490ft. (5-150m.) Blooms Apr-Jun.	**Not Expected**; Some marginal coastal scrub habitat occurs along the shoreline within the study area; however, it is surrounded by heavy development and is disconnected from dunes habitat. There are no documented occurrences within five miles (CDFW 2022a, Calflora 2022).	**Not Expected**; Some marginal coastal scrub habitat occurs along the shoreline within the study area; however, it is surrounded by heavy development and is disconnected from dunes habitat. There are no documented occurrences within five miles (CDFW 2022a, Calflora 2022).	**Not Expected**; Some marginal coastal scrub habitat occurs along the shoreline within the study area; however, it is surrounded by heavy development and is disconnected from dunes habitat. There are no documented occurrences within five miles (CDFW 2022a, Calflora 2022).
Collinsia corymbosa round-headed Chinese-houses	None/None G1/S1 1B.2	Coastal dunes. 0 - 20 m. annual herb. Blooms Apr-Jun	**Not Expected**; Some marginal coastal scrub habitat occurs along the shoreline within the study area; however, it is surrounded by heavy development and is disconnected from dunes habitat. Coastal dunes do not occur within the study area and there are no documented occurrences within five miles (CDFW 2022a, Calflora 2022).	**Not Expected**; Some marginal coastal scrub habitat occurs along the shoreline within the study area; however, it is surrounded by heavy development and is disconnected from dunes habitat. Coastal dunes do not occur within the study area and there are no documented occurrences within five miles (CDFW 2022a, Calflora 2022).	**Not Expected**; Some marginal coastal scrub habitat occurs along the shoreline within the study area; however, it is surrounded by heavy development and is disconnected from dunes habitat. Coastal dunes do not occur within the study area and there are no documented occurrences within five miles (CDFW 2022a, Calflora 2022).
Collinsia multicolor San Francisco collinsia	None/None G2/S2 1B.2	Annual herb. Closed-cone coniferous forest, coastal scrub. Serpentinite (sometimes). Elevations: 100-900ft. (30-275m.) Blooms (Feb)Mar-May.	**Not Expected;** Closed-cone coniferous forest habitats are not present within the study area. Some marginal coastal scrub habitat occurs along the shoreline within the study area; however, it is surrounded by heavy development. There are eight documented occurrences of the species within five miles of the study area (CDFW 2022a), though they are all documented inland of the study area in relatively undisturbed habitats.	**Not Expected;** Closed-cone coniferous forest habitats are not present within the study area. Some marginal coastal scrub habitat occurs along the shoreline within the study area; however, it is surrounded by heavy development. There are eight documented occurrences of the species within five miles of the study area (CDFW 2022a), though they are all documented inland of the study area in relatively undisturbed habitats.	**Not Expected;** Closed-cone coniferous forest habitats are not present within the study area. Some marginal coastal scrub habitat occurs along the shoreline within the study area; however, it is surrounded by heavy development. There are eight documented occurrences of the species within five miles of the study area (CDFW 2022a), though they are all documented inland of the study area in relatively undisturbed habitats.
Dirca occidentalis western leatherwood	None/None G2/S2 1B.2	Broadleafed upland forest, Closed-cone coniferous forest, Chaparral, Cismontane woodland, North Coast coniferous forest, Riparian forest, Riparian woodland. mesic. 25 - 425 m. perennial deciduous shrub. Blooms Jan-Mar(Apr)	**Not Expected**; Upland forest, chaparral, cismontane woodland, closed-cone coniferous forest, north coast coniferous forest, riparian forest, riparian woodland habitats do not exist within the study area. There are 13 documented occurrences in the CNDDB (2022a) though all occur within inland, forested and scrub habitats near the open space surrounding San Andreas Lake and Lower Crystal Springs Reservoir to the west and southwest of the study area.	**Not Expected**; Upland forest, chaparral, cismontane woodland, closed-cone coniferous forest, north coast coniferous forest, riparian forest, riparian woodland habitats do not exist within the study area. There are 13 documented occurrences in the CNDDB (2022a) though all occur within inland, forested and scrub habitats near the open space surrounding San Andreas Lake and Lower Crystal Springs Reservoir to the west and southwest of the study area.	**Not Expected**; Upland forest, chaparral, cismontane woodland, closed-cone coniferous forest, north coast coniferous forest, riparian forest, riparian woodland habitats do not exist within the study area. There are 13 documented occurrences in the CNDDB (2022a) though all occur within inland, forested and scrub habitats near the open space surrounding San Andreas Lake and Lower Crystal Springs Reservoir to the west and southwest of the study area.
Eriophyllum latilobum San Mateo woolly sunflower	FE/SCE G1/S1 1B.1	Perennial herb. Cismontane woodland, coastal scrub, lower montane coniferous forest. Often on roadcuts; found on and off of serpentine. Elevations: 150-1085ft. (45-330m.) Blooms May-Jun.	**Not Expected**; Cismontane woodland and lower montane coniferous forest habitats do not exist within the study area. There are six documented occurrences in the CNDDB (2022a) though all occur within inland, forested habitats near the open space surrounding San Andreas Lake and Lower Crystal Springs Reservoir to the west and southwest of the study area.	**Not Expected**; Cismontane woodland and lower montane coniferous forest habitats do not exist within the study area. There are six documented occurrences in the CNDDB (2022a) though all occur within inland, forested habitats near the open space surrounding San Andreas Lake and Lower Crystal Springs Reservoir to the west and southwest of the study area.	**Not Expected**; Cismontane woodland and lower montane coniferous forest habitats do not exist within the study area. There are six documented occurrences in the CNDDB (2022a) though all occur within inland, forested habitats near the open space surrounding San Andreas Lake and Lower Crystal Springs Reservoir to the west and southwest of the study area.
Eryngium aristulatum var. *hooveri* Hoover's button-celery	None/None G5T1/S1 1B.1	Annual/perennial herb. Vernal pools. Alkaline depressions, vernal pools, roadside ditches and other wet places near the coast. Elevations: 10-150ft. (3-45m.) Blooms (Jun)Jul(Aug).	**Not Expected**; Vernal pools are not present within the study area and no occurrences are documented within five miles (CDFW 2022a, Calflora 2022).	**Not Expected**; Vernal pools are not present within the study area and no occurrences are documented within five miles (CDFW 2022a, Calflora 2022).	**Not Expected**; Vernal pools are not present within the study area and no occurrences are documented within five miles (CDFW 2022a, Calflora 2022).

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Eryngium jepsonii Jepson's coyote-thistle	None/None G2/S2 1B.2	Perennial herb. Valley and foothill grassland, vernal pools. Clay. Elevations: 10-985ft. (3-300m.) Blooms Apr-Aug.	**Not Expected**; Valley and foothill grasslands and vernal pools do not occur within the study area and there are no documented occurrences of the species within five miles (CDFW 2022a, Calflora 2022).	**Not Expected**; Valley and foothill grasslands and vernal pools do not occur within the study area and there are no documented occurrences of the species within five miles (CDFW 2022a, Calflora 2022).	**Not Expected**; Valley and foothill grasslands and vernal pools do not occur within the study area and there are no documented occurrences of the species within five miles (CDFW 2022a, Calflora 2022).
Fritillaria biflora var. *ineziana* Hillsborough chocolate lily	None/None G3G4T1/S1 1B.1	Perennial bulbiferous herb. Cismontane woodland, valley and foothill grassland. Probably only on serpentine; most recent site is in serpentine grassland. Elevations: 490-490ft. (150-150m.) Blooms Mar-Apr.	**Not Expected**; Cismontane woodland and valley and foothill grasslands do not occur within the study area, and the elevations throughout the study area are outside of this species elevation range. There are two occurrences of the species documented within five miles of the study area (CDFW 2022a).	**Not Expected**; Cismontane woodland and valley and foothill grasslands do not occur within the study area, and the elevations throughout the study area are outside of this species elevation range. There are two occurrences of the species documented within five miles of the study area (CDFW 2022a).	**Not Expected**; Cismontane woodland and valley and foothill grasslands do not occur within the study area, and the elevations throughout the study area are outside of this species elevation range. There are two occurrences of the species documented within five miles of the study area (CDFW 2022a).
Fritillaria liliacea fragrant fritillary	None/None G2/S2 1B.2	Cismontane woodland, Coastal prairie, Coastal scrub, Valley and foothill grassland. Often serpentinite. 3 - 410 m. perennial bulbiferous herb. Blooms Feb-Apr	**Not Expected**; Cismontane woodlands, coastal prairie, and valley and foothill grassland habitats do not occur within the study area, nor do serpentine soils. There are four documented occurrences of the species within five miles of the study area (CDFW 2022a), although they are located inland of the shoreline within high quality serpentine grasslands. All these occurrences are at least two miles from the study area, within open areas with limited disturbance.	**Not Expected**; Cismontane woodlands, coastal prairie, and valley and foothill grassland habitats do not occur within the study area, nor do serpentine soils. There are four documented occurrences of the species within five miles of the study area (CDFW 2022a), although they are located inland of the shoreline within high quality serpentine grasslands. All these occurrences are at least two miles from the study area, within open areas with limited disturbance.	**Not Expected**; Cismontane woodlands, coastal prairie, and valley and foothill grassland habitats do not occur within the study area, nor do serpentine soils. There are four documented occurrences of the species within five miles of the study area (CDFW 2022a), although they are located inland of the shoreline within high quality serpentine grasslands. All these occurrences are at least two miles from the study area, within open areas with limited disturbance.
Gilia capitata ssp. *chamissonis* blue coast gilia	None/None G5T2/S2 1B.1	Coastal dunes, Coastal scrub. 2 - 200 m. annual herb. Blooms Apr-Jul	**Not Expected**; Some marginal coastal scrub habitat occurs along the shoreline within the study area; however, it is surrounded by heavy development and is disconnected from dunes habitat. There are no documented occurrences of the species within five miles (CDFW 2022a, Calflora 2022).	**Not Expected**; Some marginal coastal scrub habitat occurs along the shoreline within the study area; however, it is surrounded by heavy development and is disconnected from dunes habitat. There are no documented occurrences of the species within five miles (CDFW 2022a, Calflora 2022).	**Not Expected**; Some marginal coastal scrub habitat occurs along the shoreline within the study area; however, it is surrounded by heavy development and is disconnected from dunes habitat. There are no documented occurrences of the species within five miles (CDFW 2022a, Calflora 2022).
Gilia millefoliata dark-eyed gilia	None/None G2/S2 1B.2	Coastal dunes. 2 - 30 m. annual herb. Blooms Apr-Jul	**Not Expected**; Some marginal coastal scrub habitat occurs along the shoreline within the study area; however, it is surrounded by heavy development and is disconnected from dunes habitat. There are no documented occurrences of the species within five miles (CDFW 2022a, Calflora 2022).	**Not Expected**; Some marginal coastal scrub habitat occurs along the shoreline within the study area; however, it is surrounded by heavy development and is disconnected from dunes habitat. There are no documented occurrences of the species within five miles (CDFW 2022a, Calflora 2022).	**Not Expected**; Some marginal coastal scrub habitat occurs along the shoreline within the study area; however, it is surrounded by heavy development and is disconnected from dunes habitat. There are no documented occurrences of the species within five miles (CDFW 2022a, Calflora 2022).
Helianthella castanea Diablo helianthella	None/None G2/S2 1B.2	Perennial herb. Broadleafed upland forest, chaparral, cismontane woodland, coastal scrub, riparian woodland, valley and foothill grassland. Azonal soils, Partial shade (often), rocky (usually). Elevations: 195-4265ft. (60-1300m.) Blooms Mar-Jun.	**Not Expected**; Forest, woodland, and grassland habitats do not occur within the study area. One occurrence of the species is documented within five miles of the study area (CDFW 2022a), although it was observed in grasslands on the ridgeline of San Bruno Mountain between South San Francisco and Brisbane approximately 4.3 miles from the study area.	**Not Expected**; Forest, woodland, and grassland habitats do not occur within the study area. One occurrence of the species is documented within five miles of the study area (CDFW 2022a), although it was observed in grasslands on the ridgeline of San Bruno Mountain between South San Francisco and Brisbane approximately 4.3 miles from the study area.	**Not Expected**; Forest, woodland, and grassland habitats do not occur within the study area. One occurrence of the species is documented within five miles of the study area (CDFW 2022a), although it was observed in grasslands on the ridgeline of San Bruno Mountain between South San Francisco and Brisbane approximately 4.3 miles from the study area.
Hemizonia congesta ssp. *congesta* congested-headed hayfield tarplant	None/None G5T2/S2 1B.2	Valley and foothill grassland. sometimes roadsides. 20 - 560 m. annual herb. Blooms Apr-Nov	**Not Expected**; Open valley and foothills grassland habitat does not occur within the study area. One occurrence of the species is documented within five miles of the study area (CDFW 2022a), although it was observed in 1909 in the summit between Colma and San Bruno, approximately 4.1 miles northwest of the study area.	**Not Expected**; Open valley and foothills grassland habitat does not occur within the study area. One occurrence of the species is documented within five miles of the study area (CDFW 2022a), although it was observed in 1909 in the summit between Colma and San Bruno, approximately 4.1 miles northwest of the study area.	**Not Expected**; Open valley and foothills grassland habitat does not occur within the study area. One occurrence of the species is documented within five miles of the study area (CDFW 2022a), although it was observed in 1909 in the summit between Colma and San Bruno, approximately 4.1 miles northwest of the study area.
Hesperevax sparsiflora var. *brevifolia* short-leaved evax	None/None G4T3/S2 1B.2	Coastal bluff scrub (sandy), Coastal dunes, Coastal prairie. 0 - 215 m. annual herb. Blooms Mar-Jun	**Not Expected**; Some marginal coastal habitat occurs along the shoreline within the study area with sandy soils, however it is surrounded by heavy development and is disconnected from dunes habitat. One documented occurrences of the species is within five miles of the study area (2022a), though it is located inland, in the open scrub habitats in the Lower Crystal Springs Reservoir open space approximately 4.5 miles to the south.	**Not Expected**; Some marginal coastal habitat occurs along the shoreline within the study area with sandy soils, however it is surrounded by heavy development and is disconnected from dunes habitat. One documented occurrences of the species is within five miles of the study area (2022a), though it is located inland, in the open scrub habitats in the Lower Crystal Springs Reservoir open space approximately 4.5 miles to the south.	**Not Expected**; Some marginal coastal habitat occurs along the shoreline within the study area with sandy soils, however it is surrounded by heavy development and is disconnected from dunes habitat. One documented occurrences of the species is within five miles of the study area (2022a), though it is located inland, in the open scrub habitats in the Lower Crystal Springs Reservoir open space approximately 4.5 miles to the south.

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Hesperolinon congestum Marin western flax	FT/SCT G1/S1 1B.1	Annual herb. Chaparral, valley and foothill grassland. In serpentine barrens and in serpentine grassland and chaparral. Elevations: 15-1215ft. (5-370m.) Blooms Apr-Jul.	**Not Expected**; Chaparral and valley and foothill grassland habitats do not exist within the study area. There are four documented occurrences of the species within five miles of the study area (2022a), though all occur within inland, open grassland habitats in the Lower Crystal Springs Reservoir open space to the south of the study area. All these occurrences are at least two miles from the study area, within open areas with limited disturbance.	**Not Expected**; Chaparral and valley and foothill grassland habitats do not exist within the study area. There are four documented occurrences of the species within five miles of the study area (2022a), though all occur within inland, open grassland habitats in the Lower Crystal Springs Reservoir open space to the south of the study area. All these occurrences are at least two miles from the study area, within open areas with limited disturbance.	**Not Expected**; Chaparral and valley and foothill grassland habitats do not exist within the study area. There are four documented occurrences of the species within five miles of the study area (2022a), though all occur within inland, open grassland habitats in the Lower Crystal Springs Reservoir open space to the south of the study area. All these occurrences are at least two miles from the study area, within open areas with limited disturbance.
Heteranthera dubia water star-grass	None/None G5/S2 2B.2	Perennial herb (aquatic). Marshes and swamps. Alkaline, still or slow-moving water. Requires a pH of 7 or higher, usually in slightly eutrophic waters. Elevations: 100-4905ft. (30-1495m.) Blooms Jul-Oct.	**Not Expected**; The study area is lower than the elevation range of the species and there are no documented occurrences of the species within five miles (CDFW 2022a, Calflora 2022).	**Not Expected**; The study area is lower than the elevation range of the species and there are no documented occurrences of the species within five miles (CDFW 2022a, Calflora 2022).	**Not Expected**; The study area is lower than the elevation range of the species and there are no documented occurrences of the species within five miles (CDFW 2022a, Calflora 2022).
Hoita strobilina Loma Prieta hoita	None/None G2?/S2? 1B.1	Perennial herb. Chaparral, cismontane woodland, riparian woodland. Serpentine; mesic sites. Elevations: 100-2820ft. (30-860m.) Blooms May-Jul(Aug-Oct).	**Not Expected**; Chaparral, cismontane woodland, and riparian woodland habitats do not exist in the study area and there are no documented occurrences of the species within five miles (CDFW 2022a, Calflora 2022).	**Not Expected**; Chaparral, cismontane woodland, and riparian woodland habitats do not exist in the study area and there are no documented occurrences of the species within five miles (CDFW 2022a, Calflora 2022).	**Not Expected**; Chaparral, cismontane woodland, and riparian woodland habitats do not exist in the study area and there are no documented occurrences of the species within five miles (CDFW 2022a, Calflora 2022).
Horkelia cuneata var. *sericea* Kellogg's horkelia	None/None G4T1?/S1? 1B.1	Perennial herb. Chaparral, closed-cone coniferous forest, coastal dunes, coastal scrub. Old dunes, coastal sandhills; openings. Sandy or gravelly soils. Elevations: 35-655ft. (10-200m.) Blooms Apr-Sep.	**Not Expected**; Chaparral, coniferous forests, and coastal dunes do not occur within the study area. There is one documented occurrence of the species within five miles of the study area (CDFW 2022a), although it is located inland of the study area approximately 4.5 miles to the north.	**Not Expected**; Chaparral, coniferous forests, and coastal dunes do not occur within the study area. There is one documented occurrence of the species within five miles of the study area (CDFW 2022a), although it is located inland of the study area approximately 4.5 miles to the north.	**Not Expected**; Chaparral, coniferous forests, and coastal dunes do not occur within the study area. There is one documented occurrence of the species within five miles of the study area (CDFW 2022a), although it is located inland of the study area approximately 4.5 miles to the north.
Horkelia marinensis Point Reyes horkelia	None/None G2/S2 1B.2	Perennial herb. Coastal dunes, coastal prairie, coastal scrub. Sandy flats and dunes near coast; in grassland or scrub plant communities. Elevations: 15-2475ft. (5-755m.) Blooms May-Sep.	**Not Expected**; Some marginal coastal scrub habitat occurs along the shoreline within the study area; however, it is surrounded by heavy development and is disconnected from dunes habitat. There are two documented occurrences of the species within five miles of the study area (CDFW 2022a), although they are located inland of the study area at least two miles away and are in relatively undisturbed habitats.	**Not Expected**; Some marginal coastal scrub habitat occurs along the shoreline within the study area; however, it is surrounded by heavy development and is disconnected from dunes habitat. There are two documented occurrences of the species within five miles of the study area (CDFW 2022a), although they are located inland of the study area at least two miles away and are in relatively undisturbed habitats.	**Not Expected**; Some marginal coastal scrub habitat occurs along the shoreline within the study area; however, it is surrounded by heavy development and is disconnected from dunes habitat. There are two documented occurrences of the species within five miles of the study area (CDFW 2022a), although they are located inland of the study area at least two miles away and are in relatively undisturbed habitats.
Hypogymnia schizidiata island tube lichen	None/None G2G3/S2 1B.3	Foliose lichen. Chaparral, closed-cone coniferous forest. On bark and wood of hardwoods and conifers. Elevations: 1180-1330ft. (360-405m.)	**Not Expected**; Chaparral and closed-cone coniferous forest habitats do not exist in the study area and there are no documented occurrences of the species within five miles (CDFW 2022a, Calflora 2022).	**Not Expected**; Chaparral and closed-cone coniferous forest habitats do not exist in the study area and there are no documented occurrences of the species within five miles (CDFW 2022a, Calflora 2022).	**Not Expected**; Chaparral and closed-cone coniferous forest habitats do not exist in the study area and there are no documented occurrences of the species within five miles (CDFW 2022a, Calflora 2022).
Lasthenia californica ssp. *macrantha* perennial goldfields	None/None G3T2/S2 1B.2	Coastal bluff scrub, Coastal dunes, Coastal scrub. 5 - 520 m. perennial herb. Blooms Jan-Nov	**Not Expected**; Some marginal coastal scrub habitat occurs along the shoreline within the study area; however, it is surrounded by heavy development and is disconnected from dunes habitat. There are no documented occurrences of the species within five miles (CDFW 2022a, Calflora 2022).	**Not Expected**; Some marginal coastal scrub habitat occurs along the shoreline within the study area; however, it is surrounded by heavy development and is disconnected from dunes habitat. There are no documented occurrences of the species within five miles (CDFW 2022a, Calflora 2022).	**Not Expected**; Some marginal coastal scrub habitat occurs along the shoreline within the study area; however, it is surrounded by heavy development and is disconnected from dunes habitat. There are no documented occurrences of the species within five miles (CDFW 2022a, Calflora 2022).
Lasthenia conjugens Contra Costa goldfields	FE/None G1/S1 1B.1	Cismontane woodland, Playas (alkaline), Valley and foothill grassland, Vernal pools. mesic. 0 - 470 m. annual herb. Blooms Mar-Jun	**Not Expected**; Cismontane woodlands, playas, and valley and foothill grasslands or vernal pool habitats do not exist in the study area and there are no documented occurrences of the species within five miles (CDFW 2022a, Calflora 2022).	**Not Expected**; Cismontane woodlands, playas, and valley and foothill grasslands or vernal pool habitats do not exist in the study area and there are no documented occurrences of the species within five miles (CDFW 2022a, Calflora 2022).	**Not Expected**; Cismontane woodlands, playas, and valley and foothill grasslands or vernal pool habitats do not exist in the study area and there are no documented occurrences of the species within five miles (CDFW 2022a, Calflora 2022).
Layia carnosa beach layia	FE/SCE G2/S2 1B.1	Annual herb. Coastal dunes, coastal scrub. On sparsely vegetated, semi-stabilized dunes, usually behind foredunes. Elevations: 0-195ft. (0-60m.) Blooms Mar-Jul.	**Not Expected**; Some marginal coastal scrub habitat occurs along the shoreline within the study area; however, it is surrounded by heavy development and is disconnected from dunes habitat. There are no documented occurrences of the species within five miles of the study area (CDFW 2022a, Calflora 2022).	**Not Expected**; Some marginal coastal scrub habitat occurs along the shoreline within the study area; however, it is surrounded by heavy development and is disconnected from dunes habitat. There are no documented occurrences of the species within five miles of the study area (CDFW 2022a, Calflora 2022).	**Not Expected**; Some marginal coastal scrub habitat occurs along the shoreline within the study area; however, it is surrounded by heavy development and is disconnected from dunes habitat. There are no documented occurrences of the species within five miles of the study area (CDFW 2022a, Calflora 2022).

Scientific Name Common Name	Status Fed/State ESA CRPR	Habitat Requirements	Alternative 1	Alternative 2	Alternatives 3, 4, & 5
Leptosiphon croceus coast yellow leptosiphon	None/SCE G1/S1 1B.1	Annual herb. Coastal bluff scrub, coastal prairie. Elevations: 35-490ft. (10-150m.) Blooms Apr-Jun.	**Not Expected**; Some marginal coastal scrub habitat occurs along the shoreline within the study area; however, it is surrounded by heavy development. There are no documented occurrences of the species within five miles (CDFW 2022a, Calflora 2022).	**Not Expected**; Some marginal coastal scrub habitat occurs along the shoreline within the study area; however, it is surrounded by heavy development. There are no documented occurrences of the species within five miles (CDFW 2022a, Calflora 2022).	**Not Expected**; Some marginal coastal scrub habitat occurs along the shoreline within the study area; however, it is surrounded by heavy development. There are no documented occurrences of the species within five miles (CDFW 2022a, Calflora 2022).
Leptosiphon rosaceus rose leptosiphon	None/None G1/S1 1B.1	Coastal bluff scrub. 0 - 100 m. annual herb. Blooms Apr-Jul	**Not Expected**; Some marginal coastal scrub habitat occurs along the shoreline within the study area; however, it is surrounded by heavy development. There are no documented occurrences of the species within five miles (CDFW 2022a, Calflora 2022).	**Not Expected**; Some marginal coastal scrub habitat occurs along the shoreline within the study area; however, it is surrounded by heavy development. There are no documented occurrences of the species within five miles (CDFW 2022a, Calflora 2022).	**Not Expected**; Some marginal coastal scrub habitat occurs along the shoreline within the study area; however, it is surrounded by heavy development. There are no documented occurrences of the species within five miles (CDFW 2022a, Calflora 2022).
Lessingia arachnoidea Crystal Springs lessingia	None/None G2/S2 1B.2	Cismontane woodland, Coastal scrub, Valley and foothill grassland. serpentinite, often roadsides. 60 - 200 m. annual herb. Blooms Jul-Oct	**Not Expected**; Cismontane woodland and valley and foothill grassland habitats do not exist within the study area. There are five documented occurrences of the species within five miles of the study area (2022a), though all occur within inland, open grassland habitats in the Lower Crystal Springs Reservoir open space to the south of the study area. All these occurrences are at least two miles from the study area, within open areas with limited disturbance.	**Not Expected**; Cismontane woodland and valley and foothill grassland habitats do not exist within the study area. There are five documented occurrences of the species within five miles of the study area (2022a), though all occur within inland, open grassland habitats in the Lower Crystal Springs Reservoir open space to the south of the study area. All these occurrences are at least two miles from the study area, within open areas with limited disturbance.	**Not Expected**; Cismontane woodland and valley and foothill grassland habitats do not exist within the study area. There are five documented occurrences of the species within five miles of the study area (2022a), though all occur within inland, open grassland habitats in the Lower Crystal Springs Reservoir open space to the south of the study area. All these occurrences are at least two miles from the study area, within open areas with limited disturbance.
Lessingia germanorum San Francisco lessingia	FE/SCE G1/S1 1B.1	Annual herb. Coastal scrub. On remnant dunes. Open sandy soils relatively free of competing plants. Elevations: 80-360ft. (25-110m.) Blooms (Jun)Jul-Nov.	**Not Expected**; Some marginal coastal scrub habitat occurs along the shoreline within the study area; however, it is surrounded by heavy development and is disconnected from dunes habitat. There are no documented occurrences of the species within five miles of the study area (CDFW 2022a, Calflora 2022).	**Not Expected**; Some marginal coastal scrub habitat occurs along the shoreline within the study area; however, it is surrounded by heavy development and is disconnected from dunes habitat. There are no documented occurrences of the species within five miles of the study area (CDFW 2022a, Calflora 2022).	**Not Expected**; Some marginal coastal scrub habitat occurs along the shoreline within the study area; however, it is surrounded by heavy development and is disconnected from dunes habitat. There are no documented occurrences of the species within five miles of the study area (CDFW 2022a, Calflora 2022).
Limnanthes douglasii ssp. *ornduffii* Ornduff's meadowfoam	None/None G4T1/S1 1B.1	Annual herb. Meadows and seeps. Elevations: 35-65ft. (10-20m.) Blooms Nov-May.	**Not Expected**; Meadow and seep habitats do not occur within the study area and there are no documented occurrences of the species within five miles of the study area (CDFW 2022a, Calflora 2022).	**Not Expected**; Meadow and seep habitats do not occur within the study area and there are no documented occurrences of the species within five miles of the study area (CDFW 2022a, Calflora 2022).	**Not Expected**; Meadow and seep habitats do not occur within the study area and there are no documented occurrences of the species within five miles of the study area (CDFW 2022a, Calflora 2022).
Malacothamnus arcuatus arcuate bush-mallow	None/None G2Q/S2 1B.2	Perennial deciduous shrub. Chaparral, cismontane woodland. Gravelly alluvium. Elevations: 50-1165ft. (15-355m.) Blooms Apr-Sep.	**Not Expected**; Chaparral and cismontane woodland do not occur within the study area. There are seven occurrences of the species documented within five miles of the study area (CDFW 2022a), though all occur within inland, chaparral and woodland habitats in the Coastal Range west of the study area.	**Not Expected**; Chaparral and cismontane woodland do not occur within the study area. There are seven occurrences of the species documented within five miles of the study area (CDFW 2022a), though all occur within inland, chaparral and woodland habitats in the Coastal Range west of the study area.	**Not Expected**; Chaparral and cismontane woodland do not occur within the study area. There are seven occurrences of the species documented within five miles of the study area (CDFW 2022a), though all occur within inland, chaparral and woodland habitats in the Coastal Range west of the study area.
Monardella sinuata ssp. *nigrescens* northern curly-leaved monardella	None/None G3T2/S2 1B.2	Annual herb. Chaparral, coastal dunes, coastal scrub, lower montane coniferous forest. Sandy soils. Elevations: 0-985ft. (0-300m.) Blooms (Apr)May-Jul(Aug-Sep).	**Not Expected**; Some marginal coastal scrub habitat with sandy soils occurs along the shoreline within the study area, however it is surrounded by heavy development and is disconnected from dunes habitat. There are no documented occurrences of the species within five miles of the study area (CDFW 2022a, Calflora 2022).	**Not Expected**; Some marginal coastal scrub habitat with sandy soils occurs along the shoreline within the study area, however it is surrounded by heavy development and is disconnected from dunes habitat. There are no documented occurrences of the species within five miles of the study area (CDFW 2022a, Calflora 2022).	**Not Expected**; Some marginal coastal scrub habitat with sandy soils occurs along the shoreline within the study area, however it is surrounded by heavy development and is disconnected from dunes habitat. There are no documented occurrences of the species within five miles of the study area (CDFW 2022a, Calflora 2022).
Monolopia gracilens woodland woollythreads	None/None G3/S3 1B.2	Annual herb. Broadleafed upland forest, chaparral, cismontane woodland, north coast coniferous forest, valley and foothill grassland. Grassy sites, in openings; sandy to rocky soils. Often seen on serpentine after burns but may have only weak affinity to serpentine. Elevations: 330-3935ft. (100-1200m.) Blooms (Feb)Mar-Jul.	**Not Expected**; Forest, woodland and grassland habitats do not occur within the study area. There is one occurrence of the species documented within the *Montara Mountain* USGS quadrangle (CNDDB 2022a) approximately 3.5 miles southwest of the study area.	**Not Expected**; Forest, woodland and grassland habitats do not occur within the study area. There is one occurrence of the species documented within the *Montara Mountain* USGS quadrangle (CNDDB 2022a) approximately 3.5 miles southwest of the study area.	**Not Expected**; Forest, woodland and grassland habitats do not occur within the study area. There is one occurrence of the species documented within the *Montara Mountain* USGS quadrangle (CNDDB 2022a) approximately 3.5 miles southwest of the study area.

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Pentachaeta bellidiflora white-rayed pantachaeta	FE/SCE G1/S1 1B.1	Annual herb. Cismontane woodland, valley and foothill grassland. Open dry rocky slopes and grassy areas, often on soils derived from serpentine bedrock. Elevations: 115-2035ft. (35-620m.) Blooms Mar-May.	**Not Expected**; Woodland and grassland habitats do not occur within the study area, nor do rocky slopes or serpentine soils. The study is also lower than the elevation range of the species and although there are three documented occurrences of the species within five miles of the study area (CDFW 2022a), they are all located greater than three miles away in relatively undisturbed habitats.	**Not Expected**; Woodland and grassland habitats do not occur within the study area, nor do rocky slopes or serpentine soils. The study is also lower than the elevation range of the species and although there are three documented occurrences of the species within five miles of the study area (CDFW 2022a), they are all located greater than three miles away in relatively undisturbed habitats.	**Not Expected**; Woodland and grassland habitats do not occur within the study area, nor do rocky slopes or serpentine soils. The study is also lower than the elevation range of the species and although there are three documented occurrences of the species within five miles of the study area (CDFW 2022a), they are all located greater than three miles away in relatively undisturbed habitats.
Plagiobothrys chorisianus var. *chorisianus* Choris' popcornflower	None/None G3T1Q/S1 1B.2	Annual herb. Chaparral, coastal prairie, coastal scrub. Mesic sites. Elevations: 10-525ft. (3-160m.) Blooms Mar-Jun.	**Not Expected**; Some marginal coastal scrub habitat occurs along the shoreline within the study area; however, it is surrounded by heavy development. There are three occurrences of the species documented within five miles of the study area (CDFW 2022a), though all occur within chaparral and coastal scrub habitats west of the study area. All these occurrences are at least two miles from the study area, within open areas with limited disturbance.	**Not Expected**; Some marginal coastal scrub habitat occurs along the shoreline within the study area; however, it is surrounded by heavy development. There are three occurrences of the species documented within five miles of the study area (CDFW 2022a), though all occur within chaparral and coastal scrub habitats west of the study area. All these occurrences are at least two miles from the study area, within open areas with limited disturbance.	**Not Expected**; Some marginal coastal scrub habitat occurs along the shoreline within the study area; however, it is surrounded by heavy development. There are three occurrences of the species documented within five miles of the study area (CDFW 2022a), though all occur within chaparral and coastal scrub habitats west of the study area. All these occurrences are at least two miles from the study area, within open areas with limited disturbance.
Polemonium carneum Oregon polemonium	None/None G3G4/S2 2B.2	Coastal prairie, Coastal scrub, Lower montane coniferous forest. 0 - 1830 m. perennial herb. Blooms Apr-Sep	**Not Expected**; Some marginal coastal scrub habitat occurs along the shoreline within the study area; however, it is surrounded by heavy development and is disconnected from dunes habitat. There is one occurrence of the species documented within the *Montara Mountain* USGS quadrangle (CNDDB 2022a) approximately 3.5 miles southwest of the study area.	**Not Expected**; Some marginal coastal scrub habitat occurs along the shoreline within the study area; however, it is surrounded by heavy development and is disconnected from dunes habitat. There is one occurrence of the species documented within the *Montara Mountain* USGS quadrangle (CNDDB 2022a) approximately 3.5 miles southwest of the study area.	**Not Expected**; Some marginal coastal scrub habitat occurs along the shoreline within the study area; however, it is surrounded by heavy development and is disconnected from dunes habitat. There is one occurrence of the species documented within the *Montara Mountain* USGS quadrangle (CNDDB 2022a) approximately 3.5 miles southwest of the study area.
Potentilla hickmanii Hickman's cinquefoil	FE/CE G1/S1 1B.1	Coastal bluff scrub, Closed-cone coniferous forest, Meadows and seeps (vernally mesic), Marshes and swamps (freshwater). 10 - 149 m. perennial herb. Blooms Apr-Aug	**Not Expected**; Forests, coastal bluff scrub, freshwater marshes and swamps, meadows and seep habitats do not occur within the study area and there are no documented occurrences of the species within five miles of the study area (CDFW 2022a, Calflora 2022).	**Not Expected**; Forests, coastal bluff scrub, freshwater marshes and swamps, meadows and seep habitats do not occur within the study area and there are no documented occurrences of the species within five miles of the study area (CDFW 2022a, Calflora 2022).	**Not Expected**; Forests, coastal bluff scrub, freshwater marshes and swamps, meadows and seep habitats do not occur within the study area and there are no documented occurrences of the species within five miles of the study area (CDFW 2022a, Calflora 2022).
Sagittaria sanfordii Sanford's arrowhead	None/None G3/S3 1B.2	Perennial rhizomatous herb (emergent). Marshes and swamps. In standing or slow-moving freshwater ponds, marshes, and ditches. Elevations: 0-2135ft. (0-650m.) Blooms May-Oct(Nov).	**Low Potential;** Some freshwater habitats occur within the study area and the canals and creeks running through the study area are generally slow moving aquatic habitat. While there are no documented occurrences of the species within five miles of the study area (CDFW 2022a, Calflora 2022), there is some marginal habitat present in the study area.	**Low Potential;** Some freshwater habitats occur within the study area and the canals and creeks running through the study area are generally slow moving aquatic habitat. While there are no documented occurrences of the species within five miles of the study area (CDFW 2022a, Calflora 2022), there is some marginal habitat present in the study area.	**Low Potential;** Some freshwater habitats occur within the study area and the canals and creeks running through the study area are generally slow moving aquatic habitat. While there are no documented occurrences of the species within five miles of the study area (CDFW 2022a, Calflora 2022), there is some marginal habitat present in the study area.
Sanicula maritima adobe sanicle	None/SCR G2/S2 1B.1	Perennial herb. Chaparral, coastal prairie, meadows and seeps, valley and foothill grassland. Moist clay or ultramafic soils. Elevations: 100-785ft. (30-240m.) Blooms Feb-May.	**Not Expected;** Chaparral, coastal prairie, meadows, and grassland habitats do not occur within the study area. There are no documented occurrences of the species within five miles of the study area (CDFW 2022a, Calflora 2022).	**Not Expected;** Chaparral, coastal prairie, meadows, and grassland habitats do not occur within the study area. There are no documented occurrences of the species within five miles of the study area (CDFW 2022a, Calflora 2022).	**Not Expected;** Chaparral, coastal prairie, meadows, and grassland habitats do not occur within the study area. There are no documented occurrences of the species within five miles of the study area (CDFW 2022a, Calflora 2022).
Senecio aphanactis chaparral ragwort	None/None G3/S2 2B.2	Annual herb. Chaparral, cismontane woodland, coastal scrub. Drying alkaline flats. Elevations: 50-2625ft. (15-800m.) Blooms Jan-Apr(May).	**Not Expected;** Some marginal coastal scrub habitat occurs along the shoreline within the study area; however, it is surrounded by heavy development. Chaparral, cismontane woodland habitats do not exist within the study area, nor do drying alkaline flats. There are no documented occurrences of the species within five miles of the study area (CDFW 2022a, Calflora 2022).	**Not Expected;** Some marginal coastal scrub habitat occurs along the shoreline within the study area; however, it is surrounded by heavy development. Chaparral, cismontane woodland habitats do not exist within the study area, nor do drying alkaline flats. There are no documented occurrences of the species within five miles of the study area (CDFW 2022a, Calflora 2022).	**Not Expected;** Some marginal coastal scrub habitat occurs along the shoreline within the study area; however, it is surrounded by heavy development. Chaparral, cismontane woodland habitats do not exist within the study area, nor do drying alkaline flats. There are no documented occurrences of the species within five miles of the study area (CDFW 2022a, Calflora 2022).
Silene scouleri ssp. *scouleri* Scouler's catchfly	None/None G5T4T5/S2S3 2B.2	Coastal bluff scrub, Coastal prairie, Valley and foothill grassland. 0 - 600 m. perennial herb. Blooms (Mar-May)Jun-Aug(Sep)	**Not Expected**; Some marginal coastal scrub habitat occurs along the shoreline within the study area; however, it is surrounded by heavy development. There are four documented occurrences in the CNDDB (2022a) though all occur on slopes within the San Bruno Mountain State and County Park approximately five miles north of the study area.	**Not Expected**; Some marginal coastal scrub habitat occurs along the shoreline within the study area; however, it is surrounded by heavy development. There are four documented occurrences in the CNDDB (2022a) though all occur on slopes within the San Bruno Mountain State and County Park approximately five miles north of the study area.	**Not Expected**; Some marginal coastal scrub habitat occurs along the shoreline within the study area; however, it is surrounded by heavy development. There are four documented occurrences in the CNDDB (2022a) though all occur on slopes within the San Bruno Mountain State and County Park approximately five miles north of the study area.

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Silene verecunda ssp. *verecunda* San Francisco campion	None/None G5T1/S1 1B.2	Perennial herb. Chaparral, coastal bluff scrub, coastal prairie, coastal scrub, valley and foothill grassland. Often on mudstone or shale; one site on serpentine. Elevations: 100-2115ft. (30-645m.) Blooms (Feb)Mar-Jul(Aug).	**Not Expected;** Some marginal coastal scrub habitat occurs along the shoreline within the study area; however, it is surrounded by heavy development. Chaparral, coastal bluff scrub, coastal prairie, and valley and foothill grassland habitats do not exist in the study area. There are two occurrences documented within five miles of the study area (CDFW 2022a), although both were observed on ridgelines north of the study area.	**Not Expected;** Some marginal coastal scrub habitat occurs along the shoreline within the study area; however, it is surrounded by heavy development. Chaparral, coastal bluff scrub, coastal prairie, and valley and foothill grassland habitats do not exist in the study area. There are two occurrences documented within five miles of the study area (CDFW 2022a), although both were observed on ridgelines north of the study area.	**Not Expected;** Some marginal coastal scrub habitat occurs along the shoreline within the study area; however, it is surrounded by heavy development. Chaparral, coastal bluff scrub, coastal prairie, and valley and foothill grassland habitats do not exist in the study area. There are two occurrences documented within five miles of the study area (CDFW 2022a), although both were observed on ridgelines north of the study area.
Spergularia macrotheca var. *longistyla* long-styled sand-spurrey	None/None G5T2/S2 1B.2	Perennial herb. Marshes and swamps, meadows and seeps. Alkaline. Elevations: 0-835ft. (0-255m.) Blooms Feb-May.	**Low Potential**; Some suitable habitat for the species occurs within the study area, although this species was not observed during the reconnaissance survey and is not documented within five miles of the study area (CDFW 2022a, Calflora 2022).	**Low Potential**; Some suitable habitat for the species occurs within the study area, although this species was not observed during the reconnaissance survey and is not documented within five miles of the study area (CDFW 2022a, Calflora 2022).	**Low Potential**; Some suitable habitat for the species occurs within the study area, although this species was not observed during the reconnaissance survey and is not documented within five miles of the study area (CDFW 2022a, Calflora 2022).
Streptanthus albidus ssp. *peramoenus* most beautiful jewelflower	None/None G2T2/S2 1B.2	Annual herb. Chaparral, cismontane woodland, valley and foothill grassland. Serpentine outcrops, on ridges and slopes. Elevations: 310-3280ft. (95-1000m.) Blooms (Mar)Apr-Sep(Oct).	**Not Expected**; Chaparral, cismontane woodland, and grassland habitats do not occur within the study area. There are no documented occurrences of the species within five miles of the study area (CDFW 2022a, Calflora 2022).	**Not Expected**; Chaparral, cismontane woodland, and grassland habitats do not occur within the study area. There are no documented occurrences of the species within five miles of the study area (CDFW 2022a, Calflora 2022).	**Not Expected**; Chaparral, cismontane woodland, and grassland habitats do not occur within the study area. There are no documented occurrences of the species within five miles of the study area (CDFW 2022a, Calflora 2022).
Stuckenia filiformis ssp. *alpina* northern slender pondweed	None/None G5T5/S2S3 2B.2	Marshes and swamps (assorted shallow freshwater). 300 - 2150 m. perennial rhizomatous herb (aquatic). Blooms May-Jul	**Not Expected**; Appropriate ponded freshwater habitats do not occur within the study area and there are no documented occurrences of the species within five miles of the study area (CDFW 2022a, Calflora 2022).	**Not Expected**; Appropriate ponded freshwater habitats do not occur within the study area and there are no documented occurrences of the species within five miles of the study area (CDFW 2022a, Calflora 2022).	**Not Expected**; Appropriate ponded freshwater habitats do not occur within the study area and there are no documented occurrences of the species within five miles of the study area (CDFW 2022a, Calflora 2022).
Suaeda californica California seablite	FE/None G1/S1 1B.1	Perennial evergreen shrub. Marshes and swamps. Margins of coastal salt marshes. Elevations: 0-50ft. (0-15m.) Blooms Jul-Oct.	**Not Expected;** This species is known to be extirpated from the San Francisco Bay area and the only populations that occur in the region are reintroduced through restoration plantings in specific locations included in the USFWS Tidal Marsh Recovery Plan (USFWS 2013).	**Not Expected;** This species is known to be extirpated from the San Francisco Bay area and the only populations that occur in the region are reintroduced through restoration plantings in specific locations included in the USFWS Tidal Marsh Recovery Plan (USFWS 2013).	**Not Expected;** This species is known to be extirpated from the San Francisco Bay area and the only populations that occur in the region are reintroduced through restoration plantings in specific locations included in the USFWS Tidal Marsh Recovery Plan (USFWS 2013).
Trifolium amoenum two-fork clover	FE/None G1/S1 1B.1	Annual herb. Coastal bluff scrub, valley and foothill grassland. Sometimes on serpentine soil, open sunny sites, swales. Most recently cited on roadside and eroding cliff face. Elevations: 15-1360ft. (5-415m.) Blooms Apr-Jun.	**Not Expected;** Some marginal coastal scrub habitat occurs along the shoreline within the study area; however, it is surrounded by heavy development. One historic occurrence of the species is documented within five miles of the study area (CDFW 2022a), observed in 1907 in the city of Colma, approximately 4.8 miles northwest of the study area.	**Not Expected;** Some marginal coastal scrub habitat occurs along the shoreline within the study area; however, it is surrounded by heavy development. One historic occurrence of the species is documented within five miles of the study area (CDFW 2022a), observed in 1907 in the city of Colma, approximately 4.8 miles northwest of the study area.	**Not Expected;** Some marginal coastal scrub habitat occurs along the shoreline within the study area; however, it is surrounded by heavy development. One historic occurrence of the species is documented within five miles of the study area (CDFW 2022a), observed in 1907 in the city of Colma, approximately 4.8 miles northwest of the study area.
Trifolium hydrophilum saline clover	None/None G2/S2 1B.2	Marshes and swamps, Valley and foothill grassland (mesic, alkaline), Vernal pools. 0 - 300 m. annual herb. Blooms Apr-Jun	**Low Potential**; Some marginally suitable habitat for the species occurs within the tidal salt marshes along the shoreline in the study area. However, only one occurrence of this species is documented within in the vicinity of the study area and is approximately five miles to the south recorded in 1886 (CDFW 2022a).	**Low Potential**; Some marginally suitable habitat for the species occurs within the tidal salt marshes along the shoreline in the study area. However, only one occurrence of this species is documented within in the vicinity of the study area and is approximately five miles to the south recorded in 1886 (CDFW 2022a).	**Low Potential**; Some marginally suitable habitat for the species occurs within the tidal salt marshes along the shoreline in the study area. However, only one occurrence of this species is documented within in the vicinity of the study area and is approximately five miles to the south recorded in 1886 (CDFW 2022a).
Triphysaria floribunda San Francisco owl's-clover	None/None G2?/S2? 1B.2	Annual herb. Coastal prairie, coastal scrub, valley and foothill grassland. On serpentine and non-serpentine substrate (such as at Pt. Reyes). Elevations: 35-525ft. (10-160m.) Blooms Apr-Jun.	**Not Expected;** Some marginal coastal scrub habitat occurs along the shoreline within the study area; however, it is surrounded by heavy development. There is one occurrence of the species documented within the *Montara Mountain* USGS quadrangle (CNDDB 2022a) approximately 3.5 miles southwest of the study area.	**Not Expected;** Some marginal coastal scrub habitat occurs along the shoreline within the study area; however, it is surrounded by heavy development. There is one occurrence of the species documented within the *Montara Mountain* USGS quadrangle (CNDDB 2022a) approximately 3.5 miles southwest of the study area.	**Not Expected;** Some marginal coastal scrub habitat occurs along the shoreline within the study area; however, it is surrounded by heavy development. There is one occurrence of the species documented within the *Montara Mountain* USGS quadrangle (CNDDB 2022a) approximately 3.5 miles southwest of the study area.

Scientific Name Common Name	Status Fed/State ESA CRPR	Habitat Requirements	Alternative 1	Alternative 2	Alternatives 3, 4, & 5
Triquetrella californica coastal triquetrella	None/None G2/S2 1B.2	Moss. Coastal bluff scrub, coastal scrub. Grows within 30m from the coast in coastal scrub, grasslands and in open gravels on roadsides, hillsides, rocky slopes, and fields. On gravel or thin soil over outcrops. Elevations: 35-330ft. (10-100m.)	**Low Potential**; Some suitable coastal habitat for the species occurs within the study area along the Bay shoreline, although this species was not observed during the reconnaissance survey. There are seven occurrences of the species documented within five miles of the study area (CNDDB 2022a), though all occur within coastal scrub habitats at least two miles from the study area, within open areas with limited disturbance.	**Low Potential**; Some suitable coastal habitat for the species occurs within the study area along the Bay shoreline, although this species was not observed during the reconnaissance survey. There are seven occurrences of the species documented within five miles of the study area (CNDDB 2022a), though all occur within coastal scrub habitats at least two miles from the study area, within open areas with limited disturbance.	**Low Potential**; Some suitable coastal habitat for the species occurs within the study area along the Bay shoreline, although this species was not observed during the reconnaissance survey. There are seven occurrences of the species documented within five miles of the study area (CNDDB 2022a), though all occur within coastal scrub habitats at least two miles from the study area, within open areas with limited disturbance.

Regional Vicinity refers to within a 9-quad search radius of Study Areas.

FE = Federally Endangered FT = Federally Threatened

SE = State Endangered ST = State ThreatenedSR = State Rare

G-Rank/S-Rank = Global Rank and State Rank as per NatureServe and CDFW's CNDDB RareFind3.

CRPR (CNPS California Rare Plant Rank):

1A=Presumed Extinct in California

1B=Rare, Threatened, or Endangered in California and elsewhere

2A=Plants presumed extirpated in California, but more common elsewhere

2B=Plants Rare, Threatened, or Endangered in California, but more common elsewhere

3=Need more information (a Review List)

4=Plants of Limited Distribution (a Watch List)

CRPR Threat Code Extension:

.1=Seriously endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat)

.2=Fairly endangered in California (20-80% occurrences threatened)

.3=Not very endangered in California (<20% of occurrences threatened)

Sources: Compiled by Rincon Consultants, Inc. 2023 from the CNDDB (CDFW 2022a), Online Inventory (CNPS 2022), IPaC (USFWS 2022a), and Information on Wild California Plants (Calflora 2022)

Special Status Animal Species in the Regional Vicinity of the Project Site

Scientific Name Common Name	Status Fed/State ESA CDFW	Habitat Requirements	Alternative 1	Alternative 2	Alternatives 3, 4, & 5
Invertebrates					
Callophrys mossii bayensis San Bruno elfin butterfly	FE/None G4T1/S3	Coastal, mountainous areas with grassy ground cover, mainly in the vicinity of San Bruno Mountain, San Mateo County. Colonies are located on steep, north-facing slopes within the fog belt. Larval host plant is *Sedum spathulifolium*.	**Not Expected**; Suitable mountainous areas with steep slopes do not occur within the study area. There are three occurrences of the species documented in the CNDDB within five miles of the study area (CDFW 2022a). The larval host plant was not observed within the study area.	**Not Expected**; Suitable mountainous areas with steep slopes do not occur within the study area. There are three occurrences of the species documented in the CNDDB within five miles of the study area (CDFW 2022a). The larval host plant was not observed within the study area.	**Not Expected**; Suitable mountainous areas with steep slopes do not occur within the study area. There are three occurrences of the species documented in the CNDDB within five miles of the study area (CDFW 2022a). The larval host plant was not observed within the study area.
Danaus plexippus pop. 1 monarch - California overwintering population	None/None G4T2T3/S2S3	Winter roost sites extend along the coast from northern Mendocino to Baja California, Mexico. Roosts located in wind-protected tree groves (eucalyptus, Monterey pine, cypress), with nectar and water sources nearby.	**Low Potential (non-roosting);** Several eucalyptus trees are dispersed throughout the study area, though not in sufficient density to serve as a winter roosting site. There are no occurrences of the species documented in the CNDDB within five miles of the study area (CDFW 2022a), and no individuals were observed on site during the field reconnaissance survey. There is a low potential for individuals to fly over, but the study area is not expected to be utilized as an overwintering site.	**Low Potential (non-roosting);** Several eucalyptus trees are dispersed throughout the study area, though not in sufficient density to serve as a winter roosting site. There are no occurrences of the species documented in the CNDDB within five miles of the study area (CDFW 2022a), and no individuals were observed on site during the field reconnaissance survey. There is a low potential for individuals to fly over, but the study area is not expected to be utilized as an overwintering site.	**Moderate Potential**; The eucalyptus grove within Coyote Point Recreation Area along the eastern border of the study area for alternatives 3, 4, and 5 provide potential roosting habitat for this species. Coyote Point Recreation Area is considered an overwintering site (Xerces 2022).
Euphydryas editha bayensis Bay checkerspot butterfly	FT/None G5T1/S1	Restricted to native grasslands on outcrops of serpentine soil in the vicinity of San Francisco Bay. *Plantago erecta* is the primary host plant; *Orthocarpus densiflorus* and *O. purpurscens* are the secondary host plants.	**Not Expected;** Native grasslands and serpentine outcrops do not occur within the study area. There are three occurrences of the species documented in the CNDDB within five miles of the study area (CDFW 2022a). The larval host plant was not observed within the study area.	**Not Expected;** Native grasslands and serpentine outcrops do not occur within the study area. There are three occurrences of the species documented in the CNDDB within five miles of the study area (CDFW 2022a). The larval host plant was not observed within the study area.	**Not Expected;** Native grasslands and serpentine outcrops do not occur within the study area. There are three occurrences of the species documented in the CNDDB within five miles of the study area (CDFW 2022a). The larval host plant was not observed within the study area.
Haliotis cracherodii black abalone	FE/None G3/S1S2	Mid to low rocky intertidal areas.	**Not Expected;** The rocky intertidal areas present within the study area are heavily disturbed and do not provide suitable habitat this species.	**Not Expected;** The rocky intertidal areas present within the study area are heavily disturbed and do not provide suitable habitat this species.	**Not Expected;** The rocky intertidal areas present within the study area are heavily disturbed and do not provide suitable habitat this species.
Icaricia icarioides missionensis Mission blue butterfly	FE/None G5T1/S1	Inhabits grasslands of the San Francisco Peninsula. Three larval host plants: *Lupinus albifrons, L. variicolor*, and *L. formosus*, of which *L. albifrons* is favored.	**Not Expected;** Suitable inland grassland habitats do not occur within the study area. There are six occurrences of the species documented in the CNDDB within five miles of the study area (CDFW 2022a). The larval host plant was not observed within the study area.	**Not Expected;** Suitable inland grassland habitats do not occur within the study area. There are six occurrences of the species documented in the CNDDB within five miles of the study area (CDFW 2022a). The larval host plant was not observed within the study area.	**Not Expected;** Suitable inland grassland habitats do not occur within the study area. There are six occurrences of the species documented in the CNDDB within five miles of the study area (CDFW 2022a). The larval host plant was not observed within the study area.
Speyeria callippe callippe callippe silverspot butterfly	FE/None G5T1/S1	Restricted to the northern coastal scrub of the San Francisco Peninsula. Hostplant is Viola pedunculata. Most adults found on E-facing slopes; males congregate on hilltops in search of females.	**Not Expected;** Northern coastal scrub habitat is not present within the study area. The larval hostplant was not observed during the reconnaissance survey.	**Not Expected;** Northern coastal scrub habitat is not present within the study area. The larval hostplant was not observed during the reconnaissance survey.	**Not Expected;** Northern coastal scrub habitat is not present within the study area. The larval hostplant was not observed during the reconnaissance survey.
Speyeria zerene myrtleae Myrtle's silverspot butterfly	FE/None G5T1/S1	Restricted to the foggy, coastal dunes/hills of the Point Reyes peninsula; extirpated from coastal San Mateo County. Larval foodplant thought to be *Viola adunca*.	**Not Expected;** The species has been extirpated from San Mateo County and the presumed larval foodplant is not present within the study area.	**Not Expected;** The species has been extirpated from San Mateo County and the presumed larval foodplant is not present within the study area.	**Not Expected;** The species has been extirpated from San Mateo County and the presumed larval foodplant is not present within the study area.

Scientific Name Common Name	Status Fed/State ESA CDFW	Habitat Requirements	Alternative 1	Alternative 2	Alternatives 3, 4, & 5
Fish					
Acipenser medirostris pop. 1 green sturgeon – southern DPS	FT/None G3T1/S1	Spawning site fidelity. Spawns in the Sacramento, Feather, and Yuba Rivers. Presence in upper Stanislaus and San Joaquin Rivers may indicate spawning. Non-spawning adults occupy marine/estuarine waters. Delta Estuary is important for rearing juveniles. Spawning occurs primarily in cool (11-15 C) sections of mainstem rivers in deep pools (8-9 meters) with substrate containing small to medium sized sand, gravel, cobble, or boulder.	**Moderate Potential**; This species could transit or feed along the shoreline within the study area, though no connection to suitable freshwater spawning grounds exists within the study area. Critical habitat is in the Bay along the Millbrae-Burlingame shoreline within the study area.	**Moderate Potential**; This species could transit or feed along the shoreline within the study area, though no connection to suitable freshwater spawning grounds exists within the study area. Critical habitat is in the Bay along the Millbrae-Burlingame shoreline within the study area.	**High Potential**; This species could transit or feed along the shoreline within the study area, though no connection to suitable freshwater spawning grounds exists within the study area. Critical habitat is in the Bay along the Millbrae-Burlingame shoreline within the study area.
Acipenser transmontanus white sturgeon	None/None G4/S2 SSC	Live in estuaries of large rivers, moving into freshwater to spawn. Most abundant in brackish portions of estuaries.	**Moderate Potential (non-breeding);** Multiple occurrences throughout bay and study area. This species could transit or feed along the shoreline within the study area, though no connection to suitable freshwater spawning grounds exist within the study area.	**Moderate Potential (non-breeding);** Multiple occurrences throughout bay and study area. This species could transit or feed along the shoreline within the study area, though no connection to suitable freshwater spawning grounds exist within the study area.	**Moderate Potential (non-breeding);** Multiple occurrences throughout bay and study area. This species could transit or feed along the shoreline within the study area, though no connection to suitable freshwater spawning grounds exist within the study area.
Eucyclogobius newberryi tidewater goby	FE/None G3/S3	Brackish water habitats along the California coast from Agua Hedionda Lagoon, San Diego County to the mouth of the Smith River. Found in shallow lagoons and lower stream reaches, they need fairly still but not stagnant water and high oxygen levels.	**Not Expected**; Some shallow lagoon and lower stream habitat is present within the study area. There are no occurrences documented of this species within five miles of the study area, but there is low potential for this species to occur in the study area in lagoon or estuary habitat such as the Burlingame Lagoon. Although habitat is suitable for this species, tidewater goby has been extirpated from the area due to high populations of invasive fish species (USFWS 2005).	**Not Expected**; Some shallow lagoon and lower stream habitat is present within the study area. There are no occurrences documented of this species within five miles of the study area, but there is low potential for this species to occur in the study area in lagoon or estuary habitat such as the Burlingame Lagoon. Although habitat is suitable for this species, tidewater goby has been extirpated from the area due to high populations of invasive fish species (USFWS 2005).	**Not Expected**; Some shallow lagoon and lower stream habitat is present within the study area. There are no occurrences documented of this species within five miles of the study area, but there is low potential for this species to occur in the study area in lagoon or estuary habitat such as the Burlingame Lagoon. Although habitat is suitable for this species, tidewater goby has been extirpated from the area due to high populations of invasive fish species (USFWS 2005).
Mylopharodon conocephalus hardhead	None/None G3/S3 SSC	Low to mid-elevation streams in the Sacramento-San Joaquin drainage. Also present in the Russian River. Clear, deep pools with sand-gravel-boulder bottoms and slow water velocity. Not found where exotic centrarchids predominate.	**Not Expected**; Suitable freshwater habitat for this species is not present within the study area.	**Not Expected**; Suitable freshwater habitat for this species is not present within the study area.	**Not Expected**; Suitable freshwater habitat for this species is not present within the study area.
Oncorhynchus kisutch pop. 4 coho salmon - central California coast ESU	FE/SE G4/S2?	Federal listing = pops between Punta Gorda & San Lorenzo River. State listing = pops south of Punta Gorda. Require beds of loose, silt-free, coarse gravel for spawning. Also need cover, cool water & sufficient dissolved oxygen.	**Not Expected**; Suitable freshwater breeding habitat for the species does not occur within the study area. Additionally, this species is now absent from all tributaries of San Francisco Bay and many streams south of the Bay; likely due to adverse effects from increased urbanization and other human developments on watersheds and fish habitat (CDFG 2004).	**Not Expected**; Suitable freshwater breeding habitat for the species does not occur within the study area. Additionally, this species is now absent from all tributaries of San Francisco Bay and many streams south of the Bay; likely due to adverse effects from increased urbanization and other human developments on watersheds and fish habitat (CDFG 2004).	**Not Expected**; Suitable freshwater breeding habitat for the species does not occur within the study area. Additionally, this species is now absent from all tributaries of San Francisco Bay and many streams south of the Bay; likely due to adverse effects from increased urbanization and other human developments on watersheds and fish habitat (CDFG 2004).
Oncorhynchus mykiss irideus pop. 8 steelhead – central California DPS	FT/None G5T2T3Q/S2S3	DPS includes all naturally spawned populations of steelhead (and their progeny) in streams from the Russian River to Aptos Creek, Santa Cruz County, California (inclusive). Also includes the drainages of San Francisco and San Pablo Bays.	**Moderate Potential (non-breeding);** Suitable freshwater breeding habitat for the species does not occur within the study area. However, the drainages and creeks that feed into the San Francisco Bay within the study area provide migrating habitat for this species. Critical habitat is also located within five miles of study area in San Pedro and Pilarcitos Creeks.	**Moderate Potential (non-breeding);** Suitable freshwater breeding habitat for the species does not occur within the study area. However, the Bay habitat within the study area provide migrating habitat for this species.	**Moderate Potential (non-breeding);** Suitable freshwater breeding habitat for the species does not occur within the study area. However, the Bay habitat within the study area provide migrating habitat for this species.
Spirinchus thaleichthys longfin smelt	FC/ST G5/S1	Euryhaline, nektonic and anadromous. Found in open waters of estuaries, mostly in middle or bottom of water column. Prefer salinities of 15-30 ppt but can be found in completely freshwater to almost pure seawater.	**High Potential**; The San Francisco Bay provides suitable estuary habitat for this species, and there are several occurrences recorded in the bay overlapping the study area (CDFW 2022a).	**High Potential**; The San Francisco Bay provides suitable estuary habitat for this species, and there are several occurrences recorded in the bay overlapping the study area (CDFW 2022a).	**High Potential**; The San Francisco Bay provides suitable estuary habitat for this species, and there are several occurrences recorded in the bay overlapping the study area (CDFW 2022a).

Scientific Name Common Name	Status Fed/State ESA CDFW	Habitat Requirements	Alternative 1	Alternative 2	Alternatives 3, 4, & 5
Amphibians					
Ambystoma californiense pop. 1 California tiger salamander – central California DPS	FT/ST G2G3T3/S3 WL	Lives in vacant or mammal-occupied burrows throughout most of the year; in grassland, savanna, or open woodland habitats. Need underground refuges, especially ground squirrel burrows, and vernal pools or other seasonal water sources for breeding.	**Not Expected**; Suitable vernal pools or upland grassland habitats are not present within the study area. There are no documented occurrences of this species within five miles of the study area (CDFW 2022a).	**Not Expected**; Suitable vernal pools or upland grassland habitats are not present within the study area. There are no documented occurrences of this species within five miles of the study area (CDFW 2022a).	**Not Expected**; Suitable vernal pools or upland grassland habitats are not present within the study area. There are no documented occurrences of this species within five miles of the study area (CDFW 2022a).
Aneides niger Santa Cruz black salamander	None/None G3/S3 SSC	Mixed deciduous and coniferous woodlands and coastal grasslands in San Mateo, Santa Cruz, and Santa Clara counties. Adults found under rocks, talus, and damp woody debris.	**Not Expected**; Suitable woodland and grassland habitats are not present within the study area. There are no documented occurrences of this species within five miles of the study area (CDFW 2022a).	**Not Expected**; Suitable woodland and grassland habitats are not present within the study area. There are no documented occurrences of this species within five miles of the study area (CDFW 2022a).	**Not Expected**; Suitable woodland and grassland habitats are not present within the study area. There are no documented occurrences of this species within five miles of the study area (CDFW 2022a).
Dicamptodon ensatus California giant salamander	None/None G3/S2S3 SSC	Known from wet coastal forests near streams and seeps from Mendocino County south to Monterey County, and east to Napa County. Aquatic larvae found in cold, clear streams, occasionally in lakes and ponds. Adults known from wet forests under rocks and logs near streams and lakes.	**Not Expected**; No suitable coastal forests near streams and seeps are present within the study area. The drainages and creeks within the study area do not provide suitable habitat as they are heavily altered and generally channelized. There are no documented occurrences of this species within five miles of the study area (CDFW 2022a).	**Not Expected**; No suitable coastal forests near streams and seeps are present within the study area. The terrestrial shoreline within the study area does not provide suitable habitat as it is heavily altered and does not provide freshwater habitat. There are no documented occurrences of this species within five miles of the study area (CDFW 2022a).	**Not Expected**; No suitable coastal forests near streams and seeps are present within the study area. The terrestrial shoreline within the study area does not provide suitable habitat as it is heavily altered and does not provide freshwater habitat. There are no documented occurrences of this species within five miles of the study area (CDFW 2022a).
Rana boylii foothill yellow-legged frog	None/SE G3/S3 SSC	Partly-shaded, shallow streams and riffles with a rocky substrate in a variety of habitats. Needs at least some cobble-sized substrate for egg-laying. Needs at least 15 weeks to attain metamorphosis.	**Not Expected**; Suitable freshwater streams are not present, and the study area is greatly altered by development and is isolated from natural habitats. One occurrence is documented in the vicinity of the study area, although it is located near San Andreas Lake to the west of the city of Millbrae, approximately three miles from the study area.	**Not Expected**; Suitable freshwater streams are not present, and the study area is greatly altered by development and is isolated from natural habitats. One occurrence is documented in the vicinity of the study area, although it is located near San Andreas Lake to the west of the city of Millbrae, approximately three miles from the study area.	**Not Expected**; Suitable freshwater streams are not present, and the study area is greatly altered by development and is isolated from natural habitats. One occurrence is documented in the vicinity of the study area, although it is located near San Andreas Lake to the west of the city of Millbrae, approximately three miles from the study area.
Rana draytonii California red-legged frog	FT/None G2G3/S2S3 SSC	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation. Requires 11-20 weeks of permanent water for larval development. Must have access to estivation habitat.	**Moderate Potential**; Suitable habitat for this species is present in the creeks and drainages that flow into the San Francisco Bay within the study area. Particularly the unchannelized portions of Mills and Easton Creeks provide some estivation habitat and permanent water for larval development. There are 33 occurrences of the species documented within five miles of the study area, though most of these occurrences are inland of the coast and the study area is generally surrounded by development (CDFW 2022a). Critical habitat for the species occurs two miles west of the study area.	**Not Expected**; The shoreline within the study area for Alternative 2 does not provide suitable habitat for this species. Most areas of the shoreline are heavily altered by human development and do not provide appropriate estivation habitat near permanent freshwater for this species.	**Not Expected**; The terrestrial shoreline within the study area for alternatives 3, 4, and 5 does not provide suitable habitat for this species. This species is not expected to occur in marine environments.
Reptiles					
Caretta caretta Northern Pacific Loggerhead sea turtle	FE/None	They are circumglobal, occurring throughout the temperate and tropical regions of the Atlantic, Pacific, and Indian Oceans. Loggerheads are the most abundant species of sea turtle found in U.S. coastal waters.	**Not Expected;** This species is highly migratory and is not expected to occur in the study area.	**Not Expected;** This species is highly migratory and is not expected to occur in the study area.	**Not Expected;** This species is highly migratory and is not expected to occur in the study area.
Chelonia mydas eastern Pacific green sea turtle	FT/None G3/S1	Marine. Completely herbivorous; needs adequate supply of seagrasses and algae.	**Not Expected;** Marine habitat is not present within the study area.	**Not Expected;** Marine habitat is not present within the study area.	**Not Expected;** This species does not nest as far north as California and is not known to occur within the San Francisco Bay.

Scientific Name Common Name	Status Fed/State ESA CDFW	Habitat Requirements	Alternative 1	Alternative 2	Alternatives 3, 4, & 5
Dermochelys coriacea Leatherback sea turtle	FE/None	The Eastern Pacific leatherback subpopulation nests along the Pacific coast of the Americas from Mexico to Ecuador, and marine habitats extend from the coastline westward.	**Not Expected;** The species is highly migratory and is not expected to occur in the study area. No designated critical habitat overlaps with the study area.	**Not Expected;** The species is highly migratory and is not expected to occur in the study area. No designated critical habitat overlaps with the study area.	**Not Expected;** The species is highly migratory and is not expected to occur in the study area. No designated critical habitat overlaps with the study area.
Emys marmorata western pond turtle	None/None G3G4/S3 SSC	A thoroughly aquatic turtle of ponds, marshes, rivers, streams, and irrigation ditches, usually with aquatic vegetation, below 6000 ft elevation. Needs basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 km from water for egg-laying.	**Not Expected;** Suitable freshwater habitat and basking sites with sandy banks are not present within the study area. There are four occurrences of this species documented within five miles of the study area, though all these occurrences are inland of the coast and are associated with stream habitat in undeveloped areas.	**Not Expected;** Suitable freshwater habitat and basking sites with sandy banks are not present within the study area. There are four occurrences of this species documented within five miles of the study area, though all these occurrences are inland of the coast and are associated with stream habitat in undeveloped areas.	**Not Expected;** Suitable freshwater habitat and basking sites with sandy banks are not present within the study area. There are four occurrences of this species documented within five miles of the study area, though all these occurrences are inland of the coast and are associated with stream habitat in undeveloped areas.
Lepidochelys olivacea Olive Ridley sea turtle	FE/None	The olive ridley sea turtle is considered the most abundant sea turtle in the world and can be found in the Pacific Islands, Southeast, and the West Coast.	**Not Expected;** The species is highly migratory and is not expected to occur in the study area.	**Not Expected;** The species is highly migratory and is not expected to occur in the study area.	**Not Expected;** The species is highly migratory and is not expected to occur in the study area.
Thamnophis sirtalis tetrataenia San Francisco gartersnake	FE/SE G5T2Q/S2 FP	Vicinity of freshwater marshes, ponds and slow-moving streams in San Mateo County and extreme northern Santa Cruz County. Prefers dense cover and water depths of at least one foot. Upland areas near water are also very important.	**High Potential;** Dense vegetative cover and freshwater marsh habitat is present within the study area. There are 22 occurrences of this species recorded within five miles of the study area, several of which overlap with the study area. Additionally, SFO conducts trapping for this species along the drainage and open space immediately adjacent to Highway 101 southwest of the airport.	**Moderate Potential (non-breeding);** Dense vegetative cover near is present within the study area, however, the study area for Alternative 2 is along the shoreline and does not include freshwater marsh habitat. There are 22 occurrences of this species recorded within five miles of the study area, several of which overlap with the study area. This species may disperse within the study area for Alternative 2, given the high likelihood of occurrence nearby.	**Moderate Potential (non-breeding);** This species may occur along the shoreline and may be present within the study area during dispersal. There are 22 occurrences of this species recorded within five miles of the study area, several of which overlap with the study area (CDFW 2022a).
Birds					
Accipiter cooperii Cooper's hawk	None/None G5/S4 WL	Woodland, chiefly of open, interrupted, or marginal type. Nest sites mainly in riparian growths of deciduous trees, as in canyon bottoms on river floodplains; also, live oaks.	**High Potential**; There are numerous occurrences of the species documented in eBird (Cornell Lab of Ornithology 2022b) within and around the study area. The species has a high potential to fly over within the study area and a moderate potential for the species to nest within trees on-site. This species was observed flying over during the reconnaissance survey.	**High Potential**; There are numerous occurrences of the species documented in eBird (Cornell Lab of Ornithology 2022b) within and around the study area. The species has a high potential to fly over within the study area and a moderate potential for the species to nest within trees on-site. This species was observed flying over during the reconnaissance survey.	**High Potential**; There are numerous occurrences of the species documented in eBird (Cornell Lab of Ornithology 2022b) within and around the study area. The species has a high potential to fly over within the study area and a moderate potential for the species to nest within trees on-site. This species was observed flying over during the reconnaissance survey.
Asio flammeus short-eared owl	None/None G5/S3 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.	**Low Potential**; Small tule patches present within the marsh habitats of the study area provide low potential nesting habitat for this species. This species has a low potential to forage throughout the study area along the shoreline. This species was not observed during the reconnaissance survey.	**Low Potential**; Small tule patches present within the marsh habitats of the study area provide low potential nesting habitat for this species. This species has a low potential to forage throughout the study area along the shoreline. This species was not observed during the reconnaissance survey.	**Low Potential**; Small tule patches present within the marsh habitats of the study area provide low potential nesting habitat for this species. This species has a low potential to forage throughout the study area along the shoreline. This species was not observed during the reconnaissance survey.
Athene cunicularia burrowing owl	None/None G4/S3 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.	**Not Expected**; No suitable open annual or perennial grassland or scrublands with low growing vegetation for burrowing is present within the study area. One occurrence is recorded from the CNDDB within five miles of the study area, although this was in undisturbed open coastal prairie habitat located at Seal Point Park.	**Not Expected**; No suitable open annual or perennial grassland or scrublands with low growing vegetation for burrowing is present within the study area. One occurrence is recorded from the CNDDB within five miles of the study area, although this was in undisturbed open coastal prairie habitat located at Seal Point Park.	**Not Expected**; No suitable open annual or perennial grassland or scrublands with low growing vegetation for burrowing is present within the study area. One occurrence is recorded from the CNDDB within five miles of the study area, although this was in undisturbed open coastal prairie habitat located at Seal Point Park.

Scientific Name Common Name	Status Fed/State ESA CDFW	Habitat Requirements	Alternative 1	Alternative 2	Alternatives 3, 4, & 5
Brachyramphus marmoratus marbled murrelet	FT/SE G3/S2	Feeds near-shore; nests inland along coast from Eureka to Oregon border and from Half Moon Bay to Santa Cruz. Nests in old-growth redwood-dominated forests, up to six miles inland, often in Douglas-fir.	**Not Expected**; No suitable nesting habitat exists for this species within the study area, as suitable old-growth redwood forests are not present, and the study area is surrounded by development. Critical habitat is located approximately 2.5 miles to the west of the study area.	**Not Expected**; No suitable nesting habitat exists for this species within the study area, as suitable old-growth redwood forests are not present, and the study area is surrounded by development. Critical habitat is located approximately 2.5 miles to the west of the study area.	**Not Expected**; No suitable nesting habitat exists for this species within the study area, as suitable old-growth redwood forests are not present, and the study area is surrounded by development. Critical habitat is located approximately 2.5 miles to the west of the study area.
Charadrius alexandrinus nivosus western snowy plover	FT/None G3T3/S2 SSC	Sandy beaches, salt pond levees and shores of large alkali lakes. Needs sandy, gravelly, or friable soils for nesting.	**Moderate Potential (non-breeding)**; There is a moderate potential for the species to fly over or forage within the study area, particularly along the shoreline. A very limited amount of sandy beach is present within the study area along the Bayfront Park shoreline, but it is heavily impacted by recreational use and development and only provides marginal suitable breeding habitat for the species. There is one occurrence of the species documented in the CNDDB (CDFW 2022a) and multiple occurrences documented in eBird within five miles of the study area.	**Moderate Potential (non-breeding)**; There is a moderate potential for the species to fly over or forage within the study area, particularly along the shoreline. A very limited amount of sandy beach is present within the study area along the Bayfront Park shoreline, but it is heavily impacted by recreational use and development and only provides marginal suitable breeding habitat for the species. There is one occurrence of the species documented in the CNDDB (CDFW 2022a) and multiple occurrences documented in eBird within five miles of the study area.	**Moderate Potential (non-breeding)**; There is a moderate potential for the species to fly over or forage within the study area, particularly along the shoreline. A very limited amount of sandy beach is present within the study area along the Bayfront Park shoreline and along Coyote Point Park, but it is heavily impacted by recreational use and development and only provides marginal suitable breeding habitat for the species. There is one occurrence of the species documented in the CNDDB (CDFW 2022a) and multiple occurrences documented in eBird within five miles of the study area.
Circus hudsonius northern harrier	None/None G5/S3 SSC	Coastal salt and freshwater 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.	**Low Potential**; Suitable coastal salt marsh habitat is present within the study area along the Bay shoreline, although it is highly fragmented from other marsh and nesting habitat. The marsh provides some shrubby vegetation suitable for nesting, and there are occurrences documented in eBird within five miles of the study area (Cornell Lab of Ornithology 2022b).	**Low Potential**; Suitable coastal salt marsh habitat is present within the study area along the Bay shoreline, although it is highly fragmented from other marsh and nesting habitat. The marsh provides some shrubby vegetation suitable for nesting, and there are occurrences documented in eBird within five miles of the study area (Cornell Lab of Ornithology 2022b).	**Low Potential**; Suitable coastal salt marsh habitat is present within the study area along the Bay shoreline, although it is highly fragmented from other marsh and nesting habitat. The marsh provides some shrubby vegetation suitable for nesting, and there are occurrences documented in eBird within five miles of the study area (Cornell Lab of Ornithology 2022b).
Coturnicops noveboracensis yellow rail	None/None G4/S1S2 SSC	Summer resident in eastern Sierra Nevada in Mono County. Freshwater marshlands.	**Not Expected**; The study area is outside of this species' known range.	**Not Expected**; The study area is outside of this species' known range.	**Not Expected**; The study area is outside of this species' known range.
Elanus leucurus white-tailed kite	None/None G5/S3S4 FP	Rolling foothills and valley margins with scattered oaks & river bottomlands or marshes next to deciduous woodland. Open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching.	**Moderate Potential (non-breeding)**; The species is unlikely to nest or roost in trees onsite given the high level of human activity. However, multiple occurrences of the species are documented in eBird within and around the study area (Cornell Lab of Ornithology 2022b) and there is a moderate potential for the species to fly over or forage within the study area.	**Moderate Potential (non-breeding)**; The species is unlikely to nest or roost in trees onsite given the high level of human activity. However, multiple occurrences of the species are documented in eBird within and around the study area (Cornell Lab of Ornithology 2022b) and there is a moderate potential for the species to fly over or forage within the study area.	**Moderate Potential (non-breeding)**; The species is unlikely to nest or roost in trees onsite given the high level of human activity. However, multiple occurrences of the species are documented in eBird within and around the study area (Cornell Lab of Ornithology 2022b) and there is a moderate potential for the species to fly over or forage within the study area.
Falco columbarius merlin	None/None G5/S3S4 WL	Seacoast, tidal estuaries, open woodlands, savannahs, edges of grasslands and deserts, farms, and ranches. Clumps of trees or windbreaks are required for roosting in open country.	**High Potential (Non-breeding)**; There is a high potential for the species to forage for shore birds within the Study Area and there are multiple occurrences of the species documented within five miles of the study area in eBird (Cornell Lab of Ornithology 2022b). Breeding typically occurs in far northern reaches of North America and the species is not expected to nest within the study area.	**High Potential (Non-breeding)**; There is a high potential for the species to forage for shore birds within the Study Area and there are multiple occurrences of the species documented within five miles of the study area in eBird (Cornell Lab of Ornithology 2022b). Breeding typically occurs in far northern reaches of North America and the species is not expected to nest within the study area.	**High Potential (Non-breeding)**; There is a high potential for the species to forage for shore birds within the Study Area and there are multiple occurrences of the species documented within five miles of the study area in eBird (Cornell Lab of Ornithology 2022b). Breeding typically occurs in far northern reaches of North America and the species is not expected to nest within the study area.
Falco peregrinus anatum American peregrine falcon	FD/SD G4T4/S3S4 FP	Near wetlands, lakes, rivers, or other water; on cliffs, banks, dunes, mounds; also, human-made structures. Nest consists of a scrape or a depression or ledge in an open site.	**Moderate Potential (non-breeding)**; Suitable nesting habitat for the species is not present within the study area. Multiple occurrences of the species are documented within five miles of the study area in eBird (Cornell Lab of Ornithology 2022b) and there is a moderate potential for the species to fly over or forage on-site.	**Moderate Potential (non-breeding)**; Suitable nesting habitat for the species is not present within the study area. Multiple occurrences of the species are documented within five miles of the study area in eBird (Cornell Lab of Ornithology 2022b) and there is a moderate potential for the species to fly over or forage on-site.	**Moderate Potential (non-breeding)**; Suitable nesting habitat for the species is not present within the study area. Multiple occurrences of the species are documented within five miles of the study area in eBird (Cornell Lab of Ornithology 2022b) and there is a moderate potential for the species to fly over or forage on-site.

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Geothlypis trichas sinuosa saltmarsh common yellowthroat	None/None G5T3/S3 SSC	Resident of the San Francisco Bay region, in fresh and saltwater marshes. Requires thick, continuous cover down to water surface for foraging; tall grasses, tule patches, willows for nesting.	**Low Potential**; Some suitable habitat for the subspecies occurs within willows and common reeds along the shoreline within the study area. The site is within the known breeding range of the subspecies (Shuford and Gardali 2008) and there are two occurrences documented in the CNDDB within five miles of the study area (CDFW 2022a), all from 1990. The limited amount of thick vegetated marsh habitat and the level of human activity within the study area make it unlikely that the species would forage or breed on-site.	**Low Potential**; Some suitable habitat for the subspecies occurs within willows and common reeds along the shoreline within the study area. The site is within the known breeding range of the subspecies (Shuford and Gardali 2008) and there are two occurrences documented in the CNDDB within five miles of the study area (CDFW 2022a), all from 1990. The limited amount of thick vegetated marsh habitat and the level of human activity within the study area make it unlikely that the species would forage or breed on-site.	**Low Potential**; Some suitable habitat for the subspecies occurs within willows and common reeds along the shoreline within the study area. The site is within the known breeding range of the subspecies (Shuford and Gardali 2008) and there are two occurrences documented in the CNDDB within five miles of the study area (CDFW 2022a), all from 1990. The limited amount of thick vegetated marsh habitat and the level of human activity within the study area make it unlikely that the species would forage or breed on-site.
Haliaeetus leucocephalus bald eagle	FD/SE G5/S3 FP	Ocean shore, lake margins, and rivers for both nesting and wintering. Most nests within 1 mile of water. Nests in large, old-growth, or dominant live tree with open branches, especially ponderosa pine. Roosts communally in winter.	**Not Expected;** There are no occurrences of this species documented within five miles of the study area (CDFW 2022a, Cornell Lab of Ornithology 2022b). Large, old-growth and mature stands are absent from the study area and no perching or nesting habitat is present.	**Not Expected;** There are no occurrences of this species documented within five miles of the study area (CDFW 2022a, Cornell Lab of Ornithology 2022b). Large, old-growth and mature stands are absent from the study area and no perching or nesting habitat is present.	**Not Expected;** There are no occurrences of this species documented within five miles of the study area (CDFW 2022a, Cornell Lab of Ornithology 2022b). Large, old-growth and mature stands are absent from the study area and no perching or nesting habitat is present.
Laterallus jamaicensis coturniculus California black rail	None/ST G3T1/S1 FP	Inhabits freshwater marshes, wet meadows and shallow margins of saltwater marshes bordering larger bays. Needs water depths of about 1 inch that do not fluctuate during the year and dense vegetation for nesting habitat.	**Low Potential**; Fragmented and marginally suitable saltwater marshes are present within the study area and nesting habitat is available along the shoreline and in drainages. One occurrence of this species is recorded within five miles of the study area (CDFW 2022a).	**Low Potential**; Fragmented and marginally suitable saltwater marshes are present within the study area and nesting habitat is available along the shoreline. One occurrence of this species is recorded within five miles of the study area (CDFW 2022a).	**Low Potential**; Fragmented and marginally suitable saltwater marshes are present within the study area and nesting habitat is available along the shoreline. One occurrence of this species is recorded within five miles of the study area (CDFW 2022a).
Melospiza melodia pusillula Alameda song sparrow	None/None G5T2?/S2S3 SSC	Resident of salt marshes bordering south arm of San Francisco Bay. Inhabits Salicornia marshes; nests low in Grindelia bushes (high enough to escape high tides) and in Salicornia.	**High Potential**; The study area is located within this species known range along the shoreline of the San Francisco Bay. There are four occurrences recorded within five miles of the study area (CDFW 2022a), and suitable salt marsh with S*alicornia* and *Grindelia* bushes is present throughout the study area.	**High Potential**; The study area is located within this species known range along the shoreline of the San Francisco Bay. There are four occurrences recorded within five miles of the study area (CDFW 2022a), and suitable salt marsh with S*alicornia* and *Grindelia* bushes is present throughout the study area.	**High Potential**; The study area is located within this species known range along the shoreline of the San Francisco Bay. There are four occurrences recorded within five miles of the study area (CDFW 2022a), and suitable salt marsh with S*alicornia* and *Grindelia* bushes is present throughout the study area.
Nannopterum auritum double-crested cormorant	None/None G5/S4 WL	Colonial nester on coastal cliffs, offshore islands, and along lake margins in the interior of the state. Nests along coast on sequestered islets, usually on ground with sloping surface, or in tall trees along lake margins.	**High Potential**; This species has frequently been documented along Bayfront Park within the study area (Cornell Lab of Ornithology 2022b). There is a high potential of the species nesting in the eucalyptus trees along the shoreline within the study area.	**High Potential**; This species has frequently been documented along Bayfront Park within the study area (Cornell Lab of Ornithology 2022b). There is a high potential of the species nesting in the eucalyptus trees along the shoreline within the study area.	**High Potential**; This species has frequently been documented along Bayfront Park within the study area (Cornell Lab of Ornithology 2022b). There is a high potential of the species nesting in the eucalyptus trees along the shoreline within the study area.
Rallus obsoletus obsoletus California Ridgway's rail	FE/SE G3T1/S1 FP	Salt water and brackish marshes traversed by tidal sloughs in the vicinity of San Francisco Bay. Associated with abundant growths of pickleweed but feeds away from cover on invertebrates from mud-bottomed sloughs.	**High Potential**; This species has frequently been documented along the shoreline adjacent to SFO and in the tidal sloughs along San Francisco Bay (CDFW 2022a, Cornell Lab of Ornithology 2022b). Several areas of marsh habitat suitable for nesting are present throughout the study area.	**High Potential**; This species has frequently been documented along the shoreline adjacent to SFO and in the tidal sloughs along San Francisco Bay (CDFW 2022a, Cornell Lab of Ornithology 2022b). Several areas of marsh habitat suitable for nesting are present throughout the study area.	**High Potential**; This species has frequently been documented along the shoreline adjacent to SFO and in the tidal sloughs along San Francisco Bay (CDFW 2022a, Cornell Lab of Ornithology 2022b). Several areas of marsh habitat suitable for nesting are present throughout the study area.
Riparia riparia bank swallow	None/ST G5/S2	Colonial nester; nests primarily in riparian and other lowland habitats west of the desert. Requires vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes, ocean to dig nesting hole.	**Not Expected**; Suitable banks or cliffs for nesting are not present within the study area. This species is not documented within five miles of the study area (CDFW 2022a).	**Not Expected**; Suitable banks or cliffs for nesting are not present within the study area. This species is not documented within five miles of the study area (CDFW 2022a).	**Not Expected**; Suitable banks or cliffs for nesting are not present within the study area. This species is not documented within five miles of the study area (CDFW 2022a).

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Rynchops niger black skimmer	None/None G5/S2 SSC	Nests on gravel bars, low islets, and sandy beaches, in unvegetated sites. Nesting colonies usually less than 200 pairs.	**Low Potential**; A small sandy beach habitat is present within the study area that provides some nesting habitat. Additionally, this species is known to occur approximately five miles southeast of the study area at Redwood Shores (Cornell Lab of Ornithology 2022b) and has low potential to forage in Burlingame and Anza Lagoons.	**Low Potential**; A small sandy beach habitat is present within the study area that provides some nesting habitat. Additionally, this species is known to occur approximately five miles southeast of the study area at Redwood Shores (Cornell Lab of Ornithology 2022b) and has low potential to forage in Burlingame and Anza Lagoons.	**Low Potential**; A small sandy beach habitat is present within the study area that provides some nesting habitat. Additionally, this species is known to occur approximately five miles southeast of the study area at Redwood Shores (Cornell Lab of Ornithology 2022b) and has low potential to forage in Burlingame and Anza Lagoons.
Sternula antillarum browni California least tern	FE/SE G4T2T3Q/S2 FP	Nests along the coast from San Francisco Bay south to northern Baja California. Colonial breeder on bare or sparsely vegetated, flat substrates: sand beaches, alkali flats, landfills, or paved areas.	**Not Expected**; Some sandy beach habitat is present within the study area; however, it is heavily altered and adjacent to U.S. 101 which disconnects this area from other undisturbed habitats. There are no documented occurrences of this species within five miles of the study area (CDFW 2022a).	**Not Expected**; Some sandy beach habitat is present within the study area; however, it is heavily altered and adjacent to U.S. 101 which disconnects this area from other undisturbed habitats. There are no documented occurrences of this species within five miles of the study area (CDFW 2022a).	**Not Expected**; Some sandy beach habitat is present within the study area; however, it is heavily altered and adjacent to U.S. 101 which disconnects this area from other undisturbed habitats. There are no documented occurrences of this species within five miles of the study area (CDFW 2022a).
Mammals					
Antrozous pallidus pallid bat	None/None G4/S3 SSC	Found in a variety of habitats including deserts, grasslands, shrublands, woodlands, and forests. Most common in open, dry habitats with rocky areas for roosting. Roosts in crevices of rock outcrops, caves, mine tunnels, buildings, bridges, and hollows of live and dead trees which must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	**Moderate Potential**; The study area does not contain outcrops, caves, or the open, arid habitat favored by the species. There is a moderate potential for the species to roost in buildings and trees within the study area. There are two occurrences of this species documented within five miles of the study area, one of which overlaps with the study area (CDFW 2022a).	**Moderate Potential**; The study area does not contain outcrops, caves, or the open, arid habitat favored by the species. There is a moderate potential for the species to roost in buildings and trees within the study area. There are two occurrences of this species documented within five miles of the study area, one of which overlaps with the study area (CDFW 2022a).	**Moderate Potential**; The study area does not contain outcrops, caves, or the open, arid habitat favored by the species. There is a moderate potential for the species to roost in buildings and trees within the study area. There are two occurrences of this species documented within five miles of the study area, one of which overlaps with the study area (CDFW 2022a).
Balaenoptera physalus fin whale	FE/None G3/SNR MMPA	Migrate along the California coastline to warmer waters in the winter and to food rich, cold waters in the summer.	**Not Expected;** The species is highly migratory and is not expected to occur in the study area.	**Not Expected;** The species is highly migratory and is not expected to occur in the study area.	**Not Expected;** The species is highly migratory and is not expected to occur in the study area.
Corynorhinus townsendii Townsend's big-eared bat	None/None G4/S2 SSC	Occurs throughout California in a wide variety of habitats. Most common in mesic sites, typically coniferous or deciduous forests. Roosts in the open, hanging from walls & ceilings in caves, lava tubes, bridges, and buildings. This species is extremely sensitive to human disturbance.	**Low Potential**; The study area does not contain mesic sites in coniferous or deciduous forested habitats favored by the species. There is a low potential for the species to roost in buildings and trees within the study area, although the high level of human disturbance makes this unlikely. There are no occurrences of this species documented within five miles of the study area (CDFW 2022a).	**Low Potential**; The study area does not contain mesic sites in coniferous or deciduous forested habitats favored by the species. There is a low potential for the species to roost in buildings and trees within the study area, although the high level of human disturbance makes this unlikely. There are no occurrences of this species documented within five miles of the study area (CDFW 2022a).	**Low Potential**; There is low potential for this species to roost in the trees along the shoreline in Coyote Point Park. However, this area is also heavily altered by human activity.
Eschrichtius robustus gray whale- Eastern North Pacific DPS	FD/None G4/SNR MMPA	Occurs throughout the California coastline during migration [Nov. thru May]. Feed primarily on mysids, amphipods, and polychaete tube worms in the northern part of their range. Often spotted within bays and harbors.	**Low Potential (non-breeding);** While the study area does not contain breeding or foraging habitat, the species is frequently observed within the bay. This species has a low potential of occurring along the shoreline within the study area.	**Low Potential (non-breeding);** While the study area does not contain breeding or foraging habitat, the species is frequently observed within the bay. This species has a low potential of occurring along the shoreline within the study area.	**Moderate Potential (non-breeding);** While the study area does not contain breeding or foraging habitat, the species is frequently observed within the bay.
Eumetopias jubatus Steller sea lion	FD/None G3/S2	Breeds on Año Nuevo, San Miguel and Farallon islands, Point St. George, and Sugarloaf. Hauls-out on islands and rocks. Needs haul-out and breeding sites with unrestricted access to water, near aquatic food supply and with no human disturbance.	**Not Expected**; The study area is outside of the known breeding range and geographic range for the species.	**Not Expected**; The study area is outside of the known breeding range and geographic range for the species.	**Not Expected**; The study area is outside of the known breeding range and geographic range for the species.
Megaptera novaeangliae humpback whale - Central America DPS	FE/None G4/SNR MMPA	Inhabitants of coastal waters and migrate along the California coastline throughout the year. Filter-feeder and generalist with a broad diet of frill, copepods, fish, and cephalopods. Typically feed throughout summer in areas of prey concentration such as upwelling regions.	**Not Expected**; This species is a completely marine species and is not expected to occur immediately along the shoreline within the study area.	**Not Expected**; This species is a completely marine species and is not expected to occur immediately along the shoreline within the study area.	**Low Potential**; While there is no breeding or foraging habitat present, there are recent occurrences in the northern part of the bay and the species could easily travel through the study area.

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Megaptera novaeangliae humpback whale - Mexico DPS	FT/None G4/SNR MMPA	Inhabitants of coastal waters and migrate along the California coastline throughout the year. Filter-feeder and generalist with a broad diet of frill, copepods, fish, and cephalopods. Typically feed throughout summer in areas of prey concentration such as upwelling regions.	**Not Expected**; This species is a completely marine species and is not expected to occur immediately along the shoreline within the study area.	**Not Expected**; This species is a completely marine species and is not expected to occur immediately along the shoreline within the study area.	**Low Potential**; While there is no breeding or foraging habitat present, there are recent occurrences in the northern part of the bay and the species could easily travel through the study area.
Neotoma fuscipes annectens San Francisco dusky-footed woodrat	None/None G5T2T3/S2S3 SSC	Typically found in forest habitats with moderate to dense understory. Can occur in chaparral, riparian woodlands, and coniferous forests, particularly redwood. Builds middens out of grasses, leaves, and woody debris. This subspecies is found only in the San Francisco Bay region.	**Not Expected**; Forested habitat and adequate nesting materials are not present within the study area. There are four occurrences of this species recorded within five miles of the study area, however these are all in the fairly woodlands around Lower Crystal Springs Reservoir (CDFW 2022a).	**Not Expected**; Forested habitat and adequate nesting materials are not present within the study area. There are four occurrences of this species recorded within five miles of the study area, however these are all in the fairly woodlands around Lower Crystal Springs Reservoir (CDFW 2022a).	**Not Expected**; Forested habitat and adequate nesting materials are not present within the study area. There are four occurrences of this species recorded within five miles of the study area, however these are all in the fairly woodlands around Lower Crystal Springs Reservoir (CDFW 2022a).
Nyctinomops macrotis big free-tailed bat	None/None G5/S3 SSC	Low-lying arid areas in Southern California. Need high cliffs or rocky outcrops for roosting sites. Feeds principally on large moths.	**Not Expected**; Suitable habitat for the species is not present within the study area. One occurrence is recorded approximately five miles from the study area near Pacifica (CDFW 2022a).	**Not Expected**; Suitable habitat for the species is not present within the study area. One occurrence is recorded approximately five miles from the study area near Pacifica (CDFW 2022a).	**Not Expected**; Suitable habitat for the species is not present within the study area. One occurrence is recorded approximately five miles from the study area near Pacifica (CDFW 2022a).
Orcinus orca killer whale - Southern Resident DPS	FE/None G4/SNR MMPA	Killer whales are found in all oceans and seas, from the ice edges to the equator, in both hemispheres; however, they appear to be more common in nearshore, cool temperate to subpolar waters. Primarily feed on fish.	**Not Expected**; This species is a completely marine species and is not expected to occur immediately along the shoreline within the study area.	**Not Expected**; This species is a completely marine species and is not expected to occur immediately along the shoreline within the study area.	**Not Expected**; Suitable foraging habitat is present but this species is unlikely to occur within the Bay.
Phoca vitulina richardii harbor seal	None/None G5/SNR MMPA	Confined to coastal areas of the Northern Hemisphere, from temperate to polar regions. Found in the coastal waters of the continental shelf and slope, and can be found commonly in bays, rivers, estuaries, and intertidal areas. Generalist feeders taking a wide variety of fish, cephalopods, and crustaceans.	**Low potential**; Haul-out sites are located throughout the Bay, with one at Coyote Point Marina approximately 0.5 miles from the study area. This species only has a low potential to occur near the shoreline within the study area.	**Low potential**; Haul-out sites are located throughout the Bay, with one at Coyote Point Marina approximately 0.5 miles from the study area. This species only has a low potential to occur near the shoreline within the study area.	**High Potential**; Haul-out sites are located throughout the Bay with one at Coyote Point Marina approximately 0.5 mile from the southeastern section of the study area for alternatives 3, 4, and 5.
Phocoena phocoena harbor porpoise	None/None G4/SNR MMPA	Found in cool temperate to subpolar waters of the Northern Hemisphere. They are usually found in shallow water, most often nearshore, although they occasionally travel over deeper offshore waters. Feed upon a large variety of fish and cephalopods.	**Low Potential**; Suitable foraging habitat present and occurrences are recorded throughout bay. This species only has a low potential to occur near the shoreline within the study area.	**Low Potential**; Suitable foraging habitat present and occurrences are recorded throughout bay. This species only has a low potential to occur near the shoreline within the study area.	**Moderate Potential**; Suitable foraging habitat present within the study area and occurrences are recorded throughout Bay.
Reithrodontomys raviventris salt-marsh harvest mouse	FE/SE G1G2/S1S2 FP	Only in the saline emergent wetlands of San Francisco Bay and its tributaries. Pickleweed is primary habitat but may occur in other marsh vegetation types and in adjacent upland areas. Does not burrow; builds loosely organized nests. Requires higher areas for flood escape.	**Low Potential**; Fragmented and marginally suitable saline emergent marshes are present within the study area and nesting habitat is available along the shoreline and in drainages. One occurrence of this species is recorded within five miles of the study area (CDFW 2022a).	**Low Potential**; Fragmented and marginally suitable saline emergent marshes are present within the study area and nesting habitat is available along the shoreline and in drainages. One occurrence of this species is recorded within five miles of the study area (CDFW 2022a).	**Low Potential**; Fragmented and marginally suitable saline emergent marshes are present within the study area and nesting habitat is available along the shoreline. One occurrence of this species is recorded within five miles of the study area (CDFW 2022a).
Scapanus latimanus parvus Alameda Island mole	None/None G5T1Q/SH SSC	Only known from Alameda Island. Found in a variety of habitats, especially annual and perennial grasslands. Prefers moist, friable soils. Avoids flooded soils.	**Not Expected;** The study area is outside of the known geographic range for the species.	**Not Expected;** The study area is outside of the known geographic range for the species.	**Not Expected;** The study area is outside of the known geographic range for the species.
Sorex vagrans halicoetes salt-marsh wandering shrew	None/None G5T1/S1 SSC	Salt marshes of the south arm of San Francisco Bay. Medium high marsh 6-8 ft above sea level where abundant driftwood is scattered among Salicornia.	**Low Potential**; Suitable salt marshes are present within the study area along the shoreline and in drainages. Several areas are vegetated with *Salicornia* and could provide habitat for this species. There is a low potential for this species to occur in the study area. No occurrences of this species are documented within five miles of the study area (CDFW 2022a).	**Low Potential**; Suitable salt marshes are present within the study area along the shoreline and in drainages. Several areas are vegetated with *Salicornia* and could provide habitat for this species. There is a low potential for this species to occur in the study area. No occurrences of this species are documented within five miles of the study area (CDFW 2022a).	**Low Potential**; Suitable salt marshes are present within the study area along the shoreline. Several areas are vegetated with *Salicornia* and could provide habitat for this species. There is a low potential for this species to occur in the study area. No occurrences of this species are documented within five miles of the study area (CDFW 2022a).

Scientific Name Common Name	Status Fed/State ESA CDFW	Habitat Requirements	Alternative 1	Alternative 2	Alternatives 3, 4, & 5
Taxidea taxus American badger	None/None G5/S3 SSC	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Needs sufficient food, friable soils and open, uncultivated ground. Preys on burrowing rodents. Digs burrows.	**Not Expected**; Suitable open habitat and prey base for the species are not present within the study area. The study area is also isolated by the ocean and urban development. No occurrences of this species are documented within five miles of the study area (CDFW 2022a).	**Not Expected**; Suitable open habitat and prey base for the species are not present within the study area. The study area is also isolated by the ocean and urban development. No occurrences of this species are documented within five miles of the study area (CDFW 2022a).	**Not Expected**; Suitable open habitat and prey base for the species are not present within the study area. The study area is also isolated by the ocean and urban development. No occurrences of this species are documented within five miles of the study area (CDFW 2022a).
Tursiops truncatus common bottlenose dolphin	None/None G5/SNR MMPA	Found primarily in coastal and continental shelf waters of tropical and temperate regions. The bottlenose dolphin is a generalist regarding habitat and diet.	**Low Potential;** Suitable foraging habitat is present, and occurrences are recorded throughout Bay. However, this species only has a low potential to occur near the shoreline of the study area for alternatives 1 and 2.	**Low Potential;** Suitable foraging habitat is present, and occurrences are recorded throughout Bay. However, this species only has a low potential to occur near the shoreline of the study area for alternatives 1 and 2.	**Moderate Potential**; Suitable foraging habitat is present and occurrences are recorded throughout Bay.
Zalophus californianus California sea lion	None/None G5/SNR MMPA	California sea lions are opportunistic and feed on a wide variety of prey. Hauls-out on islands and rocks. Needs haul-out and breeding sites with unrestricted access to water, near aquatic food supply and with no human disturbance.	**Moderate Potential**; Suitable foraging habitat present and occurrences throughout bay. This species may occur along the shoreline within the study area.	**Moderate Potential**; Suitable foraging habitat present and occurrences throughout bay. This species may occur along the shoreline within the study area.	**High Potential;** Suitable foraging habitat is present and occurrences are recorded throughout Bay.

Regional Vicinity refers to within a 9-quad search radius of Study Areas.

FT = Federally Threatened
FC = Federal Candidate Species
FE = Federally Endangered
FS = Federally Sensitive
FD = Federally Delisted
SE = State Endangered
ST = State Threatened
SR = State Rare
SS=State Sensitive
G-Rank/S-Rank = Global Rank and State Rank as per NatureServe and CDFW's CNDDB RareFind5
SSC = CDFW Species of Special Concern
FP = Fully Protected
WL = Watch List
MMPA = Marine Mammal Protection Act Species

Sources: Compiled by Rincon Consultants, Inc. 2023 from the CNDDB (CDFW 2022a), BIOS (CDFW 2022b), eBird (Cornell Lab of Ornithology 2022b), IPaC (USFWS 2022a), and California Species List Tool (NMFS 2022a)

Appendix C

Site Photographs

Photograph 1. View of the Highline Canal taken from the concrete lined bank. Photo facing northeast.

Photograph 2. View of culverts placed in concrete lined Highline Canal. Photo facing east.

Photograph 3. Portion of Highline canal with freshwater marsh in concrete lined canal. Photo facing southwest.

Photograph 4. Representative photo of pickleweed present in Highline Canal. Photo facing east toward Aviador Avenue.

Photograph 5. View of Mills Creek. Photo facing southeast.

Photograph 6. Snowy egret present in Mills Creek. Representative photo facing southeast.

Photograph 7. View of Mills Creek as it runs under U.S. 101. Photo facing east.

Photograph 8. View of rip-rap and *Spartina* sp. in Mills creek. Photo facing south.

Photograph 9. View of Mills Creek at Rollins Road in Burlingame. Photo facing southwest.

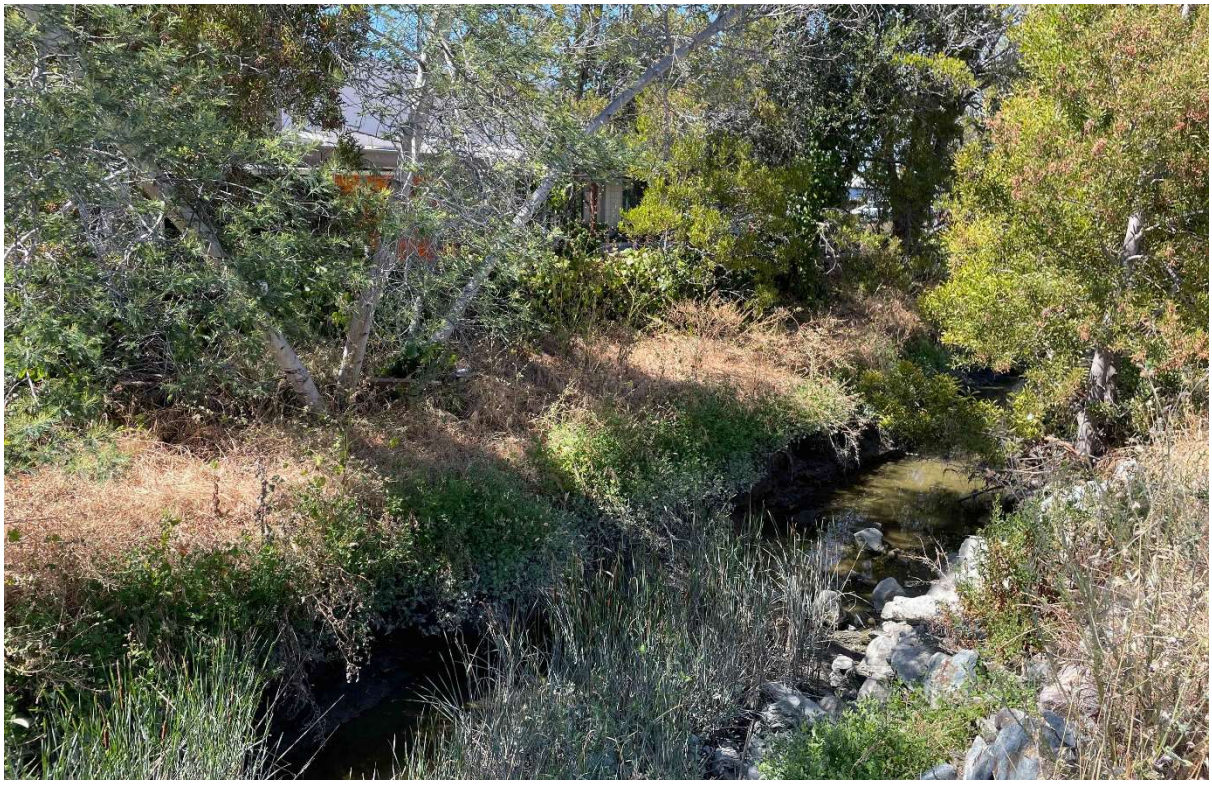
Photograph 10. View of culverted portion of Mills Creek near Rollins Road in Burlingame. Photo facing west.

Photograph 11. View of salt marsh present in Mills Creek. Photo facing north.

Photograph 12. View of *Spartina* sp. present in Easton creek. Photo facing northeast.

Photograph 13. View of salt marsh present in Easton Creek. Photo facing southwest.

Photograph 14. View of Easton Creek at Rollins Road in Burlingame. Photo facing southwest.



Photograph 15. View of salt marsh in Easton Creek. Photo facing north.

Photograph 16. View of Easton Creek taken from Rollins Road in Burlingame. Photo facing north.

Photograph 17. View of salt marsh present in Easton Creek. Photo facing northeast.

Photograph 18. View of salt marsh present in Easton Creek. Photo facing west.

Photograph 19. View of freshwater marsh present in the Alternative 1 study area at a City utility facility. Photo facing east.

Photograph 20. View of northern coastal salt marsh present at the shoreline at the mouth of El Portal Canal in Burlingame. Photo facing west.

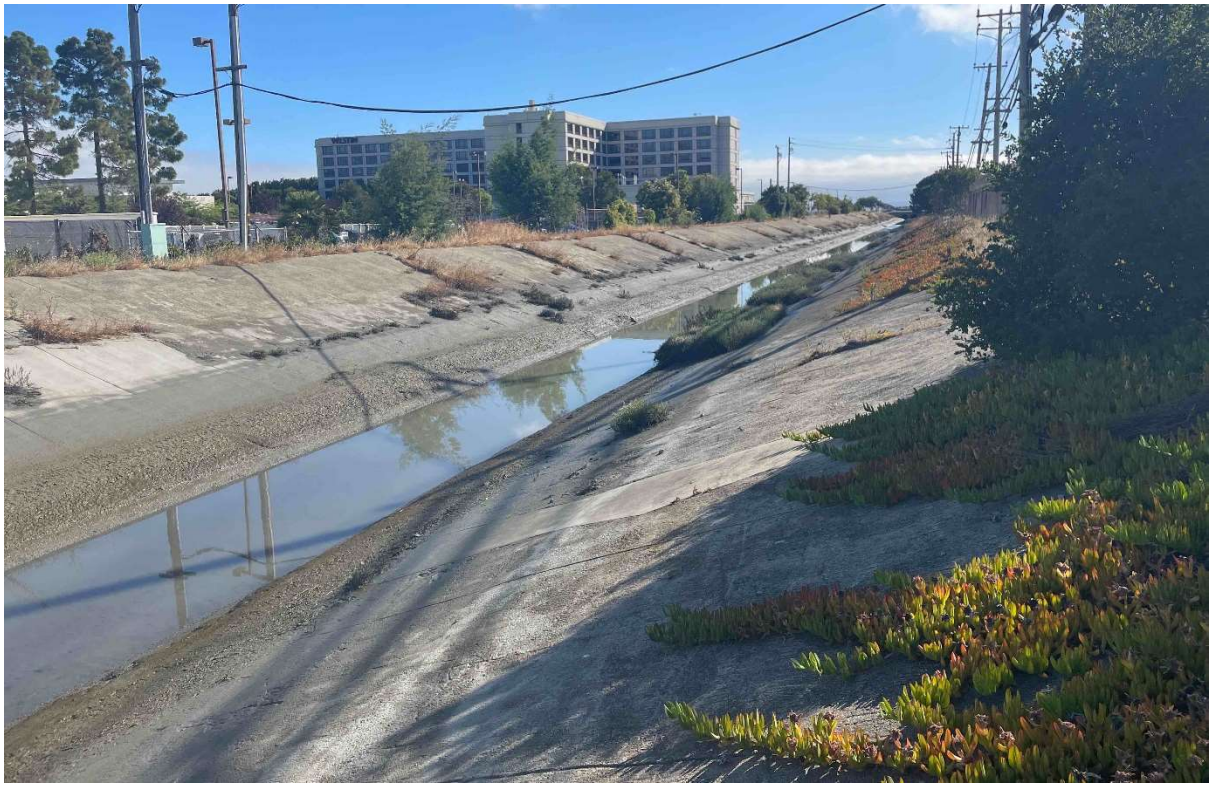
Photograph 21. View of the mouth of El Portal Canal as it enters the San Francisco Bay. Photo facing northeast.

Photograph 22. View of the shoreline in Bayfront Park. Photo facing southwest.

Photograph 23. View of the mouth of the Highline Canal immediately east of SFO. Photo facing northwest.

Photograph 24. View of Highline Canal taken from the concrete-lined banks near SFO airport. Photo facing west.

Photograph 25. View of concrete-lined El Portal Canal. Photo facing southwest.



Photograph 26. View of concrete-lined El Portal Canal. Photo facing northeast.

Photograph 27. View of concrete-lined Gilberth Canal. Photo facing southeast.

Photograph 28. View of Mills Creek taken near Old Bayshore Highway. Photo facing southwest.

Photograph 29. View of footbridge over Mills Creek near the shoreline. Photo facing northeast.

Photograph 30. View of the Bay shoreline in Burlingame. The City of Burlingame designates this area a shorebird sanctuary. Photo facing northwest.

Photograph 31. View of rip-rap placed along the Burlingame shoreline. Photo facing north.

Photograph 32. View of *Spartina* sp. present at the mouth of Easton Creek. Photo facing east.

Photograph 33. View of the mouth of Easton Creek as it enters the Bay. Photo facing southwest.

Photograph 34. Overview of Sanchez Marsh. Photo facing south.

Photograph 35. View of *Spartina* sp. present in Sanchez marsh. Photo facing southeast.

Photograph 36. View of Sanchez Marsh taken from upland bank. Photo facing southeast.

Photograph 37. View of Burlingame Lagoon. Photo facing east.

Photograph 38. View of Burlingame Lagoon. Photo facing east.

Photograph 39. View of managed Anza Lagoon. Photo facing west.

Photograph 40. View of managed Anza Lagoon. Photo facing northwest.

Photograph 41. View of non-native annual grassland present near the shoreline adjacent to Anza Lagoon. Photo facing southeast.

Photograph 42. View of the channel leading to Burlingame Lagoon. Photo facing southeast.

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