Ocean Beach
Climate Change Adaptation Project
National Environmental Policy Act
Draft Environmental Assessment

April 2024

OCEAN BEACH CLIMATE CHANGE ADAPTATION PROJECT

NATIONAL ENVIRONMENTAL POLICY ACT
Draft Environmental Assessment

Prepared for
National Park Service and
San Francisco Public Utilities Commission

April 2024

Prepared by
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CHAPTER 1
Introduction

The City and County of San Francisco (city) has been working with and implementing actions approved by the National Park Service (NPS)/Golden Gate National Recreation Area (GGNRA), other federal agencies, and state and local agencies for more than 10 years to protect the Great Highway and the city's wastewater infrastructure from ongoing bluff erosion and property damage which is expected to worsen with climate change and sea level rise.[1,2] The city has requested and NPS is considering issuance of an easement and Special Use Permit (federal action) which would allow the city to implement the San Francisco Public Utilities Commission (SFPUC) Ocean Beach Climate Change Adaptation Project (hereafter referred to as the Ocean Beach Project, the project, or the Proposed Action Alternative). The Ocean Beach Project is a coastal adaptation and sea level rise resiliency project to protect public infrastructure and improve the portion of Ocean Beach from Sloat Boulevard to Fort Funston, known as South Ocean Beach.

1.1 Ocean Beach Project Background and Overview

Ocean Beach comprises a 3.5-mile stretch of sandy beach that forms the western boundary of San Francisco. It is influenced by complex coastal processes, including an intense wave climate, strong tidal currents, and irregular offshore underwater features. Chronic erosion of the beach and bluffs by episodic coastal storms occurs at South Ocean Beach. This erosion has undermined and damaged beach parking lots, stormwater drainage facilities, and the Great Highway; threatens existing underground wastewater system infrastructure; and has constrained public shoreline access and recreational opportunities.

Since the 1990s, the city has responded to the erosion – mainly to protect the Great Highway, a city asset – through both hard shoreline armoring (e.g., construction of rock and rubble revetments) and soft shoreline protection measures (e.g., beach nourishment and sandbag revetments). In the intervening period, the city has also undertaken planning initiatives aimed at developing a long-term strategy for managing the South Ocean Beach shoreline. Notably, the city, NPS, and State Coastal Conservancy funded and participated in the preparation of the 2012 Ocean Beach Master Plan (master plan), which brought together community members, agency representatives, and other stakeholders to develop a sustainable long-term vision for Ocean Beach, addressing public access, recreational use, environmental protection, and infrastructure needs in the context of erosion and climate-related sea level rise.

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1 San Francisco Bay Area Planning and Urban Research Association (SPUR) et al., Ocean Beach Master Plan, May 2012. Available at: https://www.spur.org/featured-project/ocean-beach-master-plan. Accessed August 17, 2023.

2 California Ocean Protection Council, Draft State of California Sea Level Rise Guidance: 2024 Science and Policy Update, January 2024. Available at: https://opc.ca.gov/wp-content/uploads/2024/01/SLR-Guidance-DRAFT-Jan-2024-508.pdf. Accessed on March 7, 2024.

Major project components, some but not all of which are proposed on NPS lands, include (1) permanently closing the Great Highway between Sloat and Skyline boulevards to public vehicular traffic, reconfiguring affected intersections and San Francisco Zoo parking access, removing the existing NPS restroom and parking lot, and maintaining a service road to wastewater system facilities; (2) constructing an approximately 3,200-foot-long buried wall (with approximately 2,200 feet of the wall constructed on city property and approximately 1,000 feet on NPS property) to protect existing wastewater infrastructure from shoreline erosion; (3) removing pavement, rock and sandbag revetments,[3] rubble, and debris from the beach, reshaping the bluff, and planting native vegetation; (4) constructing a multi-use trail, beach access stairway, coastal access parking, and restrooms; and (5) providing long-term *beach nourishment* (sand replenishment).

The project encompasses activities at multiple locations along or near Ocean Beach, including areas within Fort Funston. Most project activities would occur within the portion of San Francisco's Ocean Beach extending south from Sloat Boulevard to the northern edge of the Fort Funston bluffs, which is known as South Ocean Beach. The project area extends west to the South Ocean Beach shoreline, and east along the Great Highway to Skyline Boulevard.[4] The project also includes activities at two other portions of Ocean Beach. One portion is north of Sloat Boulevard, within the area known as Middle Ocean Beach; the second is north of Lincoln Way, where sand is harvested for placement south of Sloat Boulevard, within the area known as North Ocean Beach. **Figure 1** shows the project areas along South Ocean Beach, Middle Ocean Beach, North Ocean Beach, and Fort Funston. In 2023, NPS obtained authority to grant easements or right-of-way permits over federal lands within the Golden Gate National Recreation Area for "operation and maintenance of projects for control and prevention of flooding and shoreline erosion and associated structures for continued public access" (see **Appendix A**).[5]

Most of the Ocean Beach Project components and activities would occur on city property, outside of NPS lands. As such, the city completed and certified an environmental impact report (EIR) for the project as required by the California Environmental Quality Act (CEQA).[6]

1.2 Purpose and Need

1.2.1 Purpose

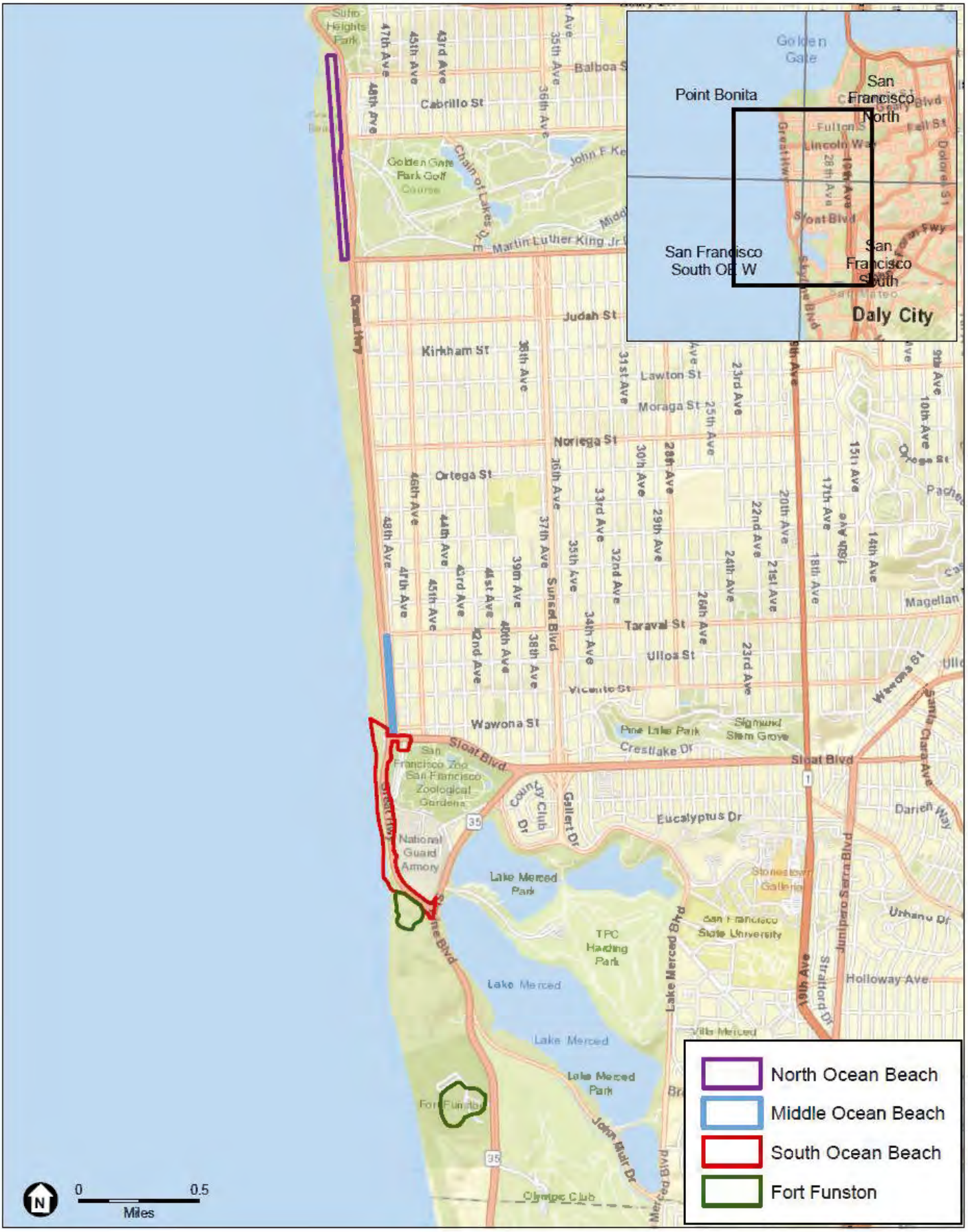
The purpose of the federal action is for the NPS to consider whether to issue an easement and Special Use Permit for work within NPS land to the city to implement the city's Ocean Beach Project. The NPS easement and Special Use Permit would be discretionary and revocable and would not convey or imply any interest in NPS land.

3 In coastal engineering, revetments are sloping structures placed on the shoreline to protect the shoreline from erosion or other modification by waves.

4 Skyline Boulevard is also State Route 35 at this location.

5 Department of the Interior, Environment, and Related Agencies Appropriations Act, 2023

6 San Francisco Planning Department, Ocean Beach Climate Change Adaptation Project Final Environmental Impact Report, September 14, 2023. Available at: https://sfplanning.org/environmental-review-documents.



SOURCE: SFPUC, 2023; USGS National Map

Ocean Beach Climate Change Adaptation Project

Figure 1
Project Areas

1.2.2 Need

The federal action is needed to enable the city to protect its South Ocean Beach wastewater infrastructure from ongoing bluff erosion and property damage, which is expected to worsen with climate change and sea level rise.[7,8] The NPS easement and Special Use Permit would permit the city to implement the Ocean Beach Project to address shoreline erosion, severe coastal storm and wave hazards, and sea level rise, which threaten city and NPS infrastructure, coastal access and recreational facilities, and public safety.

1.3 Related Laws, Legislation, and Management Guidelines

1.3.1 National Environmental Policy Act

This environmental assessment (EA) was prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, Council on Environmental Quality (CEQ) regulations for the implementation of NEPA (40 Code of Federal Regulations [CFR] §§ 1500–1508), Department of Interior (DOI) regulations for the implementation of NEPA (43 CFR § 46), NPS Director's Order (DO) #12: Conservation Planning, Environmental Impact Analysis, and Decision-Making, and the NPS NEPA Handbook (2015). As per DO #12 section 4.2, where other directives or guidelines differ from the NPS NEPA Handbook, the handbook will take precedence.

1.3.2 California Environmental Quality Act

California Environmental Quality Act (CEQA) compliance is required prior to any state or local agency taking action on the project, such as the city's approval of the project. Under the San Francisco Administrative Code, chapter 31, the San Francisco Planning Department's Environmental Planning Division is responsible for conducting the environmental review of all City and County of San Francisco projects pursuant to the requirements of CEQA. The planning department as lead agency prepared the Ocean Beach Climate Change Adaptation Project Environmental Impact Report (EIR) for the project, in compliance with CEQA. The EIR was certified by the San Francisco Planning Commission on September 28, 2023, and the SFPUC reviewed and considered the EIR in making the decision to approve the project on October 10, 2023. In approving the project, the SFPUC adopted CEQA findings, including adopting all feasible mitigation measures identified for the project, and adopted the mitigation monitoring and reporting program (MMRP; included in **Appendix B**, Resource Protection Measures). By adopting the MMRP, the city has committed to implementing the CEQA mitigation measures.

7 San Francisco Bay Area Planning and Urban Research Association (SPUR) et al., Ocean Beach Master Plan, May 2012. Available at: https://www.spur.org/featured-project/ocean-beach-master-plan. Accessed August 17, 2023.

8 California Ocean Protection Council, Draft State of California Sea Level Rise Guidance: 2024 Science and Policy Update, January 2024. Available at: https://opc.ca.gov/wp-content/uploads/2024/01/SLR-Guidance-DRAFT-Jan-2024-508.pdf. Accessed on March 7, 2024.

This EA is not a joint NEPA/CEQA document; the process described above fulfilled the CEQA requirements for the project.

1.3.3 Clean Water Act

Section 401

Clean Water Act (CWA) section 401 requires that projects involving any discharge into navigable waters obtain state certification that the discharge complies with applicable water quality regulations and standards. For example, for any activity that may require a CWA section 404 permit (see below), the applicant must obtain a CWA section 401 water quality certification. The San Francisco Bay Regional Water Quality Control Board (RWQCB) has jurisdiction over section 401 permitting within the project area. The city would apply for a section 401 water quality certification during the preparation of final design.

Section 402

CWA section 402 requires that all construction sites encompassing 1 acre or more of land must obtain permission under a National Pollutant Discharge Elimination System (NPDES) permit. All NPDES permits are written to ensure the nation's receiving waters would achieve specified water quality standards. Given the project includes disturbance of more than 1 acre of land, the project would be subject to the State Water Resources Control Board's *NPDES General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities* (construction general permit),[9] including preparing a stormwater pollution prevention plan (SWPPP). SWPPPs are site-specific, written documents that (1) identify potential sources of stormwater pollution on a construction, industrial, and/or municipal site; (2) describe stormwater control measures and best management practices (BMPs) that would be used to reduce or eliminate pollutants in stormwater discharges from the project area; and (3) identify the procedures the operator of the project area would implement to comply with the terms and conditions of the site-specific general permit.

Section 404

The project must also comply with CWA section 404, which regulates dredging and placement of fill within waters of the United States, including the Pacific Ocean, and is administered by the U.S. Army Corps of Engineers (Corps). The Ocean Beach Project would involve removal of revetment rock from waters of the United States (i.e., areas of the beach below the high tide line). The SFPUC has applied for section 404 permit coverage under Nationwide Permits 13 (Bank Stabilization) and 33 (Temporary Construction, Access and Dewatering).

[9] State Water Resources Control Board, *National Pollutant Discharge Elimination System General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities* (Order 2022-0057-DWQ, NPDES No. CAS000002).

1.3.4 Coastal Zone Management Act

The National Oceanic and Atmospheric Administration (NOAA) administers the Coastal Zone Management Act (CZMA), passed by Congress in 1972 to address growth and development in coastal areas. The stated goal of the CZMA is to "preserve, protect, develop, and where possible, to restore or enhance the resources of the nation's Coastal zone for this and succeeding generations."[10] California's Coastal Management Program is administered by the California Coastal Commission (CCC) and requires the CCC to implement and administer a coastal development permit process for projects within the coastal zone. Because the project is located within the California Coastal Zone and involves non-federal activities on federal land, it requires a permit from the CCC. Additional discussion of NPS consultation with CCC is provided in Section 4.2, *Correspondence*.

1.3.5 Endangered Species Act

The federal Endangered Species Act (FESA) designates threatened and endangered animal and plant species and provides measures for their protection and recovery.

The "*take*" of listed plant or wildlife species, defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct," is prohibited without first obtaining a federal permit. Activities that damage (i.e., harm) the habitat of listed wildlife species require approval from the U.S. Fish and Wildlife Service (USFWS) or National Marine Fisheries Service (NMFS); collectively, these entities administer the act. Federal agency take of listed species can be authorized through the FESA section 7[11] consultation process.

Additional discussion of NPS consultation with USFWS is provided in Section 4.2, *Correspondence*. As the project would have No Effect on species under NMFS jurisdiction, NPS does not anticipate consulting with NMFS.

1.3.6 National Historic Preservation Act

Section 106 of the National Historic Preservation Act (NHPA) and its implementing regulations require federal agencies to consider the effects of their undertakings on historic properties. The section 106 review normally involves identifying historic properties in consultation with the State Historic Preservation Officer (SHPO) and interested parties; assessing project effects on identified historic properties; consulting with SHPO and others to develop and execute an agreement regarding the treatment of historic properties that will be adversely affected, if any; and proceeding with the project according to the agreement. Discussion of NPS consultation with

10 National Oceanic and Atmospheric Administration Office for Coastal Management, Coastal Zone Management Act, https://coast.noaa.gov/czm/act/, accessed August 23, 2023.

11 Under section 7, the federal lead agency must consult with the USFWS or NMFS to ensure that the federal action would not jeopardize endangered or threatened species or destroy or adversely modify designated critical habitat. If a project "may affect" a listed species or designated critical habitat, the lead agency is required to prepare a biological assessment evaluating the nature and severity of the expected effect. The USFWS and NMFS then issue a biological opinion determining whether (1) the proposed action may either jeopardize the continued existence of one or more listed species or result in the destruction or adverse modification of critical habitat, or (2) the federal action would not jeopardize the continued existence of any listed species or result in adverse modification of critical habitat.

the California State Historic Preservation Officer and affected Native American Tribal representatives is provided in Section 4.2, *Correspondence*.

1.3.7 National Park Service Organic Act

The 1916 National Park Service Organic Act (Organic Act) established the mission of the NPS and directs the NPS to manage units "to conserve the scenery and the natural and historic objects and the wildlife therein and to provide for the enjoyment of the same in such a manner as will leave them unimpaired for the enjoyment of future generations." The Organic Act prohibits actions that permanently impair park resources unless a law directly and specifically allows for the acts.

The fundamental purpose of the national park system, established by the Organic Act and reaffirmed by the General Authorities Act, as amended, begins with a mandate to conserve park resources and values. NPS managers must always seek ways to avoid, or to minimize to the greatest degree practicable, adverse impacts on park resources and values. However, the laws do give the NPS the management discretion to allow impacts on park resources and values when necessary and appropriate to fulfill the purposes of the park. That discretion is limited by the statutory requirement that the NPS must leave resources and values unimpaired unless a particular law directly and specifically provides otherwise.

1.3.8 National Park Service Management Policies

NPS Management Policies (2006) provide guidance to "protect park resources and values to ensure that these resources and values are maintained in as good or better condition for the enjoyment of present and future generations." These policies are based on laws, executive orders, proclamations, and regulations that govern the NPS as well as departmental policies and longstanding NPS practices. This EA was prepared consistent with NPS Management Policies.

1.3.9 Golden Gate National Recreation Area General Management Plan

The purpose of the Golden Gate National Recreation Area General Management Plan is to provide comprehensive direction for resource preservation and visitor use and a basic foundation for decision-making for the GGNRA and Muir Woods National Monument for the 20-year planning horizon.[12] With respect to Ocean Beach specifically, the GGNRA General Management Plan states:

> The park would continue to participate in multiagency planning and implementation efforts following the 2012 Ocean Beach Master Plan, and other more detailed planning and implementation processes that would follow.

[12] National Park Service, *Final General Management Plan/Environmental Impact Statement for the Golden Gate National Recreation Area and Muir Woods National Monument*, April 2014. Available online at: https://parkplanning.nps.gov/document.cfm?parkID=303&projectID=15075&documentID=58777. Accessed February 2, 2024.

The National Park Service would continue to work with the City of San Francisco, California Coastal Commission, and the U.S. Army Corps of Engineers to address coastal erosion, restore natural processes, and maximize protection of the beach for its natural and recreational values. The National Park Service could relocate park facilities from vulnerable locations and would work with municipalities to identify the most compatible and sustainable management of stormwater and wastewater facilities within their easement rights.

The federal action would allow the city to implement components of the Ocean Beach Project, which is based upon the Ocean Beach Master Plan, within GGNRA lands. Consistent with the General Management Plan's vision for Ocean Beach, the project's removal of revetments and rubble, installation of a buried wall, and native dune planting and beach nourishment would address coastal erosion, restore more natural shoreline processes, and enhance the area's natural and recreational values.

1.3.10 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) prohibits the take of protected migratory bird species without prior authorization by the USFWS. "Take" is defined broadly under the MBTA to include actions to pursue, hunt, capture, kill, collect, possess, sell, barter, and/or transport migratory birds, or to attempt such activities. This refers to both live or deceased birds and their parts, including feathers, nests, and eggs. The list of migratory bird species protected by the law is published by the USFWS and was most recently updated in a 2020 update to the MBTA regulations. All federal project actions must comply with this act and regulations; therefore, they cannot result in unauthorized take of migratory birds.

CHAPTER 2
Alternatives

This chapter provides an overview of the federal alternatives considered for the City and County of San Francisco (city) request to the National Park Service (NPS) for an easement and Special Use Permit for work within NPS land on the city's Ocean Beach Project. Included within this chapter is a detailed description of the alternatives, and a brief explanation of those alternatives considered and dismissed.[13] The NPS explores and objectively evaluates two alternatives in this environmental assessment (EA):

- Proposed Action Alternative
- No Action Alternative

2.1 Proposed Action Alternative

NEPA requires federal agencies to consider the environmental effects of their actions in the decision-making process. Under the Proposed Action Alternative, the NPS would issue an easement and Special Use Permit (federal action) for the city's work on NPS lands to construct and operate the city's Ocean Beach Project. The federal action is required for the Ocean Beach Project to proceed. Therefore, this EA addresses the potential environmental impacts of the Ocean Beach Project, impacts which could indirectly result from the federal action.

Most of the project components and work are proposed along the Great Highway. The Great Highway is under San Francisco Recreation and Park Department (Rec and Park) jurisdiction. San Francisco Public Works (Public Works) performs sand removal along the Great Highway. The Golden Gate National Recreation Area (GGNRA), a unit of the NPS, owns and manages lands to the west of the Great Highway (e.g., parking lot, bluffs, and beach), and Fort Funston to the south, where multiple project elements or activities are proposed. Various city and state agencies own or manage properties to the east, such as those occupied by the San Francisco Zoo, the California Army National Guard, the Oceanside Water Pollution Control Plant (Oceanside Treatment Plant), the Westside Pump Station, and the Pomeroy Recreation and Rehabilitation Center. As generally shown on **Figures 2a through 2d** and described below, project components include the following:

- Permanently closing the Great Highway between Sloat and Skyline boulevards to public vehicular traffic, removing the NPS restroom and coastal parking lot, rerouting the San

[13] Alternatives that were considered but dismissed from detailed analysis were technically infeasible, unable to meet the federal action's purpose and need, in conflict with the overall management of the park or its resources, and/or duplicative of less environmentally damaging or less expensive alternatives.

Francico Municipal Railway's (Muni) 23 Monterey bus layover and turn-around, reconfiguring affected intersections and San Francisco Zoo parking access, and maintaining a service road to critical wastewater facilities;

- Constructing a buried wall to protect existing wastewater infrastructure from shoreline erosion;
- Removing pavement, rock and sandbag revetments, and rubble and debris from the beach, reshaping the bluff, placing sand fencing and North Ocean Beach sand over the slope stabilization layer during construction, and planting native vegetation;
- Constructing a NPS Fort Funston trail connection,[14] multi-use trail, beach access stairway, coastal access parking, and restrooms, and completing Americans with Disabilities Act (ADA) access improvements to an existing Ocean Beach trail north of Sloat Boulevard;
- Providing long-term beach nourishment (small sand placements); and
- Implementing a plant propagation site within Fort Funston.

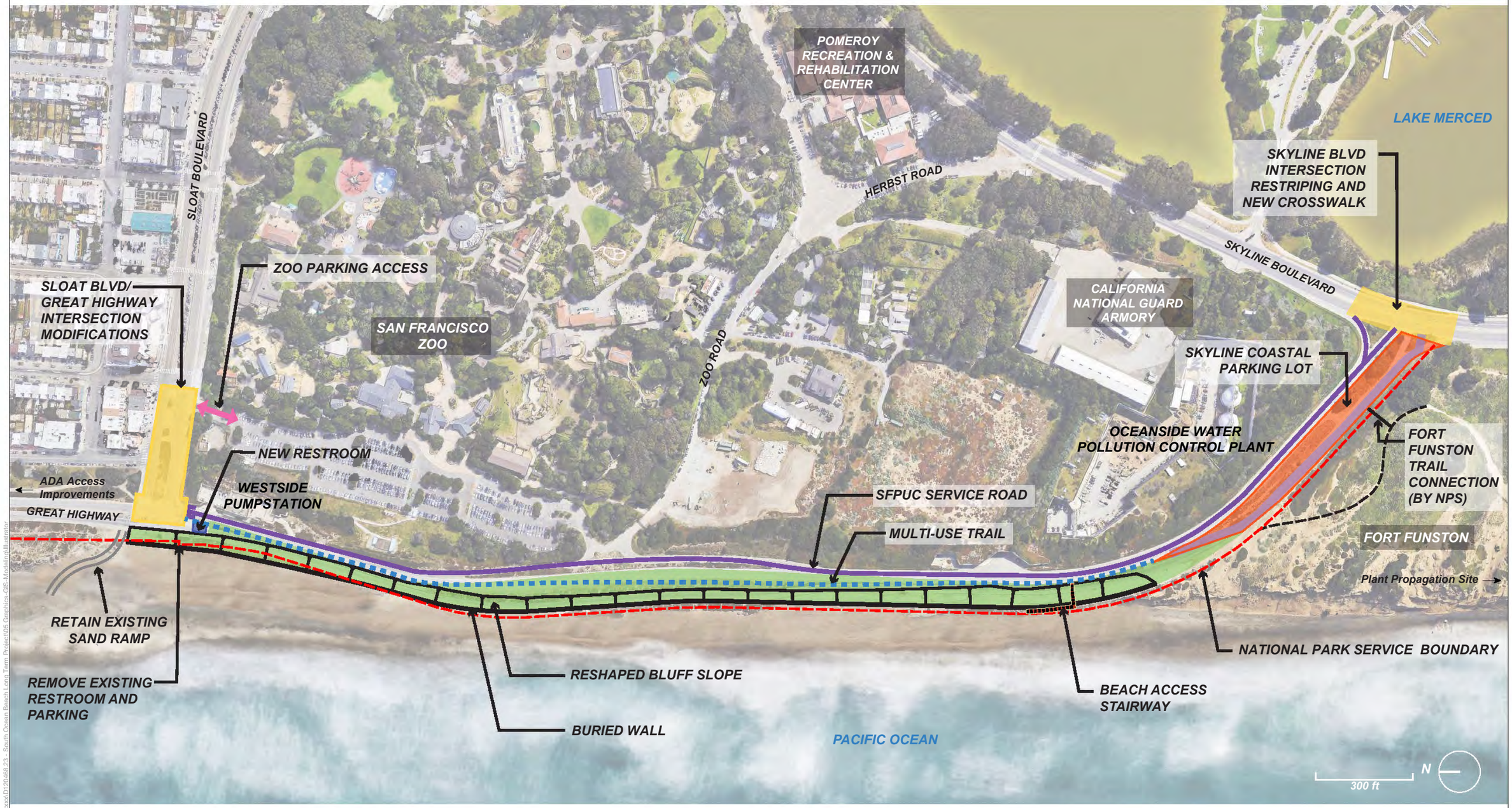
2.1.1 Roadway and Intersection Modifications

The city would permanently close the Great Highway between Sloat and Skyline boulevards to public vehicular traffic. To accommodate the road closure, the city would modify intersections at Sloat Boulevard/Great Highway and Skyline Boulevard/Great Highway and reconfigure the Sloat Boulevard entrance to the San Francisco Zoo to accommodate both an entrance and an exit. The city would remove the Great Highway and the NPS parking lot and restrooms near the Sloat Boulevard/Great Highway intersection, and replace them outside of NPS lands as described in Section 2.1.4, *Public Access, Parking, and Restroom Improvements*, below. The Great Highway's existing eastern northbound travel lane would be retained in place (or reconstructed east of the current road alignment to allow for more open space) to provide a service road for continued, restricted access to the Oceanside Treatment Plant and Westside Pump Station for SFPUC operations, as well as for emergency and maintenance vehicles and emergency egress. A multi-use trail would be installed to the west of the service road. The city would install wayfinding signage along the multi-use trail near the intersection directing people walking and bicycling to cross Skyline Boulevard at the designated crosswalk to connect with the existing path around Lake Merced. The existing Muni 23 layover and turnaround would be rerouted.

2.1.2 Buried Wall

To protect the Lake Merced Tunnel from exposure to coastal hazards, the city would construct a below-grade wall adjacent to and seaward of the Lake Merced Tunnel. The buried wall would consist of a secant pile wall system with tieback anchors and would extend from Sloat Boulevard to approximately 3,200 feet to the south, of which an approximately 1,000-foot segment would be located on NPS land. The wall would be approximately 3 feet thick, set back as far from the shoreline as feasible, and buried under sand. To stabilize the bluff inland of the wall, the city would reshape the remaining bluff face and install a separate 3-foot-thick, gently sloping (3:1 horizontal to

[14] The Fort Funston trail connection would be constructed and operated by the NPS.



Note: Project elements conceptual and not necessarily shown to scale. Long-term beach nourishment not shown.

SOURCE: San Francisco Public Utilities Commission Ocean Beach Climate Change Adaptation Project - Long Term Improvements 65% Submittal, October 2021

Ocean Beach Climate Change Adaptation Project

Figure 2a
Project Elements Proposed for South Ocean Beach

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SOURCE: ESA, 2022; Google Earth, 2022

Ocean Beach Climate Change Adaptation Project

Figure 2b
Project Elements Proposed for Middle Ocean Beach

SOURCE: ESA, 2020; Google Earth, 2020

Ocean Beach Climate Change Adaptation Project

Figure 2c
Project Elements Proposed for North Ocean Beach

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SOURCE: ESA, 2023; Google Earth, 2022

Ocean Beach Climate Change Adaptation Project

Figure 2d
Project Elements Proposed for Fort Funston

vertical slope) layer of cementitious material (slope stabilization). Bluff reshaping would involve removing or grading portions of the bluff to create a gentler slope. Slope stabilization would minimize erosion of the material overlying the tunnel and protect against scour behind the wall from large waves. **Figure 3** shows a typical cross-section of the proposed wall and slope stabilization. The reshaped bluff would provide a broad, publicly accessible open space area extending from the proposed service road and multi-use trail toward the beach (multi-use trail described below).

The wall and slope stabilization would be covered by sand at most times, and a minimum of 27 feet would be required between the wall and the Lake Merced Tunnel to allow for *tieback anchors*[15] to be installed. Under normal conditions, the wall and slope stabilization would remain buried. However, the wall and slope stabilization could be exposed after severe storms and high wave conditions when the beach and bluff can erode away rapidly. Over time, with sea level rise and other climate change impacts, such as larger and more frequent storms, the risk of buried wall exposure could increase. As discussed further below in Section 2.1.5, *Beach Nourishment*, the project includes shoreline monitoring and sand replenishment to maintain the beach and slope stabilization cover.

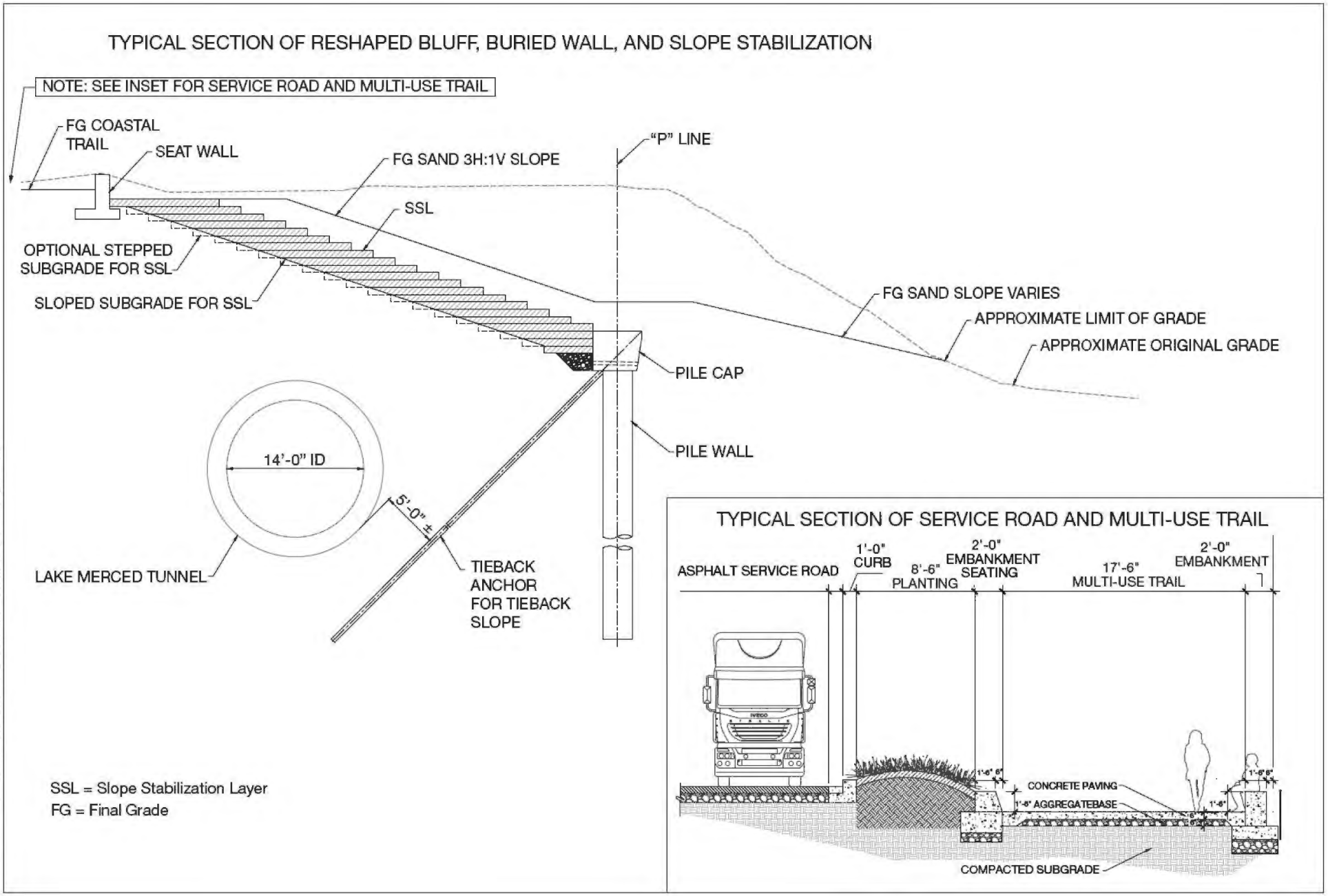
The buried wall would be designed to accommodate sea level rise and storm events with a nominal service life of 50 years (until approximately 2075), but with the proposed beach nourishment it is expected to last until 2100. The city anticipates that reevaluation of the performance of the buried wall and beach nourishment program would be conducted around 2060 to provide sufficient time to plan and implement additional adaptation measures, if determined necessary.

2.1.3 Debris and Revetment Removal, Sand Placement, and Revegetation

Various shoreline protection structures and construction demolition debris have been placed along the South Ocean Beach shoreline to reduce bluff erosion, including two rock revetments totaling more than 1,000 feet and three sandbag revetments totaling approximately 240 feet. Additional debris from the Great Highway roadbed fill that has become exposed due to bluff retreat also occurs along the South Ocean Beach shoreline. Following wall construction, the city would remove the existing shoreline protection structures and debris, including rock and sandbag revetments and rubble, from the beach and bluff. The city would place sand over the stabilized slope and plant native vegetation in coordination with the NPS and in accordance with the project's habitat restoration and enhancement plan, and may implement wind-erosion control measures to help keep the placed sand on the beach and bluff until vegetation is established. These measures could include *sand fencing*,[16] brushwood fencing, and placing a layer of coarse sand over the finer beach sand.

15 Tieback anchors are horizontal rods or cable systems that are used to provide added stability and reduce lateral displacement of retaining walls. The tiebacks are typically drilled at an angle through the retaining wall and into the underlying geologic formation.

16 Sand fencing consists of wooden slats, plastic, or fabric attached to fence posts and is designed to reduce local wind speed and trap sand. Sand fencing on a beach or berm can assist in building additional berms and helps prevent sand from blowing onto roads and paths.



SOURCE: San Francisco Public Utilities Commission Ocean Beach Climate Change Adaptation Project - Long Term Improvements 65% Submittal, October 2021

Ocean Beach Climate Change Adaptation Project

Figure 3
Conceptual Cross Sections of Access Improvements Proposed for South Ocean Beach

Vegetation proposed in the habitat restoration and enhancement plan would include locally sourced plants historically native to San Francisco, the types of which would vary depending on planting location. Planting palettes and seed sources proposed for installation on NPS lands would be approved by NPS staff. Similarly, for the initial installation, plants proposed for NPS lands would be sourced from NPS nurseries, the proposed Fort Funston propagation site (discussed further below in Section 2.1.6, *Fort Funston Plant Propagation Site*), or nurseries that otherwise meet NPS native plant requirements and are approved by NPS staff. The city would install temporary irrigation or implement watering to support the plants during their establishment period. Irrigation or watering would be provided for up to three years for the initial dune vegetation establishment. The city would also provide invasive plant removal as specified in the habitat restoration and enhancement plan during the three-year plant establishment period.

Maintenance of the vegetation on the reshaped slope would be minimal, as the installed plants would be native and adapted to project area conditions. However, some landscape maintenance may be needed after sand placement or erosion events, and to maintain access for pedestrians and emergency vehicles via the access route at the northwestern corner of the Sloat Boulevard/Great Highway intersection.

2.1.4 Public Access, Parking, and Restroom Improvements

The project would construct a multi-use trail, beach access stairs, parking, and restrooms; reconfigure transit access; and improve the existing multi-use trail along Middle Ocean Beach. Most of these features would be located outside of NPS property, as generally illustrated on Figure 2a.

Multi-Use Trail

The new multi-use trail would close a gap in the California Coastal Trail,[17] while also providing connections to existing paths along the Great Highway north of Sloat Boulevard and around Lake Merced. The multi-use trail would vary from 15 feet wide up to 20 feet wide and include several waysides, or turnouts, with seating from which visitors could view the reconfigured bluff, beach, and ocean to the west.[18] Up to 31 new solar-powered lighting fixtures would be provided for users of the multi-use trail and service road and would incorporate NPS best management practices for lighting, including only adding lighting where it is needed, shielding lights and directing them downward, and using lamps with warmer colors.

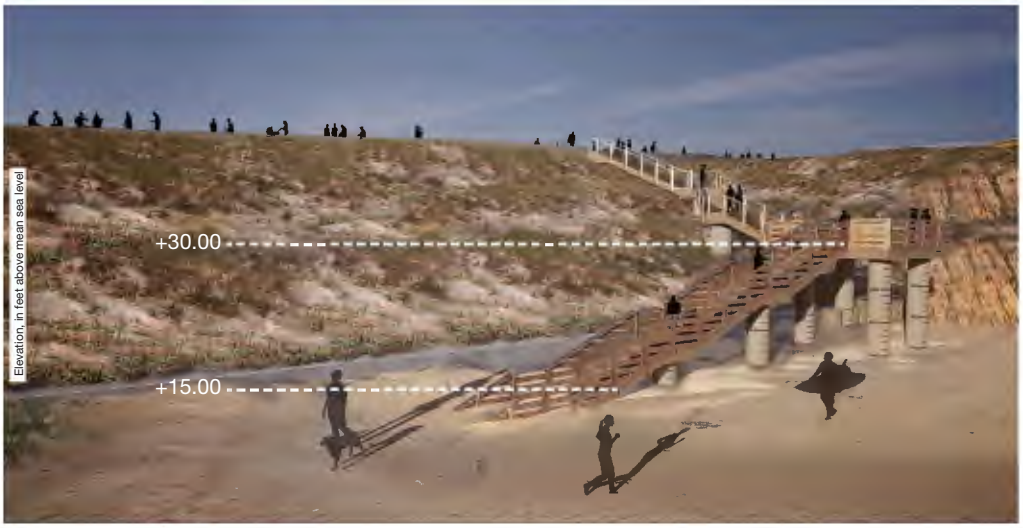
Beach Access Stairway and Sand Ramp

The city would construct a new beach access stairway at the south end of the South Ocean Beach project area, near Fort Funston. The approximate location of the beach stairway is shown on Figure 2a. A conceptual diagram of the beach access stairway during typical winter conditions when the beach is low is presented on **Figure 4**. The stairway would be located near the proposed

17 California Coastal Trail information is available at http://www.coastal.ca.gov/access/ca-coastal-trail/coastal-trail.html.

18 With the exception of a beach access stairway that would extend onto NPS lands, all visitor amenities along the multi-use path would be located on city property.

Typical Winter Low Beach



Typical Intermediate Beach

Typical Summer High Beach

DSM = Deep Soil Mixing

All elevations relative to mean sea level.

SOURCE: San Francisco Public Utilities Commission Ocean Beach Climate Change Adaptation Project - Long Term Improvements 65% Submittal, October 2021

Ocean Beach Climate Change Adaptation Project

Figure 4
Conceptual Diagram of Beach Access Stairway

Skyline coastal parking lot, discussed below. Preliminary designs call for a 6-foot-wide staircase with landings every 12 feet, descending from the top of bluff to an interim platform (larger in size than landings) located above the buried wall. From the interim platform, access to the beach would be provided by a second approximately 85-foot-long stairway extending north parallel to the buried wall. The stairs would be constructed of concrete and supported on concrete piers. The elevation difference between the beach and multi-use trail in the area of the beach access stairway would vary seasonally depending upon beach sand levels but would generally be about 40 feet. The existing beach access sand ramp at the northwestern corner of the Sloat Boulevard/Great Highway intersection would be retained for pedestrian and emergency vehicle access.

Fort Funston Trail Connection

Within the northern portion of Fort Funston, near the Great Highway/Skyline Boulevard intersection, the NPS would formalize an existing informal pedestrian trail between Fort Funston and the location of the existing Great Highway. The trail connection would extend between the Coastal Trail in the south and the proposed multi-use path in the north and would be composed of sand or other earthen material consistent with other trail surfaces in the park. The trail would be bounded on both sides by a thimble eye fence to prevent the creation of additional informal trails. The NPS would also construct a new stairway, extending between the new trail in the south and the proposed parking lot described below. Steeply sloping segments of the trail connection would be composed of stringer steps, or wooden staircases that gain elevation in long running lines. The tread of the staircase would be made of wooden planks fastened between two parallel stringers. For gentler sections of the trail, back-filled stringer steps may be used; these steps would be constructed of milled timbers, back filled with crushed rock, and crowned with tread material (e.g., gravel, soil).

Restroom and Parking Improvements

An approximately 1,400 square-foot, one-story restroom building and 35-space parking lot currently exist on NPS lands at the Sloat Boulevard terminus, near the Great Highway intersection. These facilities would be removed and replaced by an approximately 1,080-square-foot new restroom approximately 50 feet east (inland) of the existing NPS restroom and east of the proposed buried wall, and a new paved public parking lot with approximately 60 vehicle parking stalls located within the former Great Highway alignment adjacent to the southern end of the new multi-use trail. The new restroom and parking lot would be designed and constructed in conformance with the Americans with Disabilities Act (ADA).

Transit Access

The turnaround route and layover space for Muni Line 23 would change in response to the Sloat Boulevard/Great Highway intersection reconfiguration. Muni Line 23 would continue service to the existing last bus stop on the north side of Sloat Boulevard between the Lower Great Highway and 47th Avenue. This stop would then serve as the layover space instead of the current layover location at the western terminus of Sloat Boulevard. The city would modify Muni Line 23's

turnaround route to follow a clockwise loop along the Lower Great Highway, Wawona Street, and 47th Avenue.

ADA Access Improvements

The project includes improvements to the existing multi-use trail along Middle Ocean Beach to provide greater access to and along the coast for people with disabilities. Under the project, the city would improve an approximately 2,200-foot-long segment of the multi-use trail between the Upper Great Highway and Lower Great Highway, from Sloat Boulevard to Taraval Street. The improvements would occur within the existing trail footprint and include pavement grinding and patching to make the trail smoother, surface grading, and repaving. The project would also provide new beach access for wheelchairs and walkers via *mobi-mats*, which are ADA-compliant non-slip rollable pathway mats that would be placed on the beach at the Taraval Street beach access. These mats would be neutral-colored and low-profile.

2.1.5 Beach Nourishment

With erosion of sand placed over the slope stabilization, portions of the wall would no longer be continuously buried, and the beach would narrow. To address this issue, the city would implement a shoreline monitoring program and place sand when established triggers are met during annual monitoring. Under the proposed beach nourishment program, the city would place sand approximately every four years, on average, based upon annual monitoring results and sand availability.[19]

Shoreline Monitoring Program

The SFPUC would prepare a shoreline monitoring program in coordination with the California Coastal Commission (CCC) and NPS, and its implementation could be a condition of their respective project authorizations. The primary purpose of the shoreline monitoring performed by the SFPUC would be to assess whether the triggers related to beach width and/or wall exposure have been met such that beach nourishment is warranted. Subject to agency review and approval, the monitoring program would likely identify performance objectives for the nourishment program, specify criteria against which performance would be evaluated, outline both qualitative and quantitative monitoring methods, and establish an implementation and reporting schedule. The qualitative monitoring would involve visual observations of beach width, wall exposure, and windblown sand (i.e., encroachment onto the multi-use trail) at South Ocean Beach. Quantitative monitoring would be conducted at both North Ocean Beach and South Ocean Beach. At North Ocean Beach, this monitoring would involve topographic surveys of the beach to assess sufficiency of sand supply in the event a sand placement is required. At South Ocean Beach, quantitative monitoring would involve topographic surveys of the beach and bluff to document

[19] The city is also considering large sand placements of sand dredged by the U.S. Army Corps of Engineers (Corps). Such large sand placements would depend upon a future Corps maintenance dredging program that requires additional environmental review and regulatory approvals. If both large and small sand placements are implemented, the average frequency of sand placement is estimated as once every seven years.

beach width, wall exposure, and windblown sand conditions.[20] Under the monitoring program, annual reports would be prepared. These reports would present the results of observations and measurements over the monitoring period, summarize the occurrence of trigger actions, and determine whether a sand placement trigger has been reached. The reports would also include an assessment of project performance relative to the specified criteria and recommendations for adjustments, as warranted. Sand placements would occur as soon as possible after the trigger is reached, generally within one year. Additionally, the monitoring program would document impacts of the seawall on shoreline erosion rates in the areas immediately north and south of the project footprint. The quantitative approach for this monitoring would be developed in collaboration with NPS and U.S. Geological Survey (USGS) staff.

Sand Sources and Placement Methods

The city's primary sand source would be North Ocean Beach (i.e., north of Lincoln Way). Under this option, referred to generally as the "small placement," at the discretion of the NPS the city would continue its practice of excavating and trucking excess sand from North Ocean Beach to South Ocean Beach (referred to as *sand backpass*).[21] The small placement option would involve trucks dumping approximately 85,000 cubic yards of sand onto the beach and bluff at access points from the service road/multi-use trail and/or the sand ramp at Sloat Boulevard.

In the event that sand from North Ocean Beach is unavailable in a given year, the city would obtain a smaller volume of sand (~25,000 cubic yards) that meets NPS guidelines regarding sand grain size and quality from a commercial vendor. Sand removed along the Great Highway for maintenance north of Sloat Boulevard could also be placed at the South Ocean Beach project area. Small sand placements from North Ocean Beach would occur generally in late spring.

The city is also considering obtaining sand from the San Francisco Harbor – Main Ship Channel, which is regularly dredged by the U.S. Army Corps of Engineers (Corps) as part of that agency's ongoing federal navigation channels maintenance program.[22] Under this scenario, referred to generally as the "large placement," a Corps dredge would pump approximately 575,000 cubic yards of sand in a *slurry*[23] onto the beach, rather than disposing of it offshore. This option would require a separate agreement between the Corps and the NPS, to which the city would not be party, along with a separate National Environmental Policy Act (NEPA) review process. Therefore, the large sand placement is not included as a component of the Proposed Action Alternative, but rather is addressed in this EA as a cumulative project.

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20 Moffatt & Nichol, AGS, McMillen Jacobs, CHS Consulting Group, and San Francisco Public Works, Sand Management Plan – Ocean Beach Climate Adaptation Project, Long-term Improvements, prepared for San Francisco Public Utilities Commission, July 2020.

21 Sand backpassing has been performed at Ocean Beach since 2013 and occurred most recently in 2019, and a large sand placement by the Corps was performed in 2021.

22 To provide deep-draft marine vessel access between the Pacific Ocean and San Francisco Bay, the Corps regularly dredges a sandbar located approximately 2 miles offshore of the Golden Gate.

23 A slurry is a mix of sand and ocean water that can be transported via pipeline from an offshore dredge to the beach.

2.1.6 Fort Funston Plant Propagation Site

The city would partner with the NPS to establish a plant propagation site on lands owned by the NPS within nearby Fort Funston that would serve as a self-replenishing stand of native dune plants for use to supplement nursery-grown container plants in initial revegetation and periodic maintenance planting of the reshaped bluff between the beach and upland areas of South Ocean Beach. The 0.5-acre Fort Funston plant propagation site would be located within an approximately 16-acre area, in dune flats generally dominated by ice plant mats and perched on Colma formation sands in the vicinity of the GGNRA native plant nursery (Figure 2d). The site would be clear of designated park trails and nearby hang-gliding areas. The ice plant mats would be removed prior to planting in the early wet season (fall/winter). Hand tools, an NPS-approved herbicide, mechanical equipment (e.g., small backhoe or excavator), or combination thereof would be used to break apart ice plant mats. Once the ice plant mats have been broken apart,[24] activities at the propagation site would consist of (1) initial planting of native seedlings, plugs, or plant divisions; (2) routine manual weeding around the transplants; and (3) as-needed hand watering of plants in the first season following initial planting and dependent on precipitation.

Details for funding the installation, propagation, and maintenance of the native vegetation would be approved through either an NPS agreement or Special Use Permit mutually agreed upon by the NPS and the city. The funding agreement would stipulate that the SFPUC's standard construction measures (SCMs) adopted Standard Construction Measures, as applicable, would be implemented to protect against inadvertent impacts on sensitive resources. NPS nurseries (such as the proposed Fort Funston propagation site) would serve as a source for initial plantings and replacement plantings within the project's habitat restoration and enhancement area along South Ocean Beach. However, the NPS may also use the Fort Funston propagation site as a plant source for other restoration projects within the GGNRA.

2.1.7 Construction Detail

Construction activities would proceed in five general phases and would occur over approximately four years with an estimated construction period spanning the third quarter of 2024 through the third quarter of 2028. Project construction activities would be sequenced as shown in **Table 2.1-1**.

During construction, the NPS parking lot and restroom would be closed, and public access to portions of South Ocean Beach would be restricted. The city would post signage at the Sloat Boulevard/Great Highway intersection notifying the public of alternative beach access, parking, and restroom locations along Ocean Beach. Temporary restrooms and trash facilities would be placed in a publicly accessible area near the Sloat Boulevard/Great Highway intersection. To the extent it could be done safely, the city would also allow beach access during periods of construction that do not require active work or equipment use on the beach. This would reduce the duration of closure to approximately six months of each year of construction. The city would not preclude lateral egress along the beach from the water; however, the egress would be restricted to the nearshore area outside of active work areas. All work occurring below the high

[24] Peter R. Baye Ph.D., memorandum dated December 3, 2021, indicates that once ice plant competition is removed the native clonal species will radially expand.

tide line would be confined to low-tide periods; no work would occur within the wetted waters of the Pacific Ocean.

TABLE 2.1-1
CONSTRUCTION ACTIVITIES AND SCHEDULE

Overall Project Construction Activities	Schedule
Phase 1: Modify Sloat Boulevard/Great Highway Intersection, remove NPS restroom, reconfigure San Francisco Zoo parking access, reroute Muni 23 Monterey bus layover and turn-around, permanently close Great Highway, construct ADA access improvements, Fort Funston propagation site	2024-2025
Phase 2: Remove Great Highway southbound lanes, construct a buried wall, and stabilize the slope	2025-2027
Phase 3: Remove revetments and rubble from beach, place sand on beach and on slope stabilization layer	2026-2027
Phase 4: Remove or repurpose Great Highway northbound lanes; install multi-use trail and service road; construct Skyline coastal parking lot, new restroom, and beach access stairway, install multi-use trail, Fort Funston trail connection, landscaping; restripe Great Highway/Skyline Boulevard intersection	2027-2028
Phase 5: Install native landscaping and temporary irrigation, undertake site cleanup	2028

Construction staging areas would be located within the following existing developed or disturbed areas, shown on **Figure 5**:

- The Great Highway's closed northbound and (until demolished) southbound lanes between Sloat Boulevard and Skyline Boulevard. SFPUC operations and maintenance staff would also use the Great Highway's northbound lanes to access the Westside Pump Station and Oceanside Treatment Plant during construction.
- The existing NPS parking lot at the western terminus of Sloat Boulevard (until removed).
- The closed area of Ocean Beach, intermittently during Phase 3 (revetment removal and initial sand placement). Work on the beach would be weather- and wave-condition-dependent.
- Available space within the Oceanside Treatment Plant, Westside Pump Station, and Zoo Pump Station.
- The northbound lane of the Upper Great Highway north of Sloat Boulevard in the vicinity of the ADA access improvements.

2.1.8 Operations and Maintenance

This section describes project operations and maintenance activities. Such activities would generally include maintaining new project facilities and managing project landscaping. Beach nourishment operations are described above in Section 2.1.5, *Beach Nourishment*.

The city would maintain the multi-use trail, restroom, beach access stairway, and Skyline coastal parking lot. The Skyline coastal parking lot would be accessible between 5 a.m. and 12 a.m. daily. The multi-use trail would have posted open hours of 5 a.m. to 12 a.m. daily. Trash collection and restroom cleaning would be administered by the city. Occasionally, as conditions

SOURCE: ESA, 2019; Google Earth, 2019

Ocean Beach Climate Change Adaptation Project

Figure 5
Staging for Construction and Operational Sand Placement Activities

warrant, sand would be removed from the multi-use trail and service road using a front loader or vacuum. The city would provide temporary irrigation to plants during the plant establishment period, and conduct some replanting as needed.

The NPS does not regularly conduct beach maintenance at Ocean Beach (designated by the NPS as a Natural Zone management area). Maintenance of the vegetation on the reshaped bluff would be minimal, as the plants would be native and adapted to project area conditions. However, the city, in coordination with approval from the NPS, would conduct some landscape maintenance if needed after sand placement, storm erosion events, and significant wind-induced sand movement. Replacement plants on NPS lands would be sourced from the Fort Funston plant propagation site, NPS nurseries, or nurseries that otherwise meet NPS native plant requirements.

2.2 No Action Alternative

Under the No Action Alternative, the NPS would not issue an easement or Special Use Permit to the city for work within NPS land. The city would not be able to implement the city's Ocean Beach Project to protect the Lake Merced Tunnel from bluff erosion and potential damage due to storm surges and high wave conditions associated with climate change and sea level rise. No change to existing NPS or city maintenance plans would occur, and the city would likely continue to apply for short-term (typically five-year) Special Use Permits from the NPS to implement emergency bluff protection, including rock/rubble and sandbag revetments and sand placement. Over time, it is likely that coastal erosion threats to the Lake Merced Tunnel would necessitate emergency actions in the future.

The existing revetments and rubble on South Ocean Beach, and the deteriorated NPS restroom and approximately 35-space parking lot at the Great Highway and Sloat Boulevard intersection, would remain. Western portions of the parking lot pavement would continue to have crumbling edges due to encroaching coastal bluff erosion, and concrete barrier k-rail wall segments would continue to maintain the western edge of the parking lot. Sand encroachment and k-rail would continue to define the shape of the parking lot with an ad hoc combination of perpendicular and parallel parking leading to difficult vehicle ingress and egress.

As under existing conditions, the city would continue to monitor shoreline conditions and the performance of existing rock and sandbag revetments at South Ocean Beach. These structures alone are not sufficient to protect the full length of the Lake Merced Tunnel. To provide continued protection of the Lake Merced Tunnel, the city would maintain the existing revetments and would continue periodic sand backpassing from North Ocean Beach to help minimize bluff erosion and maintain a sandy beach.

The city would continue to manage the Great Highway, which provides access to South Ocean Beach, as under current conditions. Intermittent or permanent closure of the Great Highway could be required due to migrating sand making the highway impassible or for roadway repairs if a substantial erosion event were to occur. Intermittent closures of the Great Highway would continue to limit access to the NPS parking lot and restroom, affecting the visitor experience at South Ocean Beach.

The No Action Alternative provides a benchmark for comparison with the Proposed Action Alterative and its associated environmental consequences. Should the No Action Alternative be selected, the city would respond to future needs and conditions without major actions or changes in the present course. Activities to protect the Lake Merced Tunnel, if needed in the future, would likely be done on an emergency basis or under another NPS authorization to the city.

2.3 Alternatives Considered but Dismissed from Detailed Analysis

This section summarizes the alternatives considered but dismissed from detailed analysis. The contents of this section are adapted from the project's Final EIR Chapter 6, Alternatives, which is incorporated herein by reference.[25] Alternatives that were considered but dismissed from detailed analysis were technically infeasible, unable to meet the federal action's purpose and need, in conflict with the overall management of the park or its resources, and/or duplicative of less environmentally damaging or less expensive alternatives. The alternatives evaluated in the EIR but considered and dismissed in this EA, for the reasons listed below, include:

- Protect Critical Infrastructure with Increased Beach Nourishment
- Protect Critical Infrastructure with Conventional Seawall
- Replace Lake Merced Tunnel with Inland Infrastructure

Protecting critical infrastructure with increased beach nourishment is similar to the No Action Alternative but would remove revetments and rubble from the beach and would require five times more sand placement on an annual basis (approximately 200,000 cubic yards per year on average) on South Ocean Beach. Given the volume required, the primary source of sand would be the San Francisco Harbor – Main Ship Channel, which is dredged by the U.S. Army Corps of Engineers (Corps) as part of its ongoing federal navigation channels maintenance program. While the alternative would be expected to substantially reduce the rate of shore erosion and protect coastal assets, the shoreline conditions at South Ocean Beach are dynamic and highly variable, and there remains a possibility that in a severe storm, substantial shore erosion could result. Therefore, placement of more sand would not guarantee protection of the wastewater system infrastructure and would not meet the project need.

Protecting critical infrastructure with a conventional seawall could conflict with the overall management of park resources because during periods of larger waves and a narrowed beach, wave interactions with the conventional seawall could cause accelerated erosion of adjacent Fort Funston bluffs. This type of effect would be more likely than under the Proposed Action Alternative because the conventional seawall would be placed along the existing revetment alignment, instead of being located inland. The conventional seawall would also represent a conspicuous and dominant artificial landscape feature that would diminish the scenic quality of the shoreline, which would not occur under the Proposed Action Alternative. This alternative also

[25] San Francisco Planning Department, Ocean Beach Climate Change Adaptation Project Final Environmental Impact Report, September 14, 2023. Available at: https://sfplanning.org/environmental-review-documents.

would likely not be allowed by the California Coastal Commission (CCC) from which a permit would be required.

Replacing the Lake Merced Tunnel with inland infrastructure would result in environmental impacts of a scope and intensity similar to the impacts of the Proposed Action Alternative. The cost would be greater than the cost of the Proposed Action Alternative.[26] In addition, this alternative would not protect other inland infrastructure from future coastal hazards, and so would not fully avoid the need for future shoreline protection structures. Therefore, this alternative may be cost prohibitive, would not be likely to result in less environmental damage than the Proposed Action Alternative, and would not fully meet the project need.

2.4 Resource Protection Measures

On September 28, 2023, the San Francisco Planning Commission certified the Ocean Beach Climate Change Adaptation Project Final EIR, which evaluated potential environmental effects of project construction and operation and identified mitigation measures whose implementation would avoid or reduce such effects. On October 10, 2023, the SFPUC approved the project and adopted a mitigation monitoring and reporting program (MMRP), thereby committing the city to implementing the mitigation measures identified in the Final EIR. In addition, the SFPUC has adopted Standard Construction Measures (SCMs) that are included as requirements of all construction contracts, as applicable. The MMRP and SCMs are presented in Appendix B**,** Resource Protection Measures. Implementation of the MMRP and SCMs would be requirements of the easement or Special Use Permit as NPS specific conditions, and therefore are assumed to be elements of the Proposed Action Alternative for purposes of this EA.

26 SFPUC, Alternatives Analysis Report for Coastal Adaptation Strategies for South Ocean Beach Wastewater Systems, February 2018.

CHAPTER 3
Affected Environment and Environmental Consequences

The National Environmental Policy Act (NEPA) requires that documents address the environmental impacts of a proposed federal action and any adverse environmental effects that cannot be avoided should the project be implemented. This chapter describes the existing environment and the environmental impacts associated with the Proposed Action and No Action alternatives.

A list of resource issues related to the Proposed Action Alternative were identified through internal NPS scoping and the state environmental review (CEQA) process, including agency and tribal consultation, and public communications during conceptual planning. Section 3.1, *Resource Issues Considered but Dismissed from Further Analysis*, lists issues that were dismissed from further analysis and the reason for their dismissal. Section 3.2, *Resource Issues Retained for Further Analysis*, contains the list of resource issues retained for further analysis, which are described in detail in Section 3.3, *Affected Environment and Environmental Consequences*.

3.1 Resource Issues Considered but Dismissed From Further Analysis

The following resource topics are not considered further for analysis because the associated impacts are unlikely to occur, are not potentially significant, are not a point of public or agency contention, or do not vary considerably among the alternatives.

Agriculture and Forestry Resources. Agriculture and forestry resources are dismissed as an impact topic for this project because none are present within the project areas or surrounding area.

Hazards and Hazardous Materials. The project would not involve use or storage of extremely hazardous materials, is not located on a hazardous materials site, and would not impede emergency access during construction or operation. Therefore, the project would not be expected to result in substantial hazards or hazardous materials impacts.

Park Operations and Management. Park operations and maintenance are dismissed as an impact topic for this project because the actions proposed would not have disproportionately high and adverse effect on operations and maintenance within the park. The majority of the project elements would be located on city property and operated and maintained by city staff.

Population, Housing, and Growth-Inducing Impacts. The project would not induce population growth in the area. The project does not involve any housing construction and therefore would not induce growth directly by constructing housing that would attract people to the area. Project construction would not extend roads or other infrastructure that could indirectly induce growth. Project construction is expected to use a locally sourced worker base and would not require new or additional housing.

Socioeconomics and Environmental Justice. Environmental justice is dismissed as an impact topic for this project because the actions proposed would not have disproportionately high and adverse human health or environmental effects on minority or low-income populations. Benefits of this project include increased and improved South Ocean Beach recreational opportunities for all, as well as protection of existing wastewater infrastructure, which benefits the larger San Francisco community as a whole. Additional environmental justice considerations for the Proposed Action Alternative are presented in **Appendix C**.

Wilderness. The Wilderness Act of 1964 established the National Wilderness Preservation System, a national network of more than 800 federally designated wilderness areas. Wilderness areas are defined in section 2(a) and 3(a) of the act as federally owned areas designated by Congress as "wilderness area," including national forests designated prior to the effective date of the act as "wilderness," "wild," or "canoe." No such areas are present within or adjacent to the project area, and therefore this resource topic is not applicable.

Wildfire. Project work would be located primarily in developed areas where wildfire risk is minimal. General construction access would be confined to existing maintained roads, beach, trails, and developed areas. Off-road access would be limited to the beach and the native plant nursery and bank swallow habitat restoration areas within Fort Funston, where wildfire risk is low. Moreover, within Fort Funston, work would be done primarily with hand tools.

3.2 Resource Issues Retained for Further Analysis

The following resource topics are retained for detailed analysis and are addressed in Section 3.3, *Affected Environment and Environmental Consequences*, below: air quality, geologic resources, greenhouse gas emissions and climate change, lightscapes, soundscapes, threatened or endangered species, transportation, vegetation, visitor use and experience, visual resources, water quality, wildlife and habitat, and historic properties.

3.3 Affected Environment and Environmental Consequences

For each of the resource topics listed in Section 3.2, *Resource Issues Retained for Further Analysis*, this section provides a description of the affected environment (existing conditions) and environmental consequences for the Proposed Action and No Action alternatives.

General Methodology for Establishing Impacts

Potential impacts associated with the Proposed Action and No Action alternatives are generally described in terms of type (beneficial, adverse, direct, indirect), context (local or regional), duration (short-term or long-term), and intensity (negligible, minor, moderate, major). A *direc*t impact is caused by the action and occurs at the same time and place.[27] An *indirect* impact is caused by the action and is later in time or farther removed in distance but is still reasonably foreseeable. [28]

Cumulative Impacts

Cumulative impacts are defined as "the effects on the environment that result from the incremental effects of the action when added to the effects of other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions."[29] Cumulative impacts are determined for each impact topic by combining the impacts of the alternative being analyzed and other past, present, and reasonably foreseeable actions that also would result in beneficial or adverse impacts. Because some of these actions are in the early planning stages, the evaluation of cumulative impacts is based on a general description of the project. These actions were identified through the internal project scoping process. The cumulative projects are as follows (project summaries are provided in **Appendix D):**

- Westside Pump Station Reliability Improvements (2021-2025)
- Vista Grande Drainage Basin Improvement (2022-2027)
- Reconfiguration of the Sloat Boulevard and State Route 35 (Skyline Boulevard) Intersection (2024)
- Oceanside Treatment Plant Improvements - Biosolids Cake Hopper Reliability Upgrade (2026-2030)
- Oceanside Treatment Plant Improvements - Seismic Retrofits (2026-2030)
- Signalization of State Route 35 (Skyline Boulevard) and Great Highway Intersection (2023-2024)
- San Francisco Zoo Recycled Water Pipeline (2023-2024)
- Lake Merced West Project - 520 John Muir Drive (2024-2026)
- Westside Force Main Reliability (2027-2030)
- 2700 Sloat Boulevard (unknown future date)
- Potential Upper Great Highway Closure between Sloat Boulevard and Lincoln Way (unknown future date)

27 The Code, Title of Federal Regulations 40, Section 1508.1 – Definitions (40 CFR Section 1508.1),2024. Available at: https://www.ecfr.gov/current/title-40/chapter-V/subchapter-A/part-1508/section-1508.1. Accessed January 22, 2024.

28 Ibid.

29 Ibid.

- Great Highway Pilot Project (2022-2025)
- Sloat Boulevard Quick Build Project (2023)
- Ocean Beach Storm Damage Reduction Beach Nourishment Project (2021)
- 2700 45th Avenue (United Irish Cultural Center of San Francisco) (unknown future date)
- Sunset Boulevard Project (2024-2025)
- U.S. Army Corps of Engineers placement of up to 575,000 cubic yards of sand along South Ocean Beach (referred to herein as the "Large Sand Placements Project") (unknown future date)

Summary of Impacts

A summary of potential long-term effects conclusions for the Proposed Action and No Action alternatives is presented in **Table 3.3-1**, below.

TABLE 3.3-1
POTENTIAL LONG-TERM ENVIRONMENTAL EFFECTS BY ALTERNATIVE

Resource Topic	No Action	Proposed Action
Air Quality	Regional, minor, adverse	Regional, minor, adverse
Geologic Resources	Local, minor, adverse	Local, negligible to minor, beneficial and adverse
Greenhouse Gas Emissions and Climate Change	Regional, minor, adverse	Regional, minor, adverse
Lightscapes	No long-term effect	Local, negligible, adverse
Soundscapes	No long-term effect	Local, moderate, adverse
Threatened or Endangered Species	No long-term effect	No long-term effect
Transportation	No long-term effect	Local, minor to moderate, beneficial and adverse
Vegetation	Local, minor, adverse	Local, minor, beneficial
Visitor Use and Experience	Local, minor, adverse	Local, moderate, beneficial
Visual Resources	Local, minor, adverse	Local, moderate, beneficial
Water Quality	Local, minor to moderate, adverse	Local, negligible, beneficial
Wildlife and Habitat	Local, minor, adverse	Local, negligible to major, adverse
Historic Properties	No long-term effect	No long-term effect

3.3.1 Air Quality

This section summarizes the environmental setting and potential effects related to air quality. The contents of this section are adapted from the project's Initial Study (Final EIR Appendix B, Section E.8, Air Quality), which is incorporated herein by reference.[30]

[30] San Francisco Planning Department, Ocean Beach Climate Change Adaptation Project Final Environmental Impact Report, September 14, 2023. Available at: https://sfplanning.org/environmental-review-documents.

Affected Environment

The Bay Area Air Quality Management District (BAAQMD) is the regional agency with jurisdiction over the nine-county San Francisco Bay Area Air Basin (air basin). Under the Clean Air Act, the U.S. Environmental Protection Agency has established and continues to update the National Ambient Air Quality Standards (NAAQS) for "criteria" air pollutants including ozone (O_3), carbon monoxide (CO), inhalable particles with diameters that are generally 10 micrometers and smaller (PM_{10}), fine inhalable particles with diameters that are generally 2.5 micrometers and smaller ($PM_{2.5}$), nitrogen dioxide (NO_x), sulfur dioxide (SO_2), and lead. The air basin is designated as either in *attainment* or *unclassified* for most criteria pollutants with the exception of ozone, $PM_{2.5}$, and PM_{10}, which are designated as *non-attainment* for either the state or federal standards.[31]

Environmental Consequences

By its very nature, regional air pollution is largely a cumulative impact in that no single project is sufficient in size to, by itself, result in non-attainment of air quality standards. Instead, a project's individual emissions contribute to existing cumulative air quality impacts. The project-level thresholds for criteria air pollutants are based on levels at which new sources are not anticipated to result in a cumulatively considerable net increase in non-attainment criteria air pollutants. Therefore, a separate cumulative criteria air pollutant analysis is not necessary and not presented in the impact analysis below.

No Action Alternative

Analysis. Continued shoreline erosion could require more frequent management or emergency response activities involving heavy equipment. Use of such equipment would generate small amounts of air pollution. As applicable, the San Francisco Public Utilities Commission (SFPUC) would implement Resource Protection Measure SCM-2, Air Quality (see Appendix B), which would reduce these emissions. Similarly, if continued erosion were to require further Great Highway lane closures, increased criteria air pollutant emissions from the additional vehicle miles traveled would result due to rerouted vehicular traffic along Sloat and Skyline boulevards. The No Action Alternative could, therefore, result in both short-term and long-term, regional, minor, direct, adverse impacts on air quality.

Proposed Action Alternative

Analysis. The Proposed Action Alternative would have a major adverse impact on air quality if project emissions were to exceed 100 tons per year of any criteria pollutant or precursor for which the air basin is designated as either non-attainment or maintenance. The air basin is currently designated as marginal non-attainment for the federal 8-hour ozone standard and moderate non-attainment for the federal $PM_{2.5}$ standard. Established under the Clean Air Act, the General

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

Conformity Rule ensures that the actions taken by federal agencies in non-attainment and maintenance areas do not interfere with a state's plans to meet NAAQS.

To determine whether federal conformity rule analysis is required, annual exhaust emissions from project construction and operations activities were calculated for ozone precursors (reactive organic gasses [ROG] and nitrogen oxides [NOx]) and $PM_{2.5}$ and compared to the *de minimis* levels applicable to the air basin (100 tons per year for any of these pollutants).[32] Consistent with Resource Protection Measure M-AQ-2 and SCM-2, the city would implement emissions minimization measures during certain construction phases to reduce air pollution emissions.

Table 3.3-2, below, provides the estimated tons of ROG, NOx, and $PM_{2.5}$ emissions with and without Resource Protection Measure M-AQ-2 and SCM-2 that would be generated from project construction. **Table 3.3-3**, below, provides the estimated tons of ROG, NOx, and $PM_{2.5}$ emissions that would be generated from project operation. Construction equipment emissions were calculated for each year of construction. As illustrated in the tables, construction and operations emissions of ROG, Nox, and $PM_{2.5}$ are estimated to be well below the annual *de minimis* threshold levels applicable to the project areas. Therefore, the project would be exempt from General Conformity determination requirements and would not have a major adverse impact on air quality.

TABLE 3.3-2
NEPA-RELEVANT CONSTRUCTION CRITERIA POLLUTANT EMISSIONS OF THE PROPOSED ACTION ALTERNATIVE

	Total Annual Construction Emissions (tons/year)[a,b]									
	Project[b]					Project with Resource Protection Measure M-AQ-2 and BAAQMD Basic Construction Measures [c]				
Year	ROG	NO_X	$PM_{2.5}$ Exhaust	$PM_{2.5}$ Dust[d]	$PM_{2.5}$ Total	ROG	NO_X	$PM_{2.5}$ Exhaust	$PM_{2.5}$ Dust[d]	$PM_{2.5}$ Total
Year 1 (2024)	3.4	5.2	0.2	0.6	0.8	3.2	3.9	0.1	0.2	0.3
Year 2 (2025)	4.0	10.3	0.4	0.6	1.0	3.7	7.9	0.3	0.2	0.5
Year 3 (2026)	1.0	9.7	0.3	0.6	0.9	0.8	7.2	0.2	0.2	0.4
Year 4 (2027)	4.0	11.6	0.4	0.6	1.0	3.7	7.9	0.3	0.2	0.5
Year 5 (2028)	0.5	3.3	0.2	0.6	0.8	0.3	1.8	0.1	0.2	0.3
De Minimis Level	100	100	N/A	N/A	100	100	100	N/A	N/A	100
Exceeds De Minimis Level?	No	No	N/A	N/A	No	No	No	N/A	N/A	No

SOURCES: Environmental Science Associates, Memo to Julie Moore, San Francisco Environmental Planning Division, from Matt Fagundes, Sarah Patterson, and Elijah Davidian, Environmental Science Associates, Subject: Ocean Beach Climate Change Adaptation Project - Air Quality Technical Memorandum and Health Risk Assessment, November 3, 2021 (see Appendix G); and Bay Area Air Quality Management District, California Environmental Quality Act, Air Quality Guidelines, May 2017, CalEEMod, version 2016.3.2. Environmental Science Associates, Memo Addendum to Julie Moore, San Francisco Environmental Planning Division, from Matt Fagundes, Sarah Patterson, and Elijah Davidian, Environmental Science Associates, Subject: Ocean Beach Climate Change Adaptation Project - Air Quality Technical Memorandum and Health Risk Assessment Addendum, June 9, 2023.

ABBREVIATIONS:

ROG = reactive organic gases

32 U.S. Environmental Protection Agency, General Conformity, De Minimis Tables. Available online at: https://www.epa.gov/general-conformity/de-minimis-tables. Accessed February 20, 2024.

NO_X = oxides of nitrogen

$PM_{2.5}$ = particulate matter less than or equal to 2.5 microns in diameter

N/A = Not applicable

NOTES:

a. Average daily construction equipment and vehicle emissions were estimated using average equipment use hour and trip factors per day by phase. For example, total hours for each piece of equipment and total truck trips by phase were divided by the number of workdays for that phase to determine the modelled average daily equipment use hours and trips for each phase.
b. The project assumption is that off-road construction equipment engine tier status and associated emission factors are CalEEMod defaults, which are average emissions factors for the equipment inventory for the given calendar year of construction, assumed to be 2024 through 2028; however, the first year that the Great Highway would be closed would be 2025; therefore, those associated emissions were modelled for 2025 through 2028.
c. Resource Protection Measure M-AQ-2 requires all off-road construction equipment over 125 hp meet Tier 4 Final engine emission standards where the project emissions would exceed certain state standards. Construction emissions would not exceed state standards in years 1, 3, or 5, and therefore the measure is not required and associated emissions reductions are not presented for years 1 or 2.
d. Dust emissions for the project have been estimated by phase not year (see Final EIR Attachment C, Table 7). Therefore, for a conservative assessment, total $PM_{2.5}$ dust emissions estimated for the whole project are shown for each calendar year.

TABLE 3.3-3
NEPA-RELEVANT OPERATIONS CRITERIA POLLUTANT EMISSIONS OF THE PROPOSED ACTION ALTERNATIVE

Beach Nourishment	Maximum Annual Emissions (tons/year)		
	ROG	NO_X	$PM_{2.5}$
Small Sand Placement	0.03	0.26	0.01
Increased Great Highway Closure Vehicular Miles	0.08	0.10	0.09
Total Annual	0.11	0.36	0.10
De Minimis Level	100	100	100
Exceeds De Minimis Level?	No	No	No

SOURCE: Environmental Science Associates, Memo to Julie Moore, San Francisco Environmental Planning Division, from Matt Fagundes, Sarah Patterson, and Elijah Davidian, Environmental Science Associates, Subject: Ocean Beach Climate Change Adaptation Project - Air Quality Technical Memorandum and Health Risk Assessment, November 3, 2021 (see Appendix G).

ABBREVIATIONS:

ROG = reactive organic gases

NO_X = oxides of nitrogen

$PM_{2.5}$ = particulate matter less than or equal to 2.5 microns in diameter

NOTES: Total values may not add precisely due to rounding. Based upon the project's Sand Management Plan, sand placement activities would first occur about five years after completion of project construction, so those activities were modelled for year 2031; however, the analysis assumes 2027 would be the first year of operations period rerouted vehicle emissions from Great Highway closure. Therefore, operation period rerouted vehicle emissions were modelled for year 2027. Particulate emissions from increased Great Highway closure vehicular miles include fugitive dust (i.e., brake-wear, tire-wear, and road dust) in addition to the tailpipe exhaust emissions. Sand placement fugitive emissions would be controlled by BAAQMD's BMPs, and therefore only exhaust particulate emissions are quantified; however, $PM_{2.5}$ fugitive dust emissions associated with sand placement would be expected to be similar to those emissions that would be generated during construction (i.e., less than 1 ton per year). Therefore, total operational $PM_{2.5}$ emissions would be substantially less than the applicable de minimis limit.

The Proposed Action Alternative would result in short-term, minor, direct, adverse impacts on regional air quality due to project-related demolition, excavation, grading, and other construction activities that would generate criteria air pollutants. The Proposed Action Alternative would also result in long-term, minor, direct, adverse impacts on regional air quality due to emissions from beach nourishment and increased vehicle miles traveled associated with Great Highway closure.

3.3.2 Geologic Resources

This section summarizes the environmental setting and potential effects related to geological resources. The contents of this section are adapted from the project's Initial Study (Final EIR Appendix B, Section E.16, Geology and Soils), which is incorporated herein by reference.[33]

Affected Environment

Seismic and Other Geologic Hazards

The project areas are located outside of any Alquist-Priolo Earthquake Fault Zone. However, the area could experience violent ground shaking due to an earthquake along the Peninsula-Golden Gate segment of the San Andreas fault.[34] Subsurface and aboveground improvements could both be affected by liquefaction. The Fort Funston bluffs extending south from the southern end of the South Ocean Beach project area are mapped by the California Geological Survey as an area susceptible to earthquake-induced landslides.[35]

Coastal Processes

Under current conditions, the middle and northern portions of Ocean Beach are experiencing sand accumulation, while the southern portion is experiencing substantial erosion.[36,37] Past and present efforts to address erosion at South Ocean Beach have involved shoreline modifications, including constructing sandbag and rock revetments, and implementing beach nourishment projects using sand from North Ocean Beach. These interventions may have contributed to localized coastal process effects.

Paleontological Resources

Due to the presence of vertebrate fossils in similar geologic formations elsewhere in San Francisco, the intact Colma and Merced formations present in the project areas at depth are considered to have a moderate paleontological potential.

Environmental Consequences

No Action Alternative

Analysis. Continued shoreline erosion could result in geologic instability within the South Ocean Beach project area and surrounding environment. Emergency response measures to protect critical infrastructure from hazard exposure (e.g., sandbags or revetment rock) could require

33 San Francisco Planning Department, Ocean Beach Climate Change Adaptation Project Final Environmental Impact Report, September 14, 2023. Available at: https://sfplanning.org/environmental-review-documents.

34 San Francisco Planning Department, Community Safety Element of the General Plan of the City and County of San Francisco, October 2012, p. 10.

35 California Division of Mines and Geology (CDMG), Seismic Hazard Zones, City and County of San Francisco, Official Map, released November 17, 2000.

36 Battalio, R.T., Littoral processes along the Pacific and bay shores of San Francisco, California, USA, Shore & Beach, 82(1), Winter 2014, 3-21.

37 ESA, San Francisco Littoral Cell Coastal Regional Sediment Management Plan, Prepared for U.S. Army Corps of Engineers and the Coastal Sediment Management Workgroup. August 2015.

further bluff modification. Once installed, such measures could interact with ocean waves, resulting in localized erosion and disruptions to local coastal processes. The No Action Alternative would, therefore, have local, long-term, minor, adverse impacts on geologic resources.

Cumulative Impacts. Geologic resources impacts tend to be localized, limited to the immediate project area. The Ocean Beach Storm Damage Reduction Beach Nourishment Project (Ocean Beach Nourishment Project) placed a substantial amount of sand along the South Ocean Beach shoreline, which is expected to temporarily reduce the rate of erosion and increase beach widths in and around the placement area. The Large Sand Placements Project would similarly reduce erosion and increase beach widths. The No Action Alternative would not involve deep ground disturbance with potential to adversely affect paleontological resources. When combined with the impacts associated with ongoing beach erosion under the No Action Alternative, cumulative impacts on geologic resources would be long-term, negligible, and adverse, with the No Action Alternative contributing a minor, adverse increment.

Proposed Action Alternative

Seismic and Other Geologic Hazards

Analysis. The Proposed Action Alternative would not exacerbate the potential for people or structures to be exposed to substantial adverse effects associated with seismic or other geologic hazards, including seismic ground shaking, liquefaction and ground failure, lateral spreading, corrosive soils, or landslides. This is because the project would be designed and constructed in accordance with the recommendations of a licensed geotechnical engineer and the most current San Francisco Building Code (building code) or the SFPUC's General Seismic Requirements for Design of New Facilities and Upgrade of Existing Facilities Revision 3 (general seismic requirements). The Proposed Action Alternative would, therefore, have local, long-term, negligible, adverse effects related to seismic or other geologic hazards.

Coastal Processes

Analysis. The project's managed retreat actions (e.g., removing the existing revetments and rubble, constructing a buried wall landward of the toe of the existing revetments and rubble positions, reshaping and stabilizing the bluff with a gentler [less steep] slope) would generally result in a wider beach at South Ocean Beach and reduce the incidence of wave interaction with a hardened shoreline. By setting the shore back and widening the beach, the project would substantially reduce or avoid the types of wave interactions with shore protection structures that occur under existing conditions. As a result, sand bars would be expected to form in more natural configurations, with increased definition and persistence throughout the year.

While the wall would be buried initially, over time as beach recession continues with shore erosion the wall could become exposed, similar to conditions that periodically occur along the Taraval seawall.[38] Therefore, under the project, the city would place sand, as needed, to rebury

[38] Constructed in the early 1940s, the Taraval seawall extends approximately 665 feet along the back of the beach between Santiago and Taraval streets, roughly 0.5 mile north of the South Ocean Beach project area. The wall is

the wall. As described in Section 2.1.5, *Beach Nourishment*, the city would develop and implement a shoreline monitoring program. The program would be a requirement of the California Coastal Commission (CCC) and National Park Service (NPS) approvals, and would include triggers for sand placement, criteria for evaluating project performance, and annual reporting regarding program effectiveness and whether adjustments are needed.

Modeling performed in support of the Proposed Action Alternative's sand placement activities estimates approximately four full wall exposure events over the project's lifetime (modeled as 80 years).[39] The assessment includes consideration for future sea level rise. With sea level rise, the full wall exposure is estimated to occur approximately four times over the project life (i.e., approximately once every 20 to 25 years), and would be detected and addressed through the project's shoreline monitoring and beach nourishment program. Partial wall exposures could be more frequent, and would also be addressed through sand placements, if a trigger were reached. During periods of wall exposure, there would be opportunity for wave interactions with the hard structure, which could contribute to localized beach scour and the types of effects on sand bars described above. However, unlike existing conditions, the incidence and extent of the localized beach scour would be substantially reduced.

The city prepared a coastal process study to support the EIR's evaluation of potential project effects on the shoreline and adjacent areas.[40] The study was prepared in coordination with U.S. Geological Survey (USGS) staff, and draws upon more than 15 years of USGS shoreline data.[41] The coastal process study uses a numerical model and other standard coastal engineering analysis techniques, along with empirical evidence, to assess potential changes to sand bars (bar effects) and adjacent shoreline erosion (end effects) for baseline and project conditions.

With respect to bar effects, the study concludes that the project would reduce the incidence of interactions between waves and hard structures that contribute to rip current formation and associated bar effects, resulting in the formation and persistence of more natural sand bars. However, the study also found the buried wall could eventually become exposed which, through wave interaction during large swells, could contribute to localized beach scour in front of the wall and scour through sand bars. Regarding the latter, because the wall would be located farther landward of the current shoreline structures and lower in elevation, the frequency of such interactions would be considerably lower than under existing conditions. The duration of such effects under the project would be temporary, limited to approximately 12 months, on account of the proposed shoreline monitoring and beach nourishment program.

set back from the shoreline and is covered in sand most of the year, but portions of the low-profile wall are periodically exposed, typically during winter storms when beach elevations are low. In subsequent summer and fall months, when beach elevations recover, the wall typically becomes fully buried again.

39 Moffatt & Nichol, AGS, McMillen Jacobs, CHS Consulting Group, and San Francisco Public Works, Sand Management Plan – Ocean Beach Climate Adaptation Project, Long-term Improvements, prepared for San Francisco Public Utilities Commission, July 2020.

40 ESA, Coastal Process Analysis for Ocean Beach Climate Change Adaptation Project. Technical Report, December 2021.

41 USGS, Provisional monitoring data provided by USGS researchers Dan Hoover and Jonathan Warrick, consisting of repeated surveys of ocean floor and beach elevations, photographs and digital elevation models, 2021.

The analysis of project end effects in the coastal processes study is focused on the transitions from South Ocean Beach to Middle Ocean Beach to the north and to Fort Funston to the south. Middle Ocean Beach is relatively stable or accreting (accumulating sand), and end effects associated with South Ocean Beach structures or management have not been observed at Middle Ocean Beach. For these reasons, and because the project would remove existing shoreline protection and widen South Ocean Beach, the project would not result in accelerated erosion along Middle Ocean Beach.

The results of the analysis for end effects erosion along the Fort Funston shoreline indicate there would be relatively minor differences between baseline and project conditions, owing primarily to the landward shift in the shore position and wider beach, as well as implementation of beach nourishment. The study results suggest the rate of erosion downcoast of the project area would likely be greater under baseline conditions than for the project with sand placements. Conversely, the study concludes there could be minor increases in erosion of the adjacent downcoast shoreline for the project with partial and full wall exposure. In the latter case, the study assesses such change would not be likely to occur in the near term due to the wall's initial constructed condition (i.e., buried and set back from the shoreline) and the wall's engineered transitions to the north and south. The study goes on to state that adjacent shore erosion would first require a large amount of background erosion along the entire project shore and would not be substantial relative to the observed historic erosion rates. Such occurrences of wall exposure would be infrequent.

The coastal process analysis concludes that the sand bars and shoreline erosion rates would not differ substantially under project conditions relative to historical and baseline conditions. Over time, with sea level rise and other climate change impacts, such as larger and more frequent storms, bluff and beach erosion along South Ocean Beach could accelerate, with or without the project; accordingly, the frequency of sand placements could increase over time with sea level rise in order to cover the wall and maintain a sandy beach.

For these reasons, the Proposed Action Alternative would have local, long-term, minor, beneficial impacts on natural coastal processes.

Paleontological Resources

Analysis: Although much of the ground disturbance and excavation would occur within more superficial units with very low paleontological potential (i.e., artificial fill, dune and beach sand, and Colma and Merced formation deposits reworked by grading and mixed with imported gravel and construction debris), construction associated with the buried wall, slope stabilization, debris and revetment removal, and bluff reshaping would reach depths (ranging from 20 to 100 feet) that could disturb deeper intact sand dunes or the intact Colma and Merced formations.

There is reasonable potential that paleontological resources may be present at some locations, and these deeper activities could damage or destroy paleontological resources if present. Consistent with Resource Protection Measure M-GE-5, Paleontological Resources Monitoring and Mitigation Program, if encountered, the city would document for future public knowledge the scientific significance of paleontological resources, if encountered. This measure would reduce adverse effects on paleontological resources by establishing protocols for responding in the event

of an unanticipated discovery of paleontological resources, including monitoring, data recovery, and reporting procedures, among others. Therefore, the Proposed Action Alternative could have local, short-term, minor, adverse impacts on paleontological resources.

Conclusion Regarding Proposed Action Alternative Impacts

Overall, for the reasons presented above, the Proposed Action Alternative would result in local, short-term, minor, and adverse impacts on geologic resources. The Proposed Action Alternative would result in long-term, negligible to minor, beneficial and adverse impacts on geologic resources.

Cumulative Impacts

Geology, soils, and paleontological resources impacts are generally site-specific and localized. As a result, the geographic scope of potential cumulative impacts for these resources generally includes the project areas and immediately adjacent areas. With respect to seismic and other geologic hazards, the project and cumulative projects would be subject to the same or similar engineering standards and codes for seismic safety. Adherence to these standards would minimize safety risks related to seismic hazards. When combined with the impacts associated with subsurface activities under the Proposed Action Alternative, cumulative impacts on geologic resources would be long-term, negligible, and adverse, with the Proposed Action Alternative contributing a negligible, adverse increment.

Regarding coastal processes, the Ocean Beach Nourishment Project is expected to temporarily reduce erosion rates at South Ocean Beach and the Large Sand Placements Project would provide longer-term protection from erosion and maintenance of a sandy beach. The Vista Grande Drainage Basin Improvement Project, located approximately 1 mile to the south, involves shoreline work that could affect bluff erosion rates along the Fort Funston shoreline. When combined with the effects of the project's shore modifications, cumulative impacts on geologic resources (as they pertain to coastal processes) would be regional, long-term, beneficial, and negligible, with the Proposed Action Alternative contributing a negligible, beneficial increment.

Concerning paleontological resources, cumulative projects, including the Westside Pump Station Reliability Improvements, Oceanside Treatment Plant Improvements, and Westside Force Main Reliability projects, would excavate into areas where the Colma and Merced formations may be present adjacent to the project areas. Paleontological resource impacts are generally site-specific, and as a result cumulative impacts typically do not occur unless the cumulative projects are immediately adjacent to each other and affect the same resources. If there are paleontological resources that extend across excavation boundaries of the project and these other cumulative projects, the projects could result in the loss of paleontological resources. When combined with the effects of the project's subsurface activities, cumulative impacts on paleontological resources would be local, long-term, minor, and adverse, with the Proposed Action Alternative contributing a minor, adverse increment.

3.3.3 Greenhouse Gas Emissions and Climate Change

This section summarizes the environmental setting and potential effects related to greenhouse gas (GHG) emissions. The contents of this section are adapted from the project's Initial Study (Final EIR Appendix B, Section E.9, Greenhouse Gas Emissions), which is incorporated herein by reference.[42]

Affected Environment

To address GHG emissions, the city has prepared policies, programs, and ordinances and that collectively represent San Francisco's qualified GHG Reduction Strategy. The city has met the state's GHG reduction targets and met the state and region's 2030 GHG reduction target more than 10 years before the target date, and San Francisco's GHG reduction goals are consistent with, or more aggressive, than federal and state regulations. Therefore, actions that are consistent with the city's GHG Reduction Strategy would be consistent with federal and state GHG reduction goals.

Environmental Consequences

The following analysis of impacts on GHG emissions and climate change focuses on the No Action and Proposed Action alternatives' contributions to cumulatively substantial GHG emissions. Because no individual project would emit GHGs at a level that could result in a significant impact on the global climate, this analysis is presented in a cumulative context. Therefore, a separate cumulative GHG analysis is not necessary and not presented in the impact analysis below.

No Action Alternative

Analysis. Continued shoreline erosion could require more frequent management or emergency response activities involving heavy equipment. Use of such equipment would generate small amounts of GHG pollution. Similarly, if continued erosion were to require further Great Highway lane closures, increased GHG emissions from the additional vehicle miles traveled would result due to rerouted vehicular traffic along Sloat and Skyline boulevards. However, for the reasons discussed below for the Proposed Action Alternative, rerouted vehicular traffic under the No Action Alternative would not prevent the city from meeting its GHG/transportation targets, and would be consistent with the city's GHG Reduction Strategy. The No Action Alternative could result in regional, long-term, minor, adverse impacts related to GHG emissions and climate change.

Proposed Action Alternative

Analysis. The Proposed Action Alternative's construction would result in the temporary generation of emissions over an approximately four-year construction period. The project would also result in increased construction-related emissions through small sand placements under the

[42] San Francisco Planning Department, Ocean Beach Climate Change Adaptation Project Final Environmental Impact Report, September 14, 2023. Available at: https://sfplanning.org/environmental-review-documents

beach nourishment program. The project's closure of the Great Highway would reroute traffic, resulting in an increase in vehicle miles traveled and associated GHG emissions.

The Proposed Action Alternative would be subject to applicable regulations and those that are referenced in the city's GHG Reduction Strategy, as summarized here. Construction-related GHG emissions would be reduced through compliance with the city's Recycling and Composting Ordinance, Construction and Demolition Debris Recovery Ordinance, Clean Construction Ordinance, and Green Building Code requirements. Relocating the Muni bus terminal and rerouting the bus line to allow continued access to the project areas via bus, as well by providing access to new trail and bicycle facilities, would be in accordance with the city's Healthy Air and Clean Transportation Ordinance. The project would also be required to comply with the city's Stormwater Management Ordinance, Water Conservation and Irrigation ordinances, Commercial Water Conservation Ordinance, and elements pertaining to the Green Building Code.

The approximately 660 metric tons of carbon dioxide equivalents (CO2e) per year that would result from the rerouting of traffic due to the closure of the Great Highway (increased vehicle miles traveled) would be a minor (0.03 percent) increase in citywide transportation sector GHG emissions, which were reported to be 2.2 million metric tons of CO2e per year in 2019. The city has many programs in place for reducing transportation related GHG emissions, including a transportation demand management program, the city's bike plan, the transportation sustainability program, and other measures that are designed to reduce reliance on cars and reduce vehicle miles traveled at the citywide level. Based on the city's latest GHG emissions inventory, these programs have successfully reduced the city's transportation-related emissions by 16 percent from 1990 to 2019.[43] Also, by 2019 the city's GHG emissions reduction programs had resulted in a 41 percent reduction in total citywide GHG emissions below 1990 levels. Through these reductions, the city exceeded the year 2020 and 2030 reduction goals outlined in the Bay Area Air Quality Management District's Bay Area 2017 Clean Air Plan, Executive Orders (EO) S-3-05 and B-30-15, and Assembly Bill (AB) 32 (also known as the Global Warming Solutions Act), and the city's 2017 GHG emissions reduction goal.

For the reasons presented, the Proposed Action Alternative would not prevent the city from meeting its GHG/transportation targets and would be consistent with the city's GHG Reduction Strategy. The Proposed Action Alternative would, therefore, result in regional, long-term, minor adverse impacts related to GHG emissions and climate change.

3.3.4 Lightscapes

This section summarizes the environmental setting and potential effects related to the lightscape environment. The contents of this section are adapted from the project's Final EIR Section 4.2, Aesthetics, which is incorporated herein by reference. [44]

43 San Francisco Department of the Environment, San Francisco's Carbon Footprint, 2021. Available at: *https://sfenvironment.org/carbonfootprint*. Accessed October 20, 2021.

44 San Francisco Planning Department, Ocean Beach Climate Change Adaptation Project Final Environmental Impact Report, September 14, 2023. Available at: https://sfplanning.org/environmental-review-documents.

Affected Environment

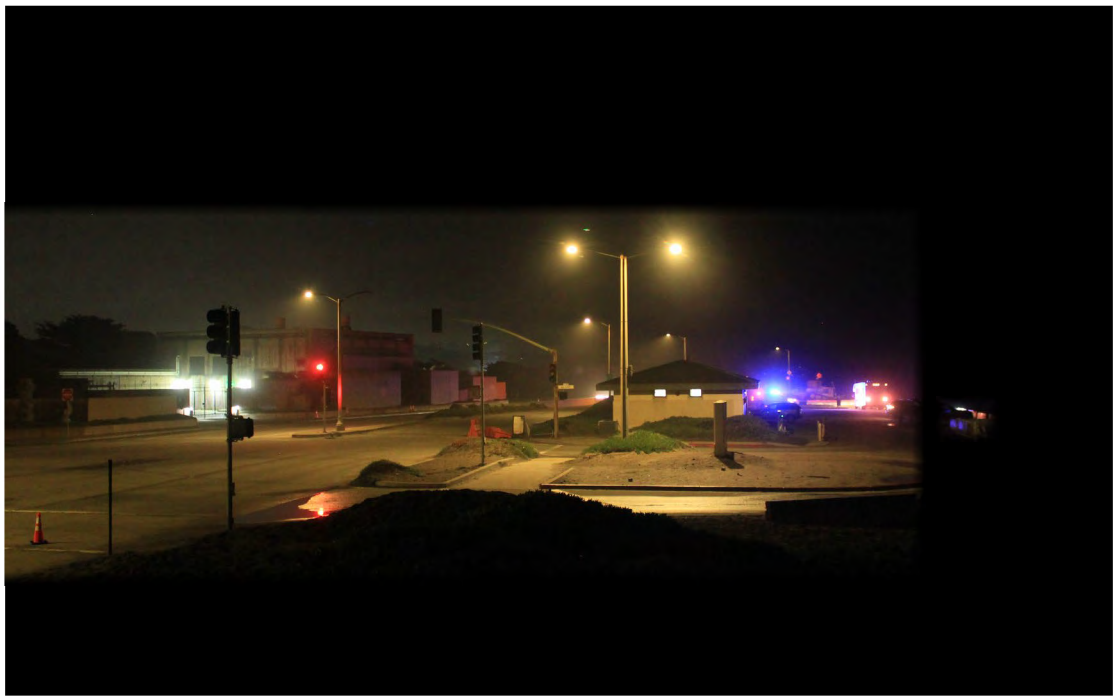
Lighting in the immediate vicinity of the South Ocean Beach project area is mainly natural along the beach and Great Highway segment south of Sloat Boulevard. Nighttime lighting is more prominent near the Sloat Boulevard/Great Highway intersection (see **Figure 6**). Nighttime lighting also exists along the Great Highway near its Skyline Boulevard intersection and along North Ocean Beach. There is no nighttime lighting within the Fort Funston project area.

Environmental Consequences

No Action Alternative

Analysis. Under the No Action Alternative, the lightscape environment would not change, as existing sources of lighting would remain and the city would not install any new sources of lighting. The No Action Alternative would have no impact on lightscapes.

Cumulative Impacts. Because the No Action Alternative would have no new lightscape impacts, it would not contribute to a cumulative lightscape impact.



SOURCE: ESA

Ocean Beach Climate Change Adaptation

Figure 6
Nighttime View of Sloat Boulevard/Great Highway Intersection

Proposed Action Alternative

Analysis. Under the Proposed Action Alternative, nighttime construction may be required for the buried wall, which would require the use of temporary portable lights. This potential temporary construction lighting would occur only along the portion of the bluff that runs directly adjacent to the Great Highway, beginning at Sloat Boulevard and running south for approximately 0.5 mile. The portion of the Great Highway south of Sloat Boulevard would be closed to the public during construction of the buried wall and would therefore not impede the ability of local recreationists to take in nighttime dark skies in the area. Further, consistent with Resource Protection Measure SCM-8, Visual and Aesthetic Considerations (see Appendix B), the city would shield all nighttime lighting to prevent spillover lighting effects.

Under the Proposed Action Alternative, the city would replace existing and introduce new sources of lighting in upland areas, along the Great Highway intersections with Sloat and Skyline boulevards, and along the multi-use trail and service road. Specifically, up to 31 new solar-powered lighting fixtures would be provided for users of the multi-use trail and service road. The new permanent sources of lighting would comply with the city's Green Building Code and Design Standards for Bird-Safe Buildings, and would incorporate NPS Sustainable Outdoor Lighting Principles. Lighting associated with ongoing beach nourishment would be completed in compliance Resource Protection Measure SCM-8.

The increase in permanent lighting would not substantially affect the lightscape environment, as it would be shielded, directed downward, and would use warm-colored, energy-efficient bulbs, consistent with NPS Sustainable Outdoor Lighting Principles. The installed lighting would also be offset by decreases in other sources of light and glare that would result from the project. For instance, the existing streetlights that run approximately 600 feet south of Sloat Boulevard on the west side of the Great Highway would be removed as part of the project. Further, the project would permanently close and remove the southern portion of the Great Highway, thereby substantially reducing the amount of vehicular traffic and associated glare from vehicle headlights within this area.

For the reasons presented, the Proposed Action Alternative would result in local, long-term, negligible, adverse impacts on the lightscape environment.

Cumulative Impacts. Cumulative projects could include limited temporary construction lighting. However, the work within these cumulative project areas would largely be screened by topography, vegetation, or structures, such that it would not combine with the project's construction lighting to cause a substantial cumulative lightscape impact. Similarly, new permanent project lighting would be of low intensity and not substantially change the lightscape environment. Projects within the cumulative scenario would not include substantial new sources of lighting and would be required to comply with the city's Green Building Code, which includes mandatory requirements for exterior light sources to reduce the amount of light and glare that extends beyond a property. Therefore, when combined with the impacts of new sources of nighttime lighting under the Proposed Action Alternative, cumulative impacts related to lightscapes would be long-term, minor and adverse, with the Proposed Action Alternative contributing a negligible, adverse increment.

3.3.5 Soundscapes

This section summarizes the environmental setting and potential effects related to soundscapes. The contents of this section are adapted from the project's Final EIR Section 4.4, Noise and Vibration, which is incorporated herein by reference. [45]

Affected Environment

The natural soundscape is viewed as a resource as having value for its presence and as a value to be appreciated by visitors. The primary noise sources in the project vicinity consist of vehicle traffic on the Great Highway, Sloat Boulevard, and Skyline Boulevard. The soundscape environment is also characterized by the sound of wave action of the Pacific Ocean on the western project extent, and vehicle traffic on Herbst Road. Animals within the San Francisco Zoo can contribute occasional intermittent sounds. Existing noise-sensitive receptors within 900 feet of the project areas include residences, two hotels, and the Pomeroy Recreation and Rehabilitation Center.

Environmental Consequences

Table 3.3-4 describes the noise impact intensity level for construction-related activities. The thresholds shown in **Table 3.3-5** are used to describe the intensity of operation-related noise impacts. For this analysis, the predicted intensity of noise impacts is based on the degree of predicted change in sound levels compared to existing conditions, as shown in **Tables 3.3-6 and 3.3-7**.

[45] San Francisco Planning Department, Ocean Beach Climate Change Adaptation Project Final Environmental Impact Report, September 14, 2023. Available at: https://sfplanning.org/environmental-review-documents.

TABLE 3.3-4
SOUNDSCAPE CONSTRUCTION IMPACT INTENSITY LEVEL DESCRIPTION

Impact Intensity	Impact Description
Negligible:	Construction noise would be below ambient noise levels.
Minor:	Construction noise would exceed ambient noise levels but would not exceed 90 dBA during daytime hours or 80 dBA during nighttime hours at residential uses, or 100 dBA at commercial or industrial land uses at any time.
Moderate:	Construction noise would approach 90 dBA during daytime hours or 80 dBA during nighttime hours at residential uses, or 100 dBA at commercial or industrial land uses at any time.
Major:	Construction noise would exceed 90 dBA during daytime hours or 80 dBA during nighttime hours at residential uses, or 100 dBA at commercial or industrial land uses at any time.

TABLE 3.3-5
SOUNDSCAPE OPERATIONAL NOISE IMPACT INTENSITY LEVEL DESCRIPTION

Impact Intensity	Impact Description
Negligible:	The change in sound levels would not be perceptible (i.e., less than 3 dBA).
Minor:	Sound levels would change by 3 to 5 dBA. The short- or long-term changes would result in noise levels that would shift between the “normally acceptable” and “conditionally acceptable” ranges of the California Land Use Noise Compatibility Guidelines (California Governor’s Office of Planning and Research, 2003, Appendix C).
Moderate:	Sound levels would change by 6 to 9 dBA. The short- or long-term changes would result in noise levels that would shift between the “conditionally acceptable” and “normally unacceptable” ranges of the California Land Use Noise Compatibility Guidelines.
Major:	Sound levels would change by more than 9 dBA. The short- or long-term changes would result in noise levels that would shift between the “clearly unacceptable” and “normally unacceptable” ranges of the California Land Use Noise Compatibility Guidelines.

TABLE 3.3-6
EXTERIOR NOISE AT OFF-SITE SENSITIVE USES FROM PROJECT CONSTRUCTION

Construction Phase and Duration	Nearest Off-Site Sensitive Land Uses Location (residential)	Approximate Distance to Project Area (feet)[a]	Existing Monitored Noise level (dBA L_{eq})	Estimated Construction Noise Level (dBA L_{eq})	Resultant Noise Level (Existing + Construction) (dBA L_{eq})	Increase over Ambient (dBA L_{eq})
Phase 1: Intersection Modifications – 12 months	2788 Great Highway	60	64	83	83	+19
Phase 2: Construct Buried Wall– 25 months	2788 Great Highway	280	64	71	72	+8
Phase 3: Revetment Removal/Sand Application– 18 months	2788 Great Highway	280	64	70	71	+7
Phase 4: Restroom and Parking Lot Construction– 9 months	2788 Great Highway	280	64	67	68	+4
Phase 5: Debris Removal/Dune Landscaping– 6 months	2788 Great Highway	280	64	67	68	+4
Nighttime Equipment (Buried Wall with drill rig and crane)	2788 Great Highway	280	58	64	65	+7

NOTES:
a. The approximate distances are measured from the nearest edge of the construction activity (excluding restriping of roadways and bike lanes) to the nearest sensitive-receptor property line.

TABLE 3.3-7
PEAK HOUR TRAFFIC NOISE LEVELS IN THE VICINITY OF THE PROJECT

Roadway Segment[a,b]	Receptor Land Use Type	Compatibility Standard	Existing (dBA, L_{eq})	Applicable Significance Threshold	Existing Plus Project (dBA, L_{eq})	Difference between Existing Plus Project and Existing (dBA)
Great Highway between Vicente Street and Sloat Boulevard	Residential	60	69.7	3 dBA increase in an area >60 dBA Ldn	68.6	-1.1
Sloat Boulevard between Great Highway and 47th Avenue	Residential	60	64.9	3 dBA increase in an area >60 dBA Ldn	68.8	3.9
Sloat Boulevard between 47th Avenue and Skyline Boulevard	Residential	60	63.9	3 dBA increase in an area >60 dBA Ldn	70.0	6.2
Sloat Boulevard between Skyline Boulevard and Sunset Boulevard	Residential	60	68.6	3 dBA increase in an area >60 dBA Ldn	69.5	0.9
Skyline Boulevard between Sloat Boulevard and North Herbst Road	Residential	60	70.7	3 dBA increase in an area >60 dBA Ldn	74.1	3.4
Skyline Boulevard between South Herbst Road and Harding Road	Rehabilitation Facility	65	70.7	3 dBA increase in an area >65 dBA Ldn	74.1	3.4
North Herbst Road between Skyline Boulevard and Armory Drive	Rehabilitation Facility	65	51.6	5 dBA increase in an area <65 dBA Ldn	51.6	0.0
South Herbst Road between Skyline Boulevard and Armory Drive	Rehabilitation Facility	65	57.4	5 dBA increase in an area <65 dBA Ldn	57.4	0.0

SOURCE: ESA, 2020.

NOTES:

a. Road center to receptor distance is 15 meters (approximately 50 feet) for all roadway segments. Noise levels were determined using the algorithms of the Federal Highway Administration (FHWA) Traffic Noise Prediction Model.
b. The analysis considered the vehicle mix based on the traffic operations analysis technical memorandum, with cars representing 97 percent, medium trucks 2 percent, and heavy trucks 1 percent, except for Herbst Road with cars representing 95 percent, medium trucks 2 percent, and heavy trucks 3 percent. Traffic speeds for all vehicle classes were set at 35 miles per hour (mph), except for Skyline Boulevard (45 mph) and Herbst Road (25 mph).

No Action Alternative

Analysis. Continued shoreline erosion could require more frequent management or emergency response activities involving heavy equipment, similar to that which currently occurs in association with sand clearing from the Great Highway and beach nourishment. Such equipment would have short-term, negligible to minor, adverse effects on soundscapes.

Cumulative Impacts. The project areas would be subjected to the cumulative contribution of all noise sources in the area. The contributions from nearby cumulative projects (e.g., 2700 Sloat Boulevard Project, Westside Force Main Reliability Project, Large Sand Placements Project), local traffic, the ocean, and other sources all combine to represent the existing ambient noise environment. When combined with the impacts of potential temporary noise increases under the No Action Alternative, cumulative impacts related to soundscapes would be short-term, minor to moderate and adverse, with the No Action Alternative contributing a negligible to minor, adverse increment.

Proposed Action Alternative

Analysis. A quantitative assessment of potential project construction and operational noise was prepared for the Ocean Beach Climate Change Adaptation Project EIR. The details of that assessment are presented in EIR Section 4.4. This section provides a summary of the assessment's results and compares them to the intensity thresholds presented in Tables 3.3-4 and 3.3-5.

The Proposed Action Alternative would require the use of heavy equipment during all five phases of project construction. Construction activities would also involve the use of smaller power tools, generators, and other lesser sources of noise. A conservative estimate of construction noise levels was conducted using the general assessment approach recommended by the Federal Transit Administration and the construction equipment for the project's construction phases as provided by the SFPUC. The two noisiest pieces of construction equipment associated with each construction phase were assumed to operate at full power simultaneously at the closest location to a sensitive receptor.

Construction-related noise was evaluated for daytime and nighttime impacts on the off-site sensitive receptors closest to the approximately 4,370-linear foot stretch of work areas. These receptors include residences at the corner of Sloat Boulevard and Great Highway where work for the intersection improvements in Phase 1 would occur.

Table 3.3-6 shows the estimated daytime construction noise level contributions that would occur at the nearest off-site sensitive receptor (residences) during construction of each phase of the project, as well as the resultant noise level (the contribution from construction activity added to the existing noise environment). The estimated noise levels at the off-site sensitive receptor was calculated using the Federal Highway Administration (FHWA) Roadway Noise Construction Model and were based on the concurrent operation of the two noisiest pieces of equipment identified for each phase.

As shown in Table 3.3-6, the estimated daytime construction noise levels generated by the project would range from 68 to 83 dBA L_{eq} at the nearest residential property. For all but Phase 1, project

construction noise would be less than 10 dBA over ambient levels. The elevated Phase 1 noise is due to the concrete work for required intersection modifications at the Lower Great Highway and Sloat Boulevard. However, the Phase 1 noise that would be more than 10 dBA over ambient levels would be for only two weeks or less. Nighttime construction noise could reach 65 dBA L_{eq} at the nearest residential properties. Therefore, based upon the intensity thresholds identified in Table 3.3-5, construction noise would result in a local, short-term, minor, adverse effect on soundscapes.

Under the Proposed Action Alternative, operations would involve the use of excavators, loaders, and dozers to move and load sand for the small sand placements from North Ocean Beach into 30-cubic-yard articulated off-road dump trucks. The city would transport the excavated sand from North Ocean Beach to South Ocean Beach via the Great Highway. Noise estimates for the small sand placements assume simultaneous operation of one truck, two bulldozers, and one loader. The addition of 11 heavy duty truck trips per hour would contribute 51 dBA to the hourly L_{eq} at receptors along the 2700 block of the Great Highway and 58 dBA to receptors closest to the Great Highway, south of Balboa Avenue. Both locations have existing daytime noise levels of 64 dBA. Addition of truck noise from the small sand placement activities would increase noise levels along these stretches of the Great Highway by less than 1 dBA.

As shown in Table 3.3-7, closure of Great Highway south of Sloat Boulevard would result in a re-distribution of vehicular traffic to Sloat and Skyline boulevards, which would increase noise by up to 6.2 dBA. Consistent with Resource Protection Measure M-NO-3, Noise Monitoring and Traffic Re-Distribution Noise Reduction Plan, the city would verify the realized change in noise level through monitoring. If monitoring confirms an increase in 3 dBA over ambient noise levels, the city would develop and implement a traffic noise reduction plan that includes a combination of feasible traffic calming measures, such as speed limit reductions and street redesigns, sufficient to achieve specified performance standards and reduce the roadway noise impact along Sloat and Skyline boulevards. Plan implementation would be uncertain, as it would require consulting with and receiving approval from several agencies, securing capital funding for implementation, and securing approval for construction outside of the city's jurisdiction (i.e., within the Caltrans highway right-of way). Therefore, based upon the intensity thresholds identified in Table 3.3-5, the Proposed Action Alternative's operational noise would result in a local, long-term, moderate, adverse effect on soundscapes.

Cumulative Impacts. Nearby cumulative projects (e.g., 2700 Sloat Boulevard Project, Westside Force Main Reliability Project, Large Sand Placements Project) could contribute noise from construction equipment. Given their proximity to the project areas, and because the construction techniques and equipment for nearby cumulative projects have not been developed, it is conservatively assumed that the Proposed Action Alternative's contribution to a cumulative noise impact could be considerable. Consistent with Resource Protection Measure M-C-NO-1, Cumulative Construction Noise Control Measures, the city would implement measures, such as using equipment with lower noise ratings and shielding stationary noise sources, to prevent noise levels greater than 90 dBA, or 10 dBA above the ambient noise levels at sensitive receptors. Cumulative project nighttime construction noise would be expected to last for no more than one or two nights for concrete pours, and would not be expected to overlap with the project such that

a cumulative impact would result. Therefore, based upon the intensity thresholds identified in Table 3.3-5, cumulative construction impacts related to soundscapes would be short-term, minor, and adverse, with the Proposed Action Alternative contributing a minor, adverse increment.

Cumulative operational noise would be primarily due to vehicles. Most of the cumulative projects would not generate substantive additional operational vehicle noise. The Proposed Action Alternative would contribute most of the peak hour vehicle trip increases along Sloat Boulevard (1,043 trips) of the cumulative 1,096 trips (95 percent). Therefore, the Proposed Action Alternative's contribution to vehicular noise increases would be cumulatively considerable. As noted previously, the city would implement Resource Protection Measure M-NO-3, which would monitor and, as needed, implement measures to reduce operational traffic noise. Therefore, based upon the intensity thresholds identified in Table 3.3-6, cumulative operational impacts related to soundscapes would be short-term, moderate, and adverse, with the Proposed Action Alternative contributing a moderate, adverse increment.

3.3.6 Threatened or Endangered Species

This section summarizes the environmental setting and potential effects related to threatened or endangered species. The contents of this section are adapted from the project's Final EIR, Section 4.6, Biological Resources, which is incorporated herein by reference.[46] The terrestrial study area includes the landward project construction and operations areas. The marine study area includes the Ocean Beach *intertidal*[47] and shallow *subtidal*[48] habitat within the project construction and operations areas, as well as the nearshore, coastal open water habitat of the Pacific Ocean out to 0.25 mile offshore.

Affected Environment

Refer to **Appendix E**, **Table E-1,** for a description of the species with moderate or higher potential to occur within the project areas. The environmental setting for nesting birds, non-listed species generally, and non-federally-listed and other special-status wildlife species, is presented in Section 3.3.12, *Wildlife and Habitat*. The environmental setting for other special-status plant species is presented in Section 3.3.8, *Vegetation.* Key federally listed species and other features of the affected environment include:

San Francisco lessingia (*Lessingia germanorum*; federal endangered), an herbaceous annual plant that occupies dunes and coastal scrub habitat with sandy soils;

46 San Francisco Planning Department, Ocean Beach Climate Change Adaptation Project Final Environmental Impact Report, September 14, 2023. Available at: https://sfplanning.org/environmental-review-documents.

47 The intertidal environment is the marine area within the range of tidal influence.

48 The subtidal environment is any marine area that occurs at depths below the low tide line, including deeper open water habitats.

Western snowy plover (*Charadrius alexandrines nivosus*; federal threatened), which, when present on Ocean Beach, are typically concentrated within the NPS-designated Snowy Plover Protection Area, between Stairwell 21 and Sloat Boulevard;[49]

The southern distinct population segment (DPS) of the North American green sturgeon (*Acipenser medirostris*; federal threatened), for which critical habitat is designated along the California Pacific coastline within the marine study area;

Longfin smelt (*Spirinchus thaleichthys*; candidate for listing as endangered), an anadromous estuarine species that inhabits nearshore marine waters of the study area;

Special-status marine mammals offshore of Ocean Beach, including Pacific harbor seals (*Phoca vitulina richardii*), California sea lions (*Zalophus californianus)*, and harbor porpoises (*Phocoena phocoena)*; and

Essential fish habitat designated in the waters off Ocean Beach under the Pacific Coast Groundfish, Coastal Pelagic Species, Pacific Coast Salmon, and West Coast Highly Migratory Species fisheries management plans.

Environmental Consequences

No Action Alternative

Analysis. Continued shoreline erosion could require more frequent management or emergency response activities involving work along the bluff and beach, including sand movement near western snowy plover habitat and intertidal foraging habitat for special-status fish species. However, as with ongoing shoreline management activities, these activities would be conducted in accordance with applicable regulatory requirements governing special-status species protections. This work would not affect San Francisco lessingia or marine mammals. As applicable, SFPUC would implement Resource Protection Measure SCM-7, Biological Resources, which avoid or minimize potential effects on other federally listed species (see Appendix B). For reasons explained further for the Proposed Action Alternative, increased sand movement may affect, but would not likely adversely affect, western snowy plover, and would have no effect on intertidal habitat for special-status fish. Therefore, the No Action Alternative could have local, short-term, negligible adverse impacts on threatened and endangered species.

Cumulative Impacts. The Ocean Beach Nourishment Project, Large Sand Placements Project, and Vista Grande Drainage Basin Improvement Project include shoreline work that could adversely affect intertidal habitat areas. The Ocean Beach Nourishment Project is complete and annual surveys have not been able to determine with confidence whether benthic habitat changes are attributable to the project.[50] The potential impacts from the Large Sand Placements Project are similarly uncertain but are not expected to be substantial due to the dynamic nature of the

[49] NPS, Protecting the Snowy Plover. U.S. Department of the Interior, Golden Gate National Recreation Area, 2006. Revised October.

[50] Applied Marine Sciences, Technical Memo Summarizing the Results of the South Ocean Beach Year 1 Post-Nourishment Benthic Survey, prepared for Environmental Science Associates, March 3, 2023.

shoreline at this location. The Vista Grande Drainage Basin Improvement Project would be distant from the project areas and would not be expected to involve impacts that would overlap with those of the No Action Alternative. For these reasons, when combined with the impacts associated with ongoing and potential future erosion management under the No Action Alternative, cumulative impacts on threatened and endangered species and their habitats would be local, short-term, negligible, and adverse, with the No Action Alternative contributing a negligible, adverse increment.

Proposed Action Alternative

San Francisco Lessingia

Analysis. Ground disturbance associated with the Fort Funston trail connection and bank swallow habitat restoration in the northern portion of Fort Funston would occur within suitable habitat for San Francisco lessingia and in the vicinity of documented occurrences.[51] This work would include removing native and non-native species (primarily ice plant) and planting native dune species, which would be implemented with hand tools, an NPS-approved herbicide, and mechanical equipment (e.g., small backhoe or excavator), or combination thereof. Consistent with Resource Protection Measure SCM-7, prior to construction, the work areas would be screened by a qualified biologist to determine whether special-status plant species may be affected by construction and appropriate measures, such as exclusion fencing or work buffer zones, would be implemented to avoid impacts on sensitive biological resources. Restoration and enhancement of dune habitat within Fort Funston, as proposed in Resource Protection Measure M-BI-2f, Blufftop Foraging Habitat Restoration (see Appendix B), would improve and expand suitable habitat conditions for San Francisco lessingia over the long term. Consistent with the U.S. Fish and Wildlife Service (USFWS) programmatic biological opinion for the Golden Gate National Recreation Area (GGNRA) Park Operations Project in Marin, San Francisco and San Mateo Counties, with implementation of Resource Protection Measure SCM-7, the project would not likely adversely affect San Francisco lessingia.[52]

Western Snowy Plover

Analysis. During construction (which would include one small sand placement) and ongoing operation of the project, through the small sand placements, the city would continue its current practice of sourcing the sand from North Ocean Beach for beach nourishment along South Ocean Beach. Excavation equipment and haul trucks would access the beach from an area to the south of the O'Shaughnessy Seawall near Lincoln Way, which overlaps with the north end of the designated Snowy Plover Protection Area on Ocean Beach. Biological monitoring for snowy plover has occurred since 2016 as a condition of the coastal development permit issued to the city for previous sand excavation activities on North Ocean Beach. This monitoring has not detected snowy plover within the access route or excavation area, which is the same area to be used under

51 NPS, Fort Funston Special Status Plant Species, 2002- 2023, unpublished map, 2023. This reference is confidential and cannot be publicly released. The references are available on file for qualified individuals at the Golden Gate National Recreation Area, Fort Mason Building 201, San Francisco, CA.

52 United States Department of the Interior, Fish and Wildlife Service, 2022, Programmatic Biological Opinion for the Golden Gate National Recreation Area Park Operations Project in Marin, San Francisco and San Mateo Counties, California (NPS File Number: N1615 [GOGA-NR]), June 7, 2022.

the Proposed Action Alternative.[53, 54] Consistent with Resource Protection Measure SCM-7, during construction, a qualified biologist would survey the project work area(s) for plovers prior to equipment access and excavation activities and implement protective measures to avoid disruption of foraging or resting behavior, such as restricting certain construction activities in buffer zones when plovers are present, or monitoring bird behavior for signs of distress in response to project work. Aforementioned biological monitoring of similar equipment access and sand excavation has not observed adverse responses from western snowy plover foraging or resting in the vicinity. Consistent with the USFWS programmatic biological opinion for GGNRA, with implementation of Resource Protection Measure SCM-7, the project would not likely adversely affect western snowy plover.[55]

Marine Species and Habitat

Analysis. Most of the construction activities in support of the revetment and rubble removal and bluff recontouring would occur outside of the marine environment, and all of the buried wall construction would occur above the high tide line. As buried wall construction activities would occur above the high tide line and would not directly affect the marine environment, there is limited potential for impact on marine species or habitat from this activity. The drilling required for the installation of the secant piles is unlikely to generate elevated underwater noise levels in the adjacent marine environment. Noise from drilling is generated principally through the action of the drill bit on the target surface; the noise is then propagated through surrounding substrate and into the adjacent water column. Because rock propagates noise more efficiently than unconsolidated sediment, the amount of noise created by drilling is more dependent on the degree of consolidation of impacted substrate than the size of the drill.[56,57] While there is little empirical data on the underwater noise generated during drilling, a 2012 study on the hydroacoustic effects of drilling in support of steel pile installation found that drilling did not cause exceedance of existing background underwater noise levels.[58]

Most of the substrate in the marine study area is composed of soft sediment, which is likely to produce much lower sound levels than other marine regions where large amounts of exposed

53 Monitoring Report Summary; South Ocean Beach Bluff Repair, San Francisco, California, 2016. Letter to YinLan Zhang, Bureau of Environmental Management, San Francisco Public Utilities Commission, from Bill Stagnaro, BioMaAS, Inc. March 4, 2016.

54 2018 Monitoring Report Summary; South Ocean Beach Sand Backpass, San Francisco, California, 2018. Letter to JT Mates-Muchin, Bureau of Environmental Management, San Francisco Public Utilities Commission, from Bill Stagnaro, BioMaAS, Inc. June 28, 2018.

55 United States Department of the Interior, Fish and Wildlife Service, 2022, Programmatic Biological Opinion for the Golden Gate National Recreation Area Park Operations Project in Marin, San Francisco and San Mateo Counties, California (NPS File Number: N1615 [GOGA-NR]), June 7, 2022.

56 Caltrans, Technical guidance for assessment and mitigation of the hydroacoustic effects of pile driving on fish. Final Report, prepared for California Department of Transportation by ICF Jones & Stokes and Illingworth & Rodkin, Inc., 2015.

57 Applied Physical Sciences, Mitigation of Underwater Pile Driving During Offshore Construction: Final Report, prepared for the Department of Interior, January 2010.

58 Caltrans, Technical guidance for assessment and mitigation of the hydroacoustic effects of pile driving on fish. Final Report, prepared for California Department of Transportation by ICF Jones & Stokes and Illingworth & Rodkin, Inc., 2015.

bedrock are common.[59,60] Additionally, the gradual slope of Ocean Beach into the subtidal environment increases the distance over which sound energy must travel before coming into contact within the water column. Thus, special-status fish that may occur in the intertidal and shallow subtidal environment of Ocean Beach are unlikely to be exposed to elevated underwater noise levels from secant pile installation. Additionally, any marine mammals within the marine study area would likely occur in even deeper environments, farther offshore, or outside of the study area entirely. As such, any underwater noise generated from onshore drilling activities would likely occur below a threshold of concern and have no impact on special-status marine species.

Most project activities in support of the rubble removal, bluff recontouring, and sand placements would occur outside the marine environment. Notably, all work occurring below the high tide line would be confined to low-tide periods; no work would occur within the wetted waters of the Pacific Ocean. The intertidal environment at South Ocean Beach could experience temporary increases in turbidity as a result of high tides inundating beach areas where revetment rock and rubble is removed, and where sand is placed during construction. Previous studies have demonstrated that marine organisms are accustomed to sediment resuspension levels greater than those generated by even high-impact construction activities like dredging.[61,62] The vast majority of the marine study area and adjacent foraging areas would remain unaffected. For these reasons, the project would have no effect on marine species and habitat, including marine mammals, green sturgeon, longfin smelt, and species covered under the Coastal Pelagic or Pacific Groundfish fisheries management plans.

Conclusion Regarding Proposed Action Alternative Impacts

Overall, for the above reasons, the Proposed Action Alternative would have short-term, negligible, indirect, adverse impacts on threatened or endangered species.

Cumulative Impacts. The Proposed Action Alternative could contribute to temporary, negligible adverse effects on threatened or endangered species. The Vista Grande Drainage Basin Improvement Project would involve work within suitable habitat for San Francisco lessingia. However, since the Proposed Action Alternative would have no adverse effect on this species, there would be no cumulative adverse effect. NPS sand management along the O'Shaughnessy Seawall and the city's sand management along the Noriega and Taraval seawalls would involve work in the vicinity of western snowy plover overwintering habitat. The NPS would implement this work in accordance with applicable NEPA conditions and best management practices. The combined effects of the NPS and city sand management activities and project activities on snowy plover would be negligible and adverse. The Large Sand Placements Project and Vista Grande

59 Andersson M.H., S. Andersson, J. Ahlsen, B.L. Andersson, J. Hammar, L.K.G Persson, J. Pihl, P. Sigray, and A. Wikstrom, A framework for regulating underwater noise during pile driving, Swedish Environmental Protection Agency, 2017.

60 AGS, Inc., South Ocean Beach Coastal Erosion and Wastewater Infrastructure Protection, Geotechnical Data Report, prepared for San Francisco Public Utilities Commission, 2020.

61 Anchor Environmental, Literature Review of Effects of Suspended Sediments due to Dredging Operations, prepared for the Los Angeles Contaminated Sediments Task Force, 2003.

62 Pennekamp, J., Epskamp, R., Rosenbrand W., Mullie, A., Wessel, G., Arts, T., Deibel, I., Turbidity caused by Dredging; Viewed in Perspective. Terra et Aqua, 64, 10-17, 1996.

Drainage Basin Improvement Project would involve in-water construction that could increase turbidity in the intertidal environment. This work would occur along Ocean Beach at a distant unknown future date, or at Fort Funston approximately 1 mile to the south of the Proposed Action Alternative. Consequently, the effects of these two projects would not be expected to combine with those of the Proposed Action Alternative such that a cumulative adverse effect on marine species would occur. In conclusion, the combined effects of the Proposed Action Alternative and the effects of cumulative projects would be negligible and adverse.

3.3.7 Transportation

This section summarizes the environmental setting and potential effects related to transportation. The contents of this section are adapted from the project's Final EIR Section 4.3, Transportation and Circulation, which is incorporated herein by reference.[63]

Affected Environment

Ocean Beach is accessed via the Great Highway, a north-south arterial, and via multiple city streets from the east that intersect the Great Highway including Fulton Street, Lincoln Way, Sloat Boulevard, and Skyline Boulevard. Ocean Beach can be accessed by personal vehicle, public transportation (buses and light rail), bicycle, and walking. Fort Funston is accessed primarily by personal vehicle from Skyline Boulevard (State Route 35) between John Muir Drive and John Daly Boulevard. An NPS parking lot at the southwest corner of the Great Highway/Sloat Boulevard intersection provides 35 stalls.

Environmental Consequences

No Action Alternative

Analysis. Continued shoreline erosion could require more frequent management or emergency response activities that involve closing the Great Highway between Sloat and Skyline boulevards. Such activities could similarly require closure of the NPS parking lot at the western terminus of Sloat Boulevard. These closures would result in users of local roads (e.g., Ocean Beach visitors) experiencing temporary increases in traffic and minor delays, as travelers are diverted around the closed segment of Great Highway and South Ocean Beach visitors seek alternative parking options. The existing roadways are generally capable of handling such temporary increases in traffic and off-site parking, as the Great Highway and NPS parking lot experience regular temporary closures under existing conditions for shoreline management activities (e.g., clearing sand from the road and placing sand or sandbags on the shore). As applicable, the SFPUC would implement Resource Protection Measure SCM-4, Traffic (see Appendix B), which would reduce impacts on the transportation system. As applicable, the SFPUC would implement Resource Protection Measure SCM-4, Traffic (see Appendix B), which would reduce impacts on the transportation system. Therefore, the No Action Alternative could result in short-term, minor,

63 San Francisco Planning Department, Ocean Beach Climate Change Adaptation Project Final Environmental Impact Report, September 14, 2023. Available at: https://sfplanning.org/environmental-review-documents.

adverse impacts on users of the local roadway transportation system during emergency response activities.

Cumulative Impacts. Under the No Action Alternative, continued shoreline management and potential emergency response activities could require Great Highway or NPS parking lot closures that would affect users of the local roadway transportation network. Cumulative projects would also generate construction or operations traffic affecting the local roadway network. When combined with the impacts of potential temporary traffic increases under the No Action Alternative, cumulative impacts related to transportation would be short-term, minor to moderate, and adverse, with the No Action Alternative contributing a minor, adverse increment.

Proposed Action Alternative

Analysis. Under the Proposed Action Alternative, the city would permanently close the Great Highway. As part of the Great Highway closure, the San Francisco Zoo access from the Great Highway would be closed and the intersection of the Great Highway/Sloat Boulevard and Zoo access driveway on Sloat Boulevard would be reconfigured to reflect the permanent conditions as well as provide construction vehicle access to the work area. Construction staging (e.g., staging of construction vehicles, staging of construction materials, construction worker parking, and delivery and haul trucks) would occur on site within the closed portion of the Great Highway, the NPS parking lot at the western terminus of Sloat Boulevard, and the closed portion of Ocean Beach, within available space at the Oceanside Treatment Plant, Westside Pump Station, and Zoo Pump Station.

These closures would result in local roads experiencing increases in traffic, as travelers are diverted around the closed segment of Great Highway, South Ocean Beach visitors seek alternative parking options, and construction traffic increases. During the peak period of construction, there would be approximately 53 trucks traveling to and from the site per day, and 130 construction workers on site per day. This construction traffic would not be considered a substantial increase in daily vehicles on area roadways given the existing daily volume of vehicles (approximately 14,600 northbound/southbound vehicles daily through the South Ocean Beach area).

The existing roadways are capable of handling such increases in traffic and off-site parking, as the Great Highway and NPS parking lot experience regular closures under existing conditions for shoreline management activities (e.g., clearing sand from the road and placing sand or sandbags on the shore). Moreover, as required under city regulations and consistent with Resource Protection Measure SCM-4, Traffic, the city would maintain pedestrian circulation and implement construction safety measures for people walking, bicycling, and driving. With adherence to these regulations and implementation of Resource Protection Measure SCM-4, Proposed Action Alternative construction would not result in potentially hazardous conditions for people, such as Ocean Beach visitors, walking, bicycling, driving, or riding public transit, or interfere with emergency access or accessibility for people walking and bicycling during construction.

With closure of the Great Highway, rerouted vehicles would travel an additional 0.46 mile compared to existing conditions. Thus, the Proposed Action Alternative would increase total daily vehicle miles traveled by 6,716 miles or approximately 2.45 million vehicle miles traveled per year. This potential increase in vehicle miles traveled is conservative; the actual increase may be less, as that increase may not occur every day over an entire year and numerous studies have shown that projects that reduce the number of through lanes result in fewer or no changes to vehicle miles traveled due to people taking fewer vehicle trips, among other factors.

Afternoon peak hour traffic volumes on Sloat Boulevard east of the Great Highway would be approximately 1,062 eastbound and 754 westbound vehicles (1,816 total vehicles), an increase of about 1,100 vehicles during the afternoon peak hour. The rerouted traffic would be accommodated within the existing two travel lane configurations in each direction along Sloat and Skyline boulevards. The additional vehicles on Sloat Boulevard would increase transit delay of three Muni bus routes (the 18 46th Avenue, 23 Monterey, and 57 Parkmerced) by increasing the re-entry time for buses to merge back into the traffic flow and increasing delays at the intersection of Skyline Boulevard/Sloat Boulevard. The maximum transit delay caused by the project would be approximately 1 minute 37 seconds.

The Proposed Action Alternative would enhance conditions for people walking and bicycling near South Ocean Beach by providing safe pedestrian and bicycle connections to South Ocean Beach from adjacent recreational areas (Fort Funston, Lake Merced, Middle Ocean Beach) and by improving pedestrian access to and along Ocean Beach through the multi-use trail, Americans with Disabilities Act (ADA) access improvements, Fort Funston trail connection, and Skyline coastal parking lot.

For the above reasons, the Proposed Action Alternative would result in local, long-term, minor to moderate, beneficial and adverse impacts on users of the local transportation network (e.g., Ocean Beach visitors).

Cumulative Impacts. The cumulative projects (e.g., the five SFPUC projects, the Skyline Boulevard/Sloat Boulevard and Skyline Boulevard/Great Highway intersection improvements, the Upper Great Highway Closure Pilot Project, the Sloat Boulevard Quick-Build Project, the 2700 45th Avenue mixed-use development project, the 2700 Sloat Boulevard residential development project, and the Large Sand Placements Project) could have beneficial and adverse impacts on the transportation system in the area. The cumulative projects would generally increase vehicle traffic on the local roadway network; however, the increase would not impede movement or access for people, such as Ocean Beach visitors or emergency personnel, because changes to intersections and lane configuration would be required to conform to the requirements of the city's Better Streets Plan, Transit-First Policy, and Vision Zero, and the Transportation Advisory Staff Committee review process. When combined with the impacts of the Proposed Action Alternative's local roadway network modifications, cumulative impacts related to transportation would be long-term, minor, and adverse, with the Proposed Action Alternative contributing a negligible, beneficial increment.

3.3.8 Vegetation

This section summarizes the environmental setting and potential effects related to vegetation. The contents of this section are adapted from the project's Final EIR, Section 4.6, Biological Resources, which is incorporated herein by reference.[64] Refer to Section 3.3.6, *Threatened or Endangered Species*, above, for additional information regarding the biological resources study areas.

Affected Environment

Vegetation alliances mapped within the terrestrial study area consist of disturbed dune mat, a combination of native and non-native species occupying dunes or areas with sandy soils, and developed/landscaped/ruderal. Field surveys supporting the city's biological resources assessment[65,66] documented the sensitive natural community yellow sand verbena – beach burr dune mat alliance (*Abronia latifolia – Ambrosia chamissonis*) within the disturbed dune mat vegetation community of Fort Funston. Some of the dune habitat in the project areas is suitable for special-status dune plants, particularly where larges patches of native dune plants occur. Special-status plants San Francisco spineflower (*Chorizanthe cuspidata* var. *cuspidata*),[67] San Francisco wallflower (*Erysimum franciscanum*),[68] and blue coast gilia (*Gilia capitata* ssp. *Chamissonis*)[69] have been documented in the Fort Funston project area.[70] Coastal dunes within the South Ocean Beach and Fort Funston project areas could qualify as an environmentally sensitive habitat area (ESHA), where developments are regulated under the California Coastal Act and restricted to compatible uses, such as restoration.

Environmental Consequences

No Action Alternative

Analysis. Without shoreline protection, areas of existing dune mat vegetation, including areas considered potential ESHA, could erode over time. More frequent shoreline management activities or emergency interventions, such as placement of rock, could also affect dune vegetation. As applicable, the SFPUC would implement Resource Protection Measure SCM-7, Biological Resources (see Appendix B), which would reduce such impacts. Nevertheless, given

64 San Francisco Planning Department, Ocean Beach Climate Change Adaptation Project Final Environmental Impact Report, September 14, 2023. Available at: https://sfplanning.org/environmental-review-documents.

65 BioMaAS, Ocean Beach Climate Change Adaptation Project Biological Resources Assessment, prepared for the San Francisco Public Utilities Commission, November 2021.

66 BioMaAS, Ocean Beach Climate Change Adaptation Project Biological Resources Assessment Addendum, prepared for the San Francisco Public Utilities Commission, December 2023.

67 California Rare Plant Rank (CRPR) 1B.2, meaning this species is rare, threatened, or endangered in California and elsewhere (1B) and fairly endangered in California (.2).

68 CRPR 4.2, meaning this species is of limited distribution (on a watch list; 4) and fairly endangered in California (.2).

69 CRPR 1B.1, meaning this species is rare, threatened, or endangered in California and elsewhere (1B) and seriously endangered in California (.1).

70 NPS, Fort Funston Special Status Plant Species, 2002- 2023, unpublished map, 2023. This reference is confidential and cannot be publicly released. The references are available on file for qualified individuals at the Golden Gate National Recreation Area, Fort Mason Building 201, San Francisco, CA.

the limited available area for management along the shore, the No Action Alternative could cause local, long-term, minor adverse impacts on vegetation.

Cumulative Impacts. Cumulative projects, such as the West Side Force Main Reliability Project and the Vista Grande Drainage Basin Improvement Project, would involve ground disturbance in areas that could provide habitat for coastal dune vegetation. These projects would be required to compensate for impacts on coastal dune habitat through restoration or enhancement. As a result, the impacts would be temporary and would not combine with those of the No Action Alternative to result in substantial cumulative impacts. For these reasons, when combined with the impacts of ongoing bluff erosion and potential emergency interventions under the No Action Alternative, cumulative impacts on vegetation would be local, short-term, minor, and adverse, with the No Action Alternative contributing a minor, adverse increment.

Proposed Action Alternative

Analysis. Under the Proposed Action Alternative, the city would remove approximately 2.89 acres of coastal dunes from the South Ocean Beach project area, composed of dune mat vegetation and unvegetated sand dunes, including areas that may constitute ESHA. After the buried wall and slope stabilization layer are constructed and revetments are removed, the SFPUC would implement a habitat restoration and enhancement plan, which would result in a greater area of native dune plantings in the South Ocean Beach project area compared to pre-project conditions. The project's habitat restoration and enhancement plan area would comprise three zones and revegetate with native dune-associated species, with distinct plantings and treatments based on zone elevation, consisting of (1) a stable backdunes zone (approximately 1.25 acres) supporting relatively continuous vegetative cover composed of native annual and perennial forbs, perennial grasses, and shrubs; (2) a native vegetative stabilization zone (4.48 acres) consisting primarily of beach wildrye; and (3) the sacrificial zone (3.63 acres), which would be expected to erode periodically from wave runup and be replenished by natural sand accretion and beach nourishment. Implementation of the Proposed Action Alternative would therefore substantially increase the quantity and cohesion of native dune vegetation in the project areas while improving habitat connectivity and habitat quality compared to existing conditions, through sustained, expanded dune system function and diversified native dune vegetation.

The north portion of Fort Funston, where the trail connection would occur, contains higher quality dune scrub vegetation with a greater dominance of native dune species where San Francisco spineflower and other special-status plants are likely more abundant. In accordance with Resource Protection Measure M-BI-2f, the Proposed Action Alternative would restore approximately 2 acres of dune habitat within northern Fort Funston through non-native vegetation removal and restoration with native dune plants to improve bank swallow foraging habitat (see Figure 2d).The trail work and restoration and maintenance activities would include removing non-native species (primarily ice plant) and planting native dune species, which would be implemented with hand tools, an NPS-approved herbicide, and mechanical equipment (e.g., small backhoe or excavator), or combination thereof, by people qualified in restoration ecology and botanical species identification. Consistent with Resource Protection Measure SCM-7, Biological Resources, prior to construction, the work areas would be screened by a qualified biologist to

determine whether sensitive biological resources may be affected by construction and appropriate measures, such as exclusion fencing or work buffer zones around existing concentrations of native dune species or special-status plants, would be implemented to avoid impacts on sensitive biological resources.

The 0.5-acre plant propagation site would be located within dune flats generally dominated by ice plant mats and would result in replacement of the ice plant mats with native dune plants to be harvested over time for planting within the project's restoration planting zones.

Following completion of construction, sand placement events during project operation would not adversely affect the sensitive yellow sand verbena – beach burr dune mat alliance or special-status dune plants. The access route from the Great Highway to the North Ocean Beach excavation area at Lincoln Way traverses disturbed dune mat vegetation that is dominated by ice plant, does not have the presence or diversity of native species characteristic of this sensitive dune alliance, and is not known to support special-status plants.

For the reasons presented, the Proposed Action Alternative would have a local, short-term, minor, adverse impact and a long-term, minor, beneficial impact on vegetation.

Cumulative Impacts. The Vista Grande Drainage Basin Improvements Project and the Westside Force Main Reliability Project could temporarily and permanently remove disturbed dune vegetation in areas outside of the study area. Approximately 4 acres of dune scrub could be removed by the Vista Grande Drainage Basin Project in Fort Funston. Approximately 2 acres of vegetation are present along the potential Westside Force Main alignment. The Proposed Action Alternative would enhance or restore approximately 11.36 acres of native dune vegetation in the vicinity of South Ocean Beach. The Proposed Action Alternative would, therefore, result in a cumulative beneficial effect on dune vegetation.

Construction of the Vista Grande Drainage Basin Improvement Project, San Francisco Zoo Recycled Water Pipeline Project, and Westside Force Main Reliability Project could adversely affect San Francisco spineflower or other special-status plants, if present, through direct displacement, trampling, or indirect habitat degradation. These projects would be located either near disturbed dune mat vegetation known to support or with potential to support San Francisco spineflower (San Francisco Zoo Recycled Water Pipeline Project, and Westside Force Main Reliability Project along Zoo Road), or within similar disturbed dune habitat of Fort Funston (Vista Grande Drainage Basin Improvement Project). As a result, the Proposed Action Alternative would not contribute substantially to a cumulative adverse effect on San Francisco spineflower or other special-status plant species.

3.3.9 Visitor Use and Experience

This section summarizes the environmental setting and potential effects related to visitor use and experience. The contents of this section are adapted from the project's Final EIR Section 4.5, Recreation, which is incorporated herein by reference. [71]

Affected Environment

Ocean Beach and Fort Funston are part of the Golden Gate National Recreation Area (GGNRA). Public access to the approximately 3.5-mile-long Ocean Beach is available at various locations along the Great Highway, including via numerous trails and crosswalks from the Great Highway multi-use path as well as from several parking areas west of the Great Highway. Ocean Beach attracts around 3 million people annually for a variety of recreational activities, including walking, surfing, fishing, picnicking, beach volleyball, ultimate frisbee, and jogging.[72,73] The approximately 160-acre Fort Funston experiences high visitor use because of its diverse recreational attractions, including horseback riding, surfing, wildlife viewing, historical sites, hang gliding, and dog walking.[74]

Environmental Consequences

No Action Alternative

Analysis. Continued South Ocean Beach shoreline erosion could adversely affect visitor use and experience through exposure and deposition of roadbed fill and associated rubble on the beach, and more frequent or longer-term parking, restroom, and beach closures when required to implement more frequent management or emergency response activities (e.g., placement of sand, sandbags, or rock revetment). Beaches to the north and south of Ocean Beach would continue to be available to displaced visitors. Nearby beaches and parks could experience increased visitation which could, in turn, also temporarily diminish visitor use and experience at those receiving locations. For these reasons, the No Action Alternative would have regional, short- and long-term, minor, adverse effects on visitor use and experience.

Cumulative Impacts. Visitor use and experience impacts tend to be localized, limited to the immediate project area. The Ocean Beach Storm Damage Reduction Beach Nourishment Project (Ocean Beach Nourishment Project) placed, and the Large Sand Placements Project would place, substantial amounts of sand along the South Ocean Beach shoreline. The projects are expected to temporarily improve visitor use and experience by reducing the rate of erosion and increasing beach widths in and around the placement areas. The Vista Grande Drainage Basin Improvement Project would have short-term adverse impacts resulting from temporary closure of uplands and beach areas during construction, but would also provide long-term beach access benefits through

71 San Francisco Planning Department, Ocean Beach Climate Change Adaptation Project Final Environmental Impact Report, September 14, 2023. Available at: https://sfplanning.org/environmental-review-documents.

72 San Francisco General Plan, Recreation and Open Space Element, April 2014.

73 GGNRA, 2024, Fort Funston webpage. *https://www.nps.gov/goga/planyourvisit/fortfunston.htm*. Accessed January 22, 2024.

74 Ibid.

removal of approximately 80 feet of aging stormwater outlet infrastructure that crosses the beach. When combined with the impacts associated with ongoing and potential future erosion management under the No Action Alternative, cumulative impacts on visitor use and experience would be local, negligible and beneficial, with the No Action Alternative contributing a minor, adverse increment.

Proposed Action Alternative

Analysis. Under the Proposed Action Alternative, the city would close a 0.5-mile-long segment of South Ocean Beach for approximately four years and would remove the existing NPS parking lot and restroom. To the extent it could be done safely, the city would also allow beach access during periods of construction that do not require active work or equipment use on the beach. Offshore areas would remain accessible for those who enter the water from adjacent beach locations.

During construction, the city would post signage at the Sloat Boulevard/Great Highway intersection notifying the public of alternative beach access, parking, and restroom locations along Ocean Beach. Temporary restrooms and trash facilities would be placed in a publicly accessible area near the Sloat Boulevard/Great Highway intersection. In addition, beaches to the north and south of Ocean Beach would continue to be available to displaced visitors. Nearby beaches and parks could experience increased visitation which could, in turn, temporarily diminish visitor use and experience at those receiving locations.

Along Middle Ocean Beach, public access points at Vicente Street and Taraval Street would be temporarily closed for the ADA improvements to the existing multi-use trail. The closures would be expected to last approximately two weeks, during which visitors would be required to access the beach via existing access points to the north (e.g., Rivera Street) or to the south (Sloat Boulevard).

Within Fort Funston, the NPS would close small portions of the park for habitat restoration and plant propagation. These areas would be small relative to the overall park area and would not be expected to require closure of trails or other visitor facilities. The rest of the park would remain open and accessible to park visitors.

Following construction, the Proposed Action Alternative would improve visitor use and experience along South Ocean Beach. This would be accomplished by removing rock and rubble from the beach and bluff that create hazards for beach users and obstruct access; constructing a new restroom; expanding public access by constructing a new multi-use path along the shore that would close a gap in the coastal trail as well as connect to the Lake Merced trail, a new beach access stairway, and the Fort Funston trail connection; and implementing a beach nourishment program to maintain a sandy beach. The city would increase parking capacity through construction of a 60-space parking lot; compared to existing conditions, however, visitors would be required to walk approximately 500 feet farther for beach access. The effects of sand placements on sand bars would generally be restorative – increasing the amount of sediment available for mobilization by waves, reducing reflection and scour, and allowing for more natural

bar configurations. The Proposed Action Alternative would improve visitor use and experience along Middle Ocean Beach through ADA improvements to the paved path along the shore.

Disruptions to visitor use and experience at North Ocean Beach and South Ocean Beach from the beach nourishment program would be similar to those that currently occur under the city's sand management program, which includes temporary closures to accommodate heavy equipment for the excavation, transport, and placement of sand between the two beach segments. Maintenance of the Fort Funston plant propagation and habitat restoration sites would not change the intensity or frequency of use at Fort Funston because it would not require closure of the adjacent trails or recreational use areas.

The Proposed Action Alternative would, therefore, result in local, long-term, moderate, beneficial impacts on visitor use and experience.

Cumulative Impacts. If other recreational areas in the project vicinity were closed concurrently with the project's construction or operation closure of South Ocean Beach or North Ocean Beach, beach users may be displaced to nearby park areas. These receiving parks could become crowded, resulting in adverse effects on visitor use and experience. The Large Sand Placements Project and Vista Grande Drainage Basin Improvement Project would temporarily close portions of South Ocean Beach and Fort Funston beach during construction. However, much of the publicly accessible portions of Ocean Beach and Fort Funston would remain open to the public during the construction periods. Further, many other recreational facilities would remain available for use, such that the combined temporary closures would not result in a substantial cumulative impact related to visitor use and experience. Moreover, both projects would be expected to have beneficial effects on public access and recreation following completion of construction. Therefore, when combined with the Proposed Action Alternative's public access and recreational benefits, cumulative impacts on visitor use and experience would be local, minor to moderate, and beneficial, with the Proposed Action Alternative contributing a moderate, beneficial increment.

3.3.10 Visual Resources

This section summarizes the environmental setting and potential effects related to visual resources. The contents of this section are adapted from the project's Final EIR Section 4.2, Aesthetics, which is incorporated herein by reference.[75]

Affected Environment

The viewshed for the project areas includes all public areas along Ocean Beach and Fort Funston from which project components would be visible. Scenic vistas within this area include expansive views of the Pacific Ocean, beach, dunes, bluffs, and silhouettes of distant hills. The visual quality is generally high, defined by the contrast between the built and natural environment; however, the rock revetments and rubble and fencing and railing along the highway at South

[75] San Francisco Planning Department, Ocean Beach Climate Change Adaptation Project Final Environmental Impact Report, September 14, 2023. Available at: https://sfplanning.org/environmental-review-documents.

Ocean Beach detract from the area's overall scenic quality. The area directly adjacent to South Ocean Beach along the Great Highway prominently features various urban infrastructure, including a public restroom, sidewalks, lighting structures, major roads, concrete barrier railing, the Oceanside Treatment Plant, and the Westside Pump Station.

Environmental Consequences

No Action Alternative

Analysis. Under the No Action Alternative, the revetments and rubble would remain, and abandoned stormwater pipes and debris would continue to erode from the exposed bluff and roadbed. If large storms were to cause substantial erosion that required emergency response to protect or remove City infrastructure, the emergency response activities and/or structures could further diminish the visual quality of the shoreline at South Ocean Beach. For these reasons, the No Action Alternative would result in long-term, local, minor, adverse impacts on visual resources.

Cumulative Impacts. The cumulative projects within the geographic scope of analysis would mainly occur within the confines of existing facilities, such as those anticipated for the Oceanside Treatment Plant, Westside Pump Station, and zoo, or would involve only minor changes to streetlights, signage, and markings. As the Oceanside Treatment Plant and Westside Pump Station projects would occur within enclosed areas, associated changes to visual resources would largely be screened from public view. With the San Francisco Zoo Recycled Water Pipeline, the changes would be minor and would not appear conspicuous or otherwise substantively affect the area's visual character or quality. The Large Sand Placement Project would temporarily improve the appearance of South Ocean Beach by covering the exposed revetments, rubble, and debris with sand. Cumulative projects with potential to substantially influence visual resources or visual character of the area (e.g., 2700 Sloat Boulevard Project) would be required to meet all zoning, density, height, and design requirements for the area and would be consistent with the area's urban visual character. When combined with the impacts associated with ongoing and potential future erosion management under the No Action Alternative, cumulative impacts on visual resources would be local, negligible, and adverse, with the No Action Alternative contributing a minor, adverse increment.

Proposed Action Alternative

Analysis. Construction activities could block access to viewing areas in South Ocean Beach and construction equipment would be visible. The impact would be minimal, however, given the relatively small scale of the work area relative to the expansiveness of the area's scenic vista, in addition to the number of scenic viewing opportunities from other portions of Ocean Beach that would remain publicly available during construction. Upon completion of construction, the city would remove construction equipment and restore access to beach areas.

South Ocean Beach's visual quality, particularly in the vicinity of the project area, would be improved through the removal of Great Highway travel lanes, replacement of the existing NPS public restroom with a restroom at an inland location, removal of the NPS parking lot, removal of

existing debris and rubble revetments from the beach and bluff, reshaping of the bluff, and planting of native vegetation. Views from other nearby locations would be improved similarly through removal of the safety fencing and concrete barrier railing located along the western edge of the Great Highway. The project would improve scenic viewing opportunities on and around South Ocean Beach by installing a new multi-use trail and new beach access stairs.

The proposed beach access stairs would introduce a new structural element to the shoreline. The stairs would be significantly smaller than the existing riprap revetment. The project's new restroom and parking facilities would not differ greatly in height, bulk, or finish from features that currently exist within the project area.

Construction of the multi-use trail and Skyline coastal parking lot would require removal of approximately 22 trees and low-lying vegetation from the Great Highway median near the Skyline Boulevard intersection. Removal of the trees and vegetation in the median would only be visible from the roadway in the immediate vicinity of the intersection. Upon completion of construction, a new median at this location would be planted with trees and shrubs similar to the trees that exist, and the amount of pavement at this intersection would remain roughly the same as the existing Great Highway travel lanes. Construction of the Fort Funston trail connection would generally follow the existing informal blufftop trail alignment, but would likely involve clearing of low-lying vegetation and a small amount of earthwork along the trail route. The unvegetated work areas would be visible from the Great Highway and existing trails within Fort Funston, and would contrast with the adjacent dune vegetation. However, the work area would not be conspicuous or substantially detract from the visual quality of the area, as there are many nearby formal and informal trails with similar appearance.

Portions of the buried wall could become exposed due to shoreline erosion. Under the Proposed Action Alternative, the city would monitor shore conditions and place sand when necessary to maintain beach width and to cover exposed portions of the buried wall. However, the full wall may be exposed an estimated four times over an 80-year time period, and portions of the wall could be visible more frequently for periods of up to approximately one year.[76] The buried wall would be uniform in appearance, as opposed to the rubble and debris on the beach under existing conditions, and it would be similar in appearance to existing periodically exposed walls nearby (e.g., the Taraval seawall). Exposure of the wall would not impede scenic vistas of the Pacific Ocean or longshore views of Ocean Beach, the landscape elements that contribute to the area's aesthetic character and high scenic quality.

Beach nourishment activities would require the use of large, highly visible earthmoving equipment at either the North Ocean Beach and/or South Ocean Beach project areas. The presence of the sand-moving equipment and activities would not differ substantially from similar activities ongoing at these locations under existing conditions, wherein the beach is closed to allow for the transport and placement of sand (beach nourishment) from North Ocean Beach to South Ocean Beach. Viewers at North Ocean Beach are currently exposed to the periodic

76 Moffatt & Nichol, AGS, McMillen Jacobs, CHS Consulting Group, and San Francisco Public Works, Sand Management Plan – Ocean Beach Climate Adaptation Project, Long-term Improvements, prepared for San Francisco Public Utilities Commission, July 2020.

presence of earthmoving equipment and excavated areas under these ongoing beach nourishment activities.

The Proposed Action Alternative would result in short-term, minor, adverse visual resources impacts during construction and beach nourishment; and long-term, moderate, beneficial effects through removing pavement, rock and sandbag revetments, rubble, and debris from the beach; reshaping the bluff; and planting native vegetation.

Cumulative Impacts. As explained for the No Action Alternative, most of the cumulative projects within the geographic scope of analysis would not be conspicuous, and those with potential to influence visual resources would be required to meet applicable local requirements and would be consistent with the area's urban visual character. When combined with the Proposed Action Alternative's aesthetic improvements, cumulative impacts on visual resources would be local, minor, and beneficial, with the Proposed Action Alternative contributing a moderate, beneficial increment.

3.3.11 Water Quality

This section summarizes the environmental setting and potential effects related to water quality. The contents of this section are adapted from the project's Initial Study (Final EIR, Appendix B, Section E.17, Hydrology and Water Quality), which is incorporated herein by reference. [77]

Affected Environment

Runoff from the eastern paved portions of South Ocean Beach, including portions of the Great Highway, is captured by existing drainage infrastructure on the east side of the highway and directed to the Oceanside Treatment Plant located adjacent to the Great Highway. Some runoff from western areas of South Ocean Beach drains overland to the Pacific Ocean, causing gullies and accelerated bluff erosion. Treated water from the Oceanside Treatment Plant is discharged to the Pacific Ocean via an offshore outfall in accordance with state and federal permits.[78,79] Winter storms, modifications to dredging and placement practices, changes in the location of the offshore sand bar, placement of fill for landward development, and sea level rise (discussed further below) are all possible factors that are contributing to significant erosion along Ocean Beach.[80]

77 San Francisco Planning Department, Ocean Beach Climate Change Adaptation Project Final Environmental Impact Report, September 14, 2023. Available at: https://sfplanning.org/environmental-review-documents.

78 U.S. Environmental Protection Agency, National Pollutant Discharge Elimination System Permit (NPDES No. CA0037681), December 2020. Available at: https://www.epa.gov/npdes-permits/ca0037681-city-and-county-san-francisco-oceanside-water-pollution-control-plant. Accessed August 17, 2023.

79 California Regional Water Quality Control Board San Francisco Bay Region, Waste Discharge Requirements (Order No. R2-2019-0028), September 2019. Available at: https://www.waterboards.ca.gov/sanfranciscobay/board_decisions/adopted_orders/2019/R2-2019-0028.pdf. Accessed August 17, 2023.

80 San Francisco Bay Area Planning and Urban Research Association (SPUR) et al., Ocean Beach Master Plan, May 2012. Available at: https://www.spur.org/featured-project/ocean-beach-master-plan. Accessed August 17, 2023.

Environmental Consequences

No Action Alternative

Analysis. Continued shoreline erosion could require more frequent management or emergency response activities involving heavy equipment that could release small amounts of pollutants into project area waters. As applicable, SFPUC would implement Resource Protection Measure SCM-7, Water Quality (see Appendix B), which would reduce the potential for and severity of such impacts. Over the long term, the Lake Merced Tunnel and other shoreline facilities would be subject to increased risk of upset or failure from erosion-related hazards, resulting in greater potential for release of untreated wastewater to the Pacific Ocean. As a result, the No Action Alternative would have a long-term, local, minor to moderate, adverse effect on water quality.

Cumulative Impacts. Construction and operation of cumulative projects in the immediate vicinity (e.g., Westside Force Main Reliability Project, Large Sand Placements Project) would involve the potential for water quality impacts similar to those of emergency response activities under the No Action Alternative. Each of the cumulative projects would be required to comply with applicable federal, state, and local water quality regulations (e.g., the State Water Resources Control Board's Construction General Permit[81] or the construction site runoff requirements of San Francisco Public Works Code article 4.2, section 146). When combined with the water quality impacts associated with ongoing and potential future shoreline erosion or emergency response under the No Action Alternative, cumulative impacts on water quality would be local, moderate, and adverse, with the No Action Alternative contributing a moderate, adverse increment.

Proposed Action Alternative

Analysis. Implementation of the Proposed Action Alternative would not substantially alter the area of impervious surfaces such that it would noticeably interfere with groundwater recharge, nor would the Proposed Action Alternative require the use of any groundwater aside from some temporary groundwater dewatering that may be required for construction of elements of the buried wall, which would cause no measurable reduction in groundwater recharge or adverse effect on groundwater supplies. The landward or upland portions of the project areas (outside of the beach and bluff areas) are not in a special flood hazard area as identified on the city's floodplain maps, and the one new aboveground structure, a restroom, would not be in the floodplain and accordingly would not impede or redirect flood flows.[82]

Construction of the Proposed Action Alternative and post-construction beach nourishment activities could result in temporary soil disturbance and accidental release of chemicals that could adversely affect water quality if sediments or chemicals are carried off-site to receiving waterbodies via stormwater runoff. Groundwater dewatering could contain sediment and suspended solids that could affect water quality. However, the Proposed Action Alternative

81 State Water Resources Control Board, *National Pollutant Discharge Elimination System General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities* (Order 2022-0057-DWQ, NPDES No. CAS000002)

82 City and County of San Francisco, 2024, 100-Year Storm Flood Risk Zone Map, Available online at: *https://sfplanninggis.org/floodmap/*. Accessed January 22, 2024.

construction and post-construction beach nourishment activities would be subject to the San Francisco Public Works Code (article 4.2 section 146) and the State Water Resources Control Board's Construction General Permit and associated stormwater pollution prevention plan (SWPPP). Consistent with Resource Protection Measure SCM-3, Water Quality, these regulations require implementation of stormwater best management practices (BMPs) related to housekeeping (storage of construction materials, waste management, vehicle storage and maintenance, landscape materials, pollutant control), and run-on and runoff control. Adherence to these requirements would minimize the potential for water quality impacts.

The Proposed Action Alternative would not alter existing drainage patterns in a manner that would subsequently result in erosion, siltation, tsunamis, or flooding. Stormwater runoff from the project's impervious areas would be collected and directed to the new infiltration basins or Oceanside Treatment Plant for treatment prior to offshore discharge. The project's stormwater infrastructure and discharges would be required to comply with the San Francisco Stormwater Management Ordinance (San Francisco Public Works Code article 4.2, section 147), which is intended to reduce the volume of stormwater runoff entering the city's sewer systems and protect and enhance the quality of receiving waters.

The Proposed Action Alternative would, therefore, result in local, short-term, minor, adverse impacts; and long-term, negligible, and beneficial impacts related to water quality.

Cumulative Impacts. Construction and operation of cumulative projects in the immediate vicinity (e.g., Westside Force Main Reliability Project, Large Sand Placements Project) would involve the potential for water quality impacts similar to those described for the project. The Proposed Action Alternative and cumulative projects would be required to comply with applicable federal, state, and local water quality regulations, as discussed for the No Action Alternative. Further, these projects would also be required to adhere to stormwater drainage control requirements, ensuring that both runoff water quality and runoff volumes are managed in a way that does not adversely affect water quality, create flooding, or exceed infrastructure capacity. When combined with the potential water quality impacts of the Proposed Action Alternative, cumulative impacts on water quality would be local, minor, and adverse, with the Proposed Action Alternative contributing a minor, adverse increment.

3.3.12 Wildlife and Habitat

This section summarizes the environmental setting and potential effects related to wildlife and wildlife habitat. The contents of this section are adapted from the project's Final EIR, Section 4.6, Biological Resources, which is incorporated herein by reference.[83] Refer to Section 3.3.6, *Threatened or Endangered Species*, above, for additional information regarding the biological resources study areas.

[83] San Francisco Planning Department, Ocean Beach Climate Change Adaptation Project Final Environmental Impact Report, September 14, 2023. Available at: https://sfplanning.org/environmental-review-documents.

Affected Environment

This section summarizes the affected environment relevant to animal species listed (or proposed for listing) as endangered or threatened under the California Endangered Species Act (CESA) with a moderate or higher potential to occur within the project areas.[84] Refer to Table E-2, in Appendix E, for a description of the species with moderate or higher potential to occur within the project areas. This section also describes sensitive, non-listed nesting and migrating birds and non-listed bat species protected under the Migratory Bird Treaty Act and California Fish and Game Code. Potential impacts on federally listed plant and animal species are addressed in Section 3.3.6, *Threatened or Endangered Species*, and state-listed plant species and other special-status plant species and sensitive alliances are addressed in Section 3.3.8, *Vegetation*.

Key wildlife and habitat features include habitat for state-listed animal species, including bank swallow (*Riparia riparia;* state-listed threatened), western burrowing owl (*Athene cunicularia hypugaea*; state species of special concern), San Francisco common yellowthroat (*Geothlypis trichas sinuosa*; state species of special concern), and western red bat (*Lasiurus blossevillii;* state species of special concern); habitat for other resident and migratory breeding birds; habitat for other bat species; and marine habitats and wildlife.

The NPS Policy for Management of Threatened and Endangered Plants and Animals states that "The National Park Service will inventory, monitor, and manage state and locally listed species in a manner similar to its treatment of federally listed species to the greatest extent possible." GGNRA has met the intent of this policy. GGNRA participated in the consultation process with the California Department of Fish and Wildlife (CDFW) during the California Environmental Quality Act (CEQA) review process and will be an active participant in implementing the resource protection measures resulting from this consultation. The city has committed to implementing these habitat enhancement and protection measures on GGNRA lands. Thus, through these measures, which would also be conditions of GGNRA's approval, the city would mitigate project impacts to state-listed animal species to "the greatest extent possible." It is not possible for GGNRA to consult with the USFWS on impacts to state-listed species. The GGNRA is committed to requiring that the city implement the measures developed through consultation with the CDFW to protect the bank swallow and enhance bank swallow habitat.

Bank Swallow

Bank swallow (*Riparia riparia;* state threatened) habitat is present in the project area. Groups of bank swallows create burrows in vertical banks or bluffs with sandy substrate along rivers or in coastal areas as a colony to incubate eggs and rear their young. A bank swallow breeding colony has been observed using the Fort Funston bluffs since 1905.[85] The Fort Funston bluffs, including within the South Ocean Beach project area, hosts one of what is believed to be two remaining

[84] For a full list of all special-status species and other sensitive species identified for conservation concern that may occur, please see the Ocean Beach Project Final EIR, Appendix F, Table F-2. Available at: https://sfplanning.org/environmental-review-documents.

[85] National Park Service, 2007. Bank Swallow Monitoring at Fort Funston, Golden Gate National Recreation Area 1993-2006,. March 23, 2007.

coastal bank swallow breeding colonies in California, the other being within Año Nuevo State Park.[86]

The NPS has monitored the Fort Funston bank swallow breeding colony since 1993 and since 2000 has consistently tracked use of different bluff spans, which collectively span approximately 3,290 linear feet of bluff habitat above South Ocean Beach and below Fort Funston (refer to Figure E-1, in Appendix E).[87] One nesting area of the colony is located within the South Ocean Beach project area above the 2010 emergency riprap revetment, across the Great Highway from the Oceanside Treatment Plant. The NPS identifies this segment of the Fort Funston colony as designated monitoring Area B – Revetment which spans approximately 500 linear feet. Bank swallows first occupied this portion of bluff face after the revetment was placed in 2010. Area B provides a smooth, vertical bluff face for bank swallows to establish burrows and has hosted the greatest number of the colony's burrows annually between 2011 and 2019.[88] Refer to Figure E-2, in Appendix E, for a graph depicting bank swallow burrows documented within the NPS monitoring areas between 2000 and 2019.[89]

Burrow abundance within the boundaries of the historical nesting location (monitoring areas A, B and 1 through 4) has declined overall since 2007 (247 burrows recorded), with the lowest burrow count recorded in 2019 (88 burrows) until no active burrow nests were recorded in 2020 and 2021. [90,91,92,93] Recently, bank swallows have nested in coastal bluffs beyond the historical boundaries of the Fort Funston colony. In 2019, 2020 and 2021, bank swallow nesting was documented within the bluffs above Phillip Burton Memorial Beach, approximately 1 mile south of the historical nesting area.[94,95] The year 2020 was the first that bank swallows did not nest within the boundaries of the GGNRA since NPS monitoring began.[96,97] In 2020 and 2021, the colony did not nest at South Ocean Beach or the adjacent Fort Funston bluffs; the colony exclusively nested within the bluffs at Phillip Burton Memorial Beach in 2020 (44 burrows) and 2021 (41 burrows).

A 2022 habitat assessment documented 1,924 square feet of active habitat, 6,963 square feet of historic habitat, and 24,029 square feet of potential habitat, within a 2.9-mile-long study area that extends from Sloat Boulevard through Fort Funston to Thornton State Beach.[98] A separate 2022

86 Merkle, William, 2023. Personal communication with National Park Service Wildlife Ecologist, on September 27, 2023.

87 National Park Service, 2019. Bank Swallow Monitoring at Fort Funston, Golden Gate National Recreation Area, 2019 NPS Report, 2019.

88 Ibid.

89 Ibid.

90 Ibid.

91 National Park Service. 2020 Bank Swallow Summary Report, 2020.

92 National Park Service. Bank Swallow Monitoring Update, June 2021.

93 National Park Service, email from Bill Merkel (NPS) to Jonathan Mates-Muchin (SFPUC) re: Bank Swallow Nesting 2021, November 17, 2021.

94 Ibid.

95 National Park Service. Bank Swallow Monitoring Update, June 2021.

96 National Park Service. 2020 Bank Swallow Summary Report, 2020.

97 National Park Service. Bank Swallow Monitoring Update, June 2021.

98 ESA. Memorandum: Fort Funston Bank Swallow Habitat Assessment, revised January 31, 2023.

nesting bird survey, consisting of 14 surveys between April and August along the same stretch of coastline, identified 29 burrows within the South Ocean Beach project area. The survey report notes the surveyors documented only three observations of adult bank swallow activity above the revetment in the South Ocean Beach project area in 2022 – two adults during a late May survey, and one adult in each of the next two mid-June surveys, indicating limited use of the project area for nesting in 2022.[99] This trend continued in 2023 with only one active bank swallow nest documented within the South Ocean Beach project area above the revetement.[100]

Western Burrowing Owl

Western burrowing owl (*Athene cunicularia hypugaea*; state species of special concern) has been recorded overwintering at Ocean Beach; this species is not expected to breed in the project areas.[101,102] Western burrowing owl occupy burrows excavated by ground squirrels and other small mammals. Where the number and availability of natural burrows are limited, owls may occupy human-made burrows such as drainage culverts, cavities under piles of rubble (or riprap), discarded pipe, and other tunnel-like structures.

San Francisco Common Yellowthroat

San Francisco common yellowthroat (*Geothlypis trichas sinuosa*; state species of special concern) occurrences within the project areas and vicinity consist of isolated resident populations, including a breeding population at Lake Merced where they nest in shoreline riparian and wetland vegetation.

Western Red Bat

Western red bat (*Lasiurus blossevillii;* state species of special concern) was detected during acoustic monitoring at Fort Funston between 2004 and 2005.[103] Trees and shrubs of the terrestrial study area near the zoo and within Fort Funston provide suitable roosting habitat for this species.

Other Resident and Migratory Breeding Birds

Resident and migratory birds could nest in trees and shrubs, among ground vegetation, and on buildings or other development within the terrestrial study area. For a full list of resident and migratory birds with a potential to occur and breed within the project areas, refer to Ocean Beach Project EIR Appendix F-1.[104]

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99 NPS. Golden Gate National Recreation Area Bank Swallow Summary Report, 2022.

100 Merkle, William. Personal communication with National Park Service Wildlife Ecologist on September 27, 2023.

101 Hart,2017. Personal communication with Audubon Citizen Scientist Jane Hart, 2017. Ms. Hart monitored these owls from 2014-2016.

102 BioMaAS, 2021. Ocean Beach Climate Change Adaptation Project Biological Resources Assessment, prepared for the San Francisco Public Utilities Commission, November 2021.

103 Fellers, Gary M., Acoustic Inventory and Monitoring of Bats at Golden Gate National Recreation Area, USGS, 2005.

104 San Francisco Planning Department, Ocean Beach Climate Change Adaptation Project Final Environmental Impact Report, September 14, 2023. Available at: https://sfplanning.org/environmental-review-documents.

Other Bat Species

Several other bat species have potential to forage and roost within suitable habitat (e.g., trees, caves, buildings, and/or cliff faces) of the project areas. These species include silver-haired bat (*Lasionycteris noctivagans*), hoary bat (*Lasiurus cinereus*), little brown bat (*Myotis lucifugus*), and fringed myotis (*Myotis thysanodes*), each detected during acoustic monitoring performed at Fort Funston between 2004 and 2005. Their maternity roosts are protected under California Fish and Game Code as wildlife nursery sites.

Marine Habitats and Wildlife

Communities within the marine study area include beach, intertidal and subtidal zones, and open water. The intertidal and beach habitats of Ocean Beach support communities of benthic (bottom-dwelling) invertebrates, plankton (drifting organisms in the water column), fish, shorebirds, and marine mammals. Shorebird species that frequent this habitat include sanderling (*Calidris alba*), willet (*Tringa semipalmata*), western sandpiper (*Calidris mauri*), marbled godwit (*Limosa fedoa*), and whimbrel (*Numenius phaeopus*), among others.[105] The intertidal and subtidal habitats at Ocean Beach are mostly outside of the project footprint. The marine environment offshore of Ocean Beach is an important migration corridor for many anadromous fish and marine mammals, as introduced in Section 3.3.6, *Threatened or Endangered Species*. Numerous species of waterbird occupy the open water marine habitat offshore of South Ocean Beach, including a mix of migrant, wintering, and few local breeding species, such as double-crested cormorant.

Environmental Consequences

No Action Alternative

Analysis. Continued shoreline erosion could require more frequent management or emergency response activities involving work along the bluff and beach, including near bank swallow habitat and intertidal foraging habitat for shorebirds. However, as with ongoing shoreline management activities, these activities would be conducted in accordance with applicable regulatory requirements governing wildlife protections. As applicable, SFPUC would implement Resource Protection Measure SCM-7, Biological Resources, which would minimize the potential for wildlife impacts (see Appendix B). Nevertheless, this work could still have temporary indirect impacts on wildlife that forage in the project areas. Emergency shoreline protection measures (such as sandbags or additional revetment rock), if needed, would continue to reduce localized erosion. However, such measures could further affect physical coastal processes, including erosion rates in areas adjacent to the emergency protection. These changes could indirectly affect wildlife habitat along the adjacent beaches and bluffs. For these reasons, the No Action Alternative would have local, short-term, negligible impacts, and long-term, minor, adverse impacts on wildlife habitat.

Cumulative Impacts. The Ocean Beach Nourishment Project, Large Sand Placements Project, and Vista Grande Drainage Basin Improvement Project include shoreline work that could adversely affect intertidal habitat areas. The Ocean Beach Nourishment Project is complete and

[105] Ibid.

annual surveys have not been able to determine with confidence whether benthic habitat changes are attributable to the project.[106] The potential impacts from the Large Sand Placements Project are similarly uncertain but are not expected to be substantial due to the dynamic nature of the shoreline at this location. The Vista Grande Drainage Basin Improvement Project would be distant from the project areas and would not be expected to involve impacts that would overlap with those of the No Action Alternative. For these reasons, when combined with the impacts associated with ongoing and potential future erosion management under the No Action Alternative, cumulative impacts on wildlife and their habitats would be minor and adverse, with the No Action Alternative contributing a negligible, adverse increment.

Proposed Action Alternative

Bank Swallow

Analysis. Construction of the project would, but operation of the project would not, adversely affect bank swallows by permanently removing the 2010 emergency riprap revetment and associated approximately 1,421 square feet of bluff habitat historically used by the Fort Funston bank swallow colony.

Sand placement on South Ocean Beach could disrupt bank swallow nesting efforts within the Fort Funston colony adjacent to (south of) the South Ocean Beach project area if sand placement were to occur within 650 feet upcoast, downcoast, or seaward (i.e., within view) of active nest burrows during nesting season. Nest (i.e., burrow) abandonment or mortality to eggs and chicks could occur as a result of project activities.

In accordance with Resource Protection Measure M-BI-2a, construction activities, especially those that involve heavy machinery, would avoid work within a 650-foot buffer around active bank swallow nests, if any, between April 1 and August 1 when bank swallow are present. All project personnel would attend environmental awareness training prior to beginning work, in accordance with Resource Protection Measure M-BI-2b. Per Resource Protection Measure SCM-8, nighttime lighting (used during project construction and operation) would have shields to prevent light spillover effects into the night sky or nearby nesting habitat, and project lighting would incorporate NPS best management practices.

The Proposed Action Alternative also includes multiple resource protection measures related to bank swallow habitat protection or enhancement: installing signage and protective fencing to restrict public access above sensitive nesting areas (Resource Protection Measure M-BI-2c); funding public engagement and monitoring work by a seasonal part-time, public engagement/monitoring specialist for five bank swallow nesting seasons (Resource Protection Measure M-BI-2d); funding up to five years of research related to bank swallow movement, population dynamics, and coastal habitat selection (Resource Protection Measure M-BI-2e); restoring approximately 2 acres of blufftop foraging habitat for bank swallow and dune habitat above active nesting areas (Resource Protection Measure M-BI-2f); implementing or funding ice plant removal from the bluff face within suitable nesting habitat areas (Resource Protection

[106] Applied Marine Sciences, Technical Memo Summarizing the Results of the South Ocean Beach Year 1 Post-Nourishment Benthic Survey, prepared for Environmental Science Associates, March 3, 2023.

Measure M-BI-2g); and funding development and implementation of an artificial habitat feasibility study and pilot project (Resource Protection Measure M-BI-2h).

The resource protection measures would avoid or minimize impacts on nesting bank swallows within the South Ocean Beach project area and improve habitat conditions within Fort Funston. However, these measures would not prevent or fully mitigate the impacts of bank swallow habitat removal within the South Ocean Beach project area. Given that this population has been in decline for many years and considering the limited extent of remaining nesting habitat along the coast, the project's removal of bank swallow habitat could substantially affect the viability of the Fort Funston population. Therefore, even with the resource protection measures implemented, the Proposed Action Alternative would have a long-term, major, adverse impact on bank swallow habitat, which is important for the continuance of the Fort Funston bank swallow population.

Other Resident and Migratory Bird Breeding Birds

Analysis. Habitat restoration and construction activities that involve increased human presence or substantially alter the noise environment could disrupt birds attempting to nest, disrupt parental foraging activity, or displace mated pairs with territories in the project areas. Direct impacts on birds or their nests could result from vegetation removal, tree trimming or removal, ground-disturbing activities (excavation, grading, pile installation, reshaping work), demolition of the restroom building, and the Great Highway roadbed removal. Consistent with Resource Protection Measure SCM-7, during construction, a qualified biologist would conduct pre-construction survey of the work area(s) for active nests during nesting season and would establish protective measures around active nests, such as restricting certain construction activities in buffer zones during the time of year when and where birds are breeding and nesting. Buffers would be determined by considering the bird species, whether the nest has a visual line of sight from work activities, and the types of work activities in process. A qualified biologist would monitor the active nest to confirm the buffer is sufficient to avoid impacts and would increase or decrease the buffer as necessary. The buffer would be maintained until the birds fledge.

Following project construction, the project areas would provide similar, if not improved, suitable habitat and nesting opportunity for birds in landscaped trees and shrubs and among ground vegetation planted on the recontoured bluff, and between the multi-use trail and service road. As discussed in Section 3.3.4, *Lightscapes*, and consistent with Resource Protection Measure SCM-8, nighttime lighting (used during project construction and operation) would have shields to prevent light spillover effects into the night sky or adjacent nesting habitat, and would incorporate NPS best management practices for lighting.

For these reasons, the Proposed Action Alternative would have a short-term, negligible, adverse effect on migratory and breeding birds.

Bats

Analysis. Project construction could trim or remove median trees and shrubs near the Great Highway/Skyline Boulevard intersection for the Skyline coastal parking lot, a tree near the bus layover on Sloat Boulevard, and trees in the median of the zoo's Sloat Boulevard entrance. Tree trimming could result in direct mortality of or indirect disturbance to roosting bats, if present

(e.g., bats avoiding routine foraging or failing to return to a maternity roost due to construction activity and an increase in human presence in the area). The SFPUC would conduct pre-construction surveys and, if signs of potential bat habitat are observed, implement impact minimization and avoidance measures (including only trimming trees during particular seasons with a biologist present, and no-disturbance buffers around roost sites) consistent with Resource Protection Measure M-BI-9. With this measure, the Proposed Action Alternative would have a short-term, negligible, adverse impact on bats.

Marine Habitats and Wildlife

Analysis. Excavation of the existing bluff face, construction of the buried wall, and bluff recontouring would require heavy machinery access and operation on South Ocean Beach largely outside of the marine environment. Shorebirds accustomed to foraging, loafing, or resting on the beach and intertidal zone within the study area would be temporarily displaced to abundant, similar habitats nearby during project activities. Removal of the revetments would require equipment access and excavation below the mean high-water line. Such work could result in accidental releases of deleterious material and increased sedimentation during construction. As noted previously, work below the high tide line would occur during low-tide periods, which would reduce the potential for such effects. Consistent with Resource Protection Measure SCM-3, Water Quality, the SFPUC would implement erosion and sedimentation control tailored to the South Ocean Beach project area and designed to prevent discharge of sediment and pollutants to the Pacific Ocean.

Beach nourishment could disrupt sandy beach invertebrate communities.[107] Benthic invertebrates play an important role in nutrient cycling, breaking down organic matter and providing coastal water with nutrient impacts essential for phytoplankton growth.[108] As such, impacts at these lower trophic levels can have cascading effects, causing reduced predation success for shorebirds, benthic fish species, and other intertidal beach organisms.[109] Reductions in benthic foraging success for shorebirds and fish have been observed to result from beach nourishment activities.[110,111]

Variability in recovery time across beach location and in response to nourishment actions has been the dominant theme across beach replenishment studies. A summary of nourishment effects and recovery rates for different invertebrate groups from peer-reviewed beach replenishment studies is presented in the project's EIR Section 4.6, Biological Resources. Most of the differences between studies pertain to time it took organisms to completely recover, which ranged

107 Schlacher, T.A., Noriega, R., Jones, A., Dye, T., The effects of beach nourishment on benthic invertebrates in eastern Australia, Science of the Total Environment, 435-436, 411-417, 2012.

108 Schlacher, T.A., Schoeman, D.S., Dugan, J., Lastra, M. Jones, A., Scapini, F., McLachlan, A., Sandy Beach Ecosystems: key features, sampling issues, management challenges and climate change impacts, Marine Ecology, 29, 70-90, 2008.

109 Leewis, L., van Bodegom, P.M., Rozema, J., Janssen, G.M., Does beach nourishment have long-term effects on intertidal microinvertebrate species abundance? Estuarine, Coastal, and Shelf Science, 113, 172-181, 2012.

110 Wilber, D., Clarke, D., Ray, G., Burlas, M., Response of surf zone fish to beach nourishment operations on the northern coast of New Jersey, USA, Marine Ecology Progress Series, 250, 231-246, 2003.

111 Peterson, C.H., Bishop, M.J., Johnson, G.A., D'Anna, L.M., Manning, L.M., Exploiting beach filling as an unaffordable experiment: Benthic intertidal impacts propagating upwards to shorebirds, Journal of Experimental Marine Biology and Ecology, 338, 205-221, 2006.

from approximately five months to three years, with significant variation in recovery time between studies.

Poor matching in grain size between donor and nourishment sites may result in longer recovery times for benthic invertebrates.[112,113] These impacts are felt most acutely when donor sediments contain large amounts of silt and clay, relative to the nourishment site.[114,115] Under the Proposed Action Alternative, the city would use North Ocean Beach sand for South Ocean Beach nourishment. Available data suggest that median grain size of sand in the swash zone along Ocean Beach is fairly uniform.[116] However, composite grain size data along the Ocean Beach active beach profile have not been compiled.

The project is designed to avoid common management missteps that have been shown to exacerbate impacts. For example, small sand placements (approximately 85,000 cubic yards over six weeks every four years) would generally be placed along the back of the beach, mostly above tidally active areas. In addition, nourishment would be implemented prior to the summer peak invertebrate recruitment period, which should allow recolonization of the sand placement area from the adjacent benthic environment. Due to the large amount of available habitat adjacent to the nourishment site, marine wildlife reliant on the benthic community of the South Ocean Beach project area would have ample access to adjacent unaffected habitat while the affected area is recolonized. Additionally, this proximity to unaffected habitat would allow for the rapid recolonization of the benthic, intertidal environment by marine invertebrates post-nourishment.

As described in Section 2.1.5, *Beach Nourishment*, the SFPUC would develop a shoreline monitoring and adaptive management program in coordination with the California Coastal Commission (CCC) and NPS, and its implementation could be a condition of their respective project authorizations. The monitoring program would identify performance objectives for the nourishment program, specify criteria against which performance would be evaluated, outline both qualitative and quantitative monitoring methods, identify a range of adaptation strategies to be considered in the event performance criteria are not met, and establish an implementation and reporting schedule.

For the reasons presented, the Proposed Action Alternative would result in local, short-term, minor, adverse impacts on marine wildlife and habitat.

112 Rakocinski, C.F., Heard, R.W., LeCroy, S.E., McLelland, J.A. and T. Simons, Responses by macrobenthic assemblages to extensive beach restoration at Perdido Key, Florida, U.S.A. Journal of Coastal Research 12: 326-353, 1996.

113 McLachlan, A. and A.C. Brown, The Ecology of Sandy Shores, 2006.

114 Grain size affects interstitial space in beach sediments, which in turn affects the amount of water and oxygen available to benthic invertebrates.

115 Atlantic States Marine Fisheries Commission, Beach Nourishment: A Review of the Biological and Physical Impacts. ASMFC Habitat Management Series #7, November 2002.

116 Barnard et al., Coastal Processes Study at Ocean Beach, San Francisco, CA: Summary of Data Collection 2004-2006, United States Geological Survey (USGS), Open-File Report 2007–1217, 2007.

Conclusion Regarding Proposed Action Alternative Impacts

Overall, for the above reasons, the Proposed Action Alternative would have short-term, negligible to minor, adverse impacts on wildlife and habitat. The Proposed Action Alternative would have long-term, major, adverse impacts on wildlife and habitat.

Cumulative Impacts. The Large Sand Placements Project would have impacts similar to those described for the Proposed Action Alternative's small sand placements (85,000 cubic yards), but over a larger area. For the same reasons presented above for that portion of the project, the Large Sand Placements Project would have a local, long-term, minor adverse impact on benthic habitat.

The Vista Grande Drainage Basin Improvement Project would use a portion of Fort Funston for staging and access to the existing underground tunnel that connects the Vista Grande Canal to an outlet on the beach. The portion of beach where work on the outlet would occur does not provide suitable bluff nesting habitat for bank swallows. Refer to the Ocean Beach Climate Change Adaptation Project EIR, Response to Comments, Chapter 11.9, Biological Resources, Response B-1 for a discussion of the spring 2022 bank swallow habitat assessment of coastal bluffs between Sloat Boulevard and Thornton State Beach which characterized active, historical, and potential nesting habitat within the 2.9-mile-long study area. The closest suitable habitat to the outlet structure is characterized as potential habitat, located 550 feet to the south. The closest active (or historic) habitats to the outlet structure are the active nesting areas at Phillip Burton Memorial Beach, located 1,650 feet to the south. Because there is no active or historical nesting habitat for bank swallow within 650 feet to the north or south of the outlet structure, impacts on nesting bank swallow from the Vista Grande Drainage Basin Improvement Project are not expected and there would be no cumulative impacts on bank swallow habitat.

To the extent that other projects in the vicinity require vegetation or building removal, or otherwise generate excess noise or light pollution, cumulative impacts on other bird species and bats would be short-term and adverse, with the Proposed Action Alternative contributing a minor adverse increment.

The Vista Grande Drainage Basin Improvement Project would involve in-water construction that could increase turbidity in the intertidal environment. As this work would occur approximately 1 mile to the south of the Proposed Action Alternative, the effects of the two projects, if performed concurrently, would not be expected to combine such that a cumulative adverse effect on nearshore marine habitats would occur. The combined effects of the Proposed Action Alternative and the effects of cumulative projects would be negligible and adverse.

3.3.13 Historic Properties

This section summarizes the environmental setting and potential effects related to historic properties, including historic architectural and archeological resources. The contents of this section are adapted from the project's Initial Study (Final EIR, Appendix B, Section E.4, Cultural

Resources) and a Cultural Resources Survey Report (CRSR), each of which is incorporated herein by reference. [117,118]

Affected Environment

For the project, the area of potential effects (APE)—the geographic area within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, as defined in the National Historic Preservation Act of 1966 (NHPA) implementing regulations—includes three distinct locations: North Ocean Beach, South Ocean Beach, and Fort Funston (plant restoration and plant propagation areas). The area within and adjacent to the APE does not contain historic properties (architectural resources) for the purposes of NHPA section 106. The South Ocean Beach portion of the APE has sensitivity for archeological resources in some locations but no known significant prehistoric or historical archeological sites. There is a low potential for archeological resources in the North Ocean Beach or Fort Funston portions of the APE (including the plant restoration and plant propagation areas).

Environmental Consequences

No Action Alternative

Analysis. Continued shoreline erosion could require more frequent management or emergency response activities involving heavy equipment and associated ground-disturbing activities, similar to what currently occurs for ongoing beach nourishment. The potential for encountering previously undiscovered archeological resources would be low but cannot be discounted. Any such activities would be conducted in accordance with applicable regulations. As applicable, SFPUC would implement Resource Protection Measure SCM-9, Archaeological Resources, which avoid or minimize potential effects on such impacts (see Appendix B). Nevertheless, Therefore, the No Action Alternative could still result in local, short-term, negligible to minor, direct, adverse impacts on archeological resources.

Cumulative Impacts. The No Action Alternative, in combination with cumulative projects, would not result in cumulative impacts on historic properties. The geographic scope for cumulative impacts on these resources consists of the APE. State and federal laws protect significant cultural resources, through project design to ensure the preservation of the resource, by requiring archeological data recovery, or through mitigation efforts designed during a consultation with the culturally affiliated Native American tribe(s). When combined with the low potential for inadvertent discovery of historic properties under the No Action Alternative, cumulative impacts on historic resources would be local, minor, direct and adverse, with the No Action Alternative contributing a minor, adverse increment.

117 San Francisco Planning Department, Ocean Beach Climate Change Adaptation Project Final Environmental Impact Report, September 14, 2023. Available at: https://sfplanning.org/environmental-review-documents.

118 ESA, Ocean Beach Climate Change Adaptation Project, Cultural Resources Survey Report and Archaeological Sensitivity Analysis, prepared for San Francisco Public Utilities Commission, August 2023.

Proposed Action Alternative

Analysis. The NPS requested concurrence from the State Historic Preservation Officer (SHPO) on a No Historic Properties Affected finding for the proposed undertaking. On January 3, 2024, the SHPO concurred with the No Historic Properties Affected finding (see Appendix F). The cultural resources study completed for the project does not identify any historic properties (including architectural resources and archeological resources) in the project APE. While there are no known historic properties that would be affected by the Proposed Action Alternative, the proposed excavation and ground disturbance could unearth previously unidentified cultural resources or human remains and affect those resources.

Compliance with state regulatory requirements, and with implementation of Resource Protection Measure SCM-9, Archaeological Resources (including the city's Archeological Measures I and II, which outlines halt work and agency notification protocols), would ensure that any human or Native American remains uncovered during construction would be promptly identified and appropriately protected and treated, and therefore would minimize the potential for substantial adverse impacts on archeological resources and human remains.

Therefore, the Proposed Action Alternative could result in short-term, negligible to minor, adverse impacts on archeological resources.

Cumulative Impacts. The Proposed Action Alternative, in combination with cumulative projects, would not result in cumulative impacts on historic properties. The geographic scope for cumulative impacts on these resources consists of the APE. Cumulative projects that would intersect the project APE include the Westside Pump Station Reliability Improvements, Large Sand Placements Project, and Westside Force Main Reliability Project. State and federal laws protect significant cultural resources, through project design to ensure the preservation of the resource, by requiring archeological data recovery, or through mitigation efforts designed during a consultation with the culturally affiliated Native American tribe(s). When combined with the low potential for inadvertent discovery of historic properties under the Proposed Action Alternative, cumulative impacts on historic resources would be local, minor, direct, and adverse, with the Proposed Action Alternative contributing a negligible to minor adverse increment.

CHAPTER 4
Consultation and Coordination

This chapter describes the agency consultation and coordination process and public involvement. In addition to agency and public input, internal scoping helped guide the National Park Service (NPS) in developing alternatives and identifying issues discussed in this environmental assessment (EA). This chapter provides a detailed list of consultation steps taken and outcomes of the consultation and coordination process thus far.

4.1 Planning and Public Involvement

4.1.1 Internal Scoping

Extensive internal scoping regarding the federal action has taken place. Dozens of meetings and reviews have taken place among the interdisciplinary team, including Project Review, Project Management Group, Leadership Team, and inter-divisional meetings with the NPS's Pacific West Regional Office.

4.1.2 Public Scoping

The following activities have been conducted to inform the public about the project:

The San Francisco Public Utilities Commission (SFPUC) filed a public project application with the San Francisco Planning Department on October 24, 2019, initiating the state environmental review process. In addition to the public outreach by the planning department listed below, the City and County of San Francisco (city) has conducted many public meetings and provided project updates via email and city website postings.

On September 9, 2020, the planning department sent a notice of preparation of an environmental impact report (NOP) to responsible public agencies and interested parties to begin the formal California Environmental Quality Act (CEQA) scoping process for the project. The NOP informed agencies and the public about the project and the planning department's decision to prepare an environmental impact report (EIR), and included a request for comments on environmental issues that should be addressed in the EIR. The planning department also distributed a public notice of the availability of the NOP and notice of public scoping meeting to additional public agencies, interested parties, and landowners/occupants located near the project; these notices were posted on the planning department website and placed in the legal classified section of the *San Francisco Examiner* on September 9, 2020.

Publication of the NOP initiated a 30-day scoping period, during which members of the public were invited to submit comments on the scope of the EIR. The planning department held a virtual public scoping meeting on September 30, 2020, to receive oral comments on the scope of the EIR. The 30-day scoping period ended on October 9, 2020.

The planning department published the Draft EIR, including an initial study, on December 8, 2021. The planning department mailed paper copies of the notice of availability of the Draft EIR (NOA) and notice of public meeting to relevant federal, state, regional, and local agencies; potentially interested parties; and owners and occupants of nearby properties. The planning department also distributed the notice by email to recipients who had provided email addresses, published notification of the draft EIR's availability in the *San Francisco Examiner*, posted the notice at the San Francisco County Clerk's office, and posted 10 notices within and around the project areas. More than 1,800 notices were distributed. The planning department posted the Draft EIR on its website at https://sf-planning.org/sfceqadocs and sent paper copies to those who requested it.

Publication of the NOA initiated a 45-day public review period for the Draft EIR. The review period started on December 9, 2021, and ended on January 24, 2022. During the public review period, the planning department conducted a public hearing to receive oral comments on the Draft EIR. The public hearing was held virtually/electronically before the San Francisco Planning Commission on January 6, 2022. During the Draft EIR public review period, the planning department received written and oral comments from six public agencies, six organizations, and 157 individuals.

The planning department published the Draft EIR Responses to Comments on September 14, 2023. The planning department provided notices of availability of the Draft EIR Responses to Comments and notice of public meeting to relevant federal, state, regional, and local agencies; interested parties requesting notice; and people who commented on the Draft EIR. More than 320 notices were distributed. The planning department posted the Draft EIR Responses to Comments on its website at https://sf-planning.org/sfceqadocs and sent paper copies to those who requested it.

The planning commission conducted a public hearing to determine whether to certify the Final EIR on September 28, 2023. The public hearing was held in person and included options for remote attendance and participation via video conference or telephone. The planning commission received written and oral comments from three organizations and two individuals. The planning commission certified the Final EIR at the September 28, 2023 hearing.

4.1.3 Issues and Concerns

The issues raised to date during discussions with the public include the following:

- Effects on terrestrial and marine biological resources, including special-status plants and wildlife such as bank swallow, snowy plover, and their habitats
- Effects on shoreline erosion, sandbars, and cliff erosion
- Predictions for future sea level rise, effects on project components

- Effects on aesthetic resources, including views and nighttime lighting
- Effects on surfing, swimming, and public access along dry beach
- Project consistency with the 2012 Ocean Beach Master Plan concepts
- Ability to maintain dunes on the proposed slope stabilization and frequency of beach nourishment
- Use of native and climate-appropriate plantings
- Location of public restrooms and parking
- Project area maintenance, including management of invasive species and litter
- Effects of roadway closure on traffic congestion, travel patterns, and safety
- Noise, emissions, and pollution associated with traffic pattern changes
- Consideration for historical features of existing facilities
- Cumulative impacts of development of the project combined with development of other projects

4.1.4 Future Communication

On April 1, 2024, the NPS published the EA and invited formal public and agency review and comment for 30 days. On April 1, NPS notified interested individuals, agencies, and organizations of the EA's availability, and distributed a news release. The document is available for public review on the NPS Planning, Environment & Public Comment (PEPC) website at https://parkplanning.nps.gov/OBCCAP. **Comments on the EA must be submitted through the PEPC website by 5:00 pm on Wednesday, May 1, 2024.** After the NPS considers public comments and concludes agency consultation, it anticipates releasing a decision document for the project in summer 2024.

4.2 Correspondence

Throughout development of the Proposed Action Alternative, the NPS has been in correspondence with multiple federal and state agencies, including the U.S. Fish and Wildlife Service (USFWS), U.S. Geological Survey (USGS), California State Historic Preservation Officer (SHPO), California Coastal Commission (CCC), and California Department of Fish and Wildlife (CDFW). Summaries of selected correspondence are provided in the subsections below.

As part of the state environmental review process, the city corresponded with several state and federal agencies, including through notices of environmental impact report preparation (NOP) and the availability of a draft environmental impact report (draft EIR). The California Department of Fish and Wildlife and Native American Heritage Commission commented on the NOP. California Department of Transportation, California Coastal Commission, and California Department of Fish and Wildlife commented on the draft EIR. The EIR addresses comments

received during the NOA and draft EIR comment periods. The document's Appendix A and Attachment A contain comments on the scope of the EIR and on the draft EIR, respectively.[119]

4.2.1 U.S. Fish and Wildlife Service

In June 2020, the NPS requested initiation of formal consultation with the USFWS for potential impacts of the Golden Gate National Recreation Area Park Operations Project (GGNRA Operations Project). The GGNRA Operations Project involves general maintenance activities within the GGNRA, including Ocean Beach and Fort Funston. The subject activities include habitat restoration, vegetation management, and sand maintenance (e.g., movement of sand from North Ocean Beach to South Ocean Beach), among others. The NPS concluded that such activities may affect, but would not likely adversely affect, several federally listed plant and animal species under USFWS jurisdiction, including western snowy plover and San Francisco lessingia. On June 7, 2022, the USFWS issued its programmatic biological opinion (PBO) for the GGNRA Operations Project in which it concurs with the NPS determination for western snowy plover and similarly concludes that, with implementation of proposed conservation measures, the GGNRA Operations Project would not jeopardize the continued existence of San Francisco lessingia.[120] The NPS has determined that the elements of the Proposed Action Alternative that could impact federally listed species under USFWS jurisdiction are within the scope of the PBO. Specifically, potential effects on San Francisco lessingia associated with bluff-top bank swallow foraging habitat restoration and potential effects on western snowy plover associated with the small sand placements for beach nourishment are covered under the PBO. Therefore, no further consultation with the USFWS is anticipated. The U.S. Environmental Protection Agency (EPA) is the lead federal agency for funding construction of the project through the Water Infrastructure Finance and Innovation Act and will therefore conduct a separate informal section 7 consultation with the USFWS.

4.2.2 California State Historic Preservation Officer

Pursuant to NHPA section 106, the NPS initiated section 106 consultation through a November 2023 letter to the SHPO and the Association of Raymaytush Ohlone. The letter identified the area of potential effect (APE) and the historic properties within the APE, and assessed the project's effects on the historic resources. The NPS made a finding of No Historic Properties Affected and requested concurrence from the SHPO and the Association of Raymaytush Ohlone on this determination. On January 3, 2024, the SHPO concurred with the No Historic Properties Affected finding. The EPA is the lead federal agency for all project activities occurring on land other than NPS land and the EPA is completing separate section 106 consultation and compliance for those activities. Section 106 consultation documentation is presented in Appendix F.

119 San Francisco Planning Department, Ocean Beach Climate Change Adaptation Project Final Environmental Impact Report, September 14, 2023. Available at: https://sfplanning.org/environmental-review-documents.

120 United States Department of the Interior, Fish and Wildlife Service, Programmatic Biological Opinion for the Golden Gate National Recreation Area Park Operations Project in Marin, San Francisco and San Mateo Counties, California (NPS File Number: N1615 [GOGA-NR]), June 7, 2022.

4.2.3 California Coastal Commission

The NPS contacted the CCC on July 14, 2023, to coordinate and confirm compliance procedures under the Coastal Zone Management Act of 1972 (CZMA). The CCC confirmed that the city's coastal development permit satisfies the CZMA consistency review requirements, and no separate consistency determination is required by the NPS. The SFPUC has submitted a coastal development permit application for the project.

4.2.4 California Department of Fish and Wildlife

Between spring and fall of 2022, the NPS and CDFW participated in multiple video conference meetings and a visit to the project areas to discuss bank swallow. Specifically, the meetings concerned expanding the assessment of potential bank swallow habitat in the vicinity of South Ocean Beach and Fort Funston, beyond the area that was addressed in the Draft EIR; potential project impacts on bank swallow and its habitat; and opportunities for habitat creation and enhancement. These meetings culminated in the development of additional bank swallow habitat protection and enhancement measures, which were incorporated into the Final EIR and adopted by the city. These measures are included in the Resource Protection Measures (Appendix B).

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CHAPTER 5
List of Preparers and Consultants

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Appendix A

Congressional Authorization to Grant Easement

AMENDMENT NO._____ Calendar No._____

Purpose: In the nature of a substitute.

IN THE SENATE OF THE UNITED STATES—117th Cong., 2d Sess.

H.R. 2617

To amend section 1115 of title 31, United States Code, to amend the description of how performance goals are achieved, and for other purposes.

Referred to the Committee on _____ and ordered to be printed

Ordered to lie on the table and to be printed

AMENDMENT IN THE NATURE OF A SUBSTITUTE intended to be proposed by _____

Viz:

In lieu of the matter proposed to be inserted by the House in Senate amendment 4, insert the following:

SECTION 1. SHORT TITLE.

This Act may be cited as the ''Consolidated Appropriations Act, 2023''.

SEC. 2. TABLE OF CONTENTS.

Response, Compensation, and Liability Act of 1980 (42 U.S.C. 9601 et seq.): *Provided,* That the amount provided by this subsection is designated by the Congress as being for an emergency requirement pursuant to section 4001(a)(1) of S. Con. Res. 14 (117th Congress), the concurrent resolution on the budget for fiscal year 2022, and section 1(e) of H. Res. 1151 (117th Congress), as engrossed in the House of Representatives on June 8, 2022.

(c) Expenditures made pursuant to section 613 of title VI of division J of Public Law 117–58 shall be charged to the appropriation in subsection (b).

GOLDEN GATE NATIONAL RECREATION AREA

SEC. 444. Section 3 of Public Law 92–592 (16 U.S.C. 460cc–2) is amended by adding at the end the following:

''(j) AUTHORITY TO GRANT EASEMENTS AND RIGHTS-OF-WAY PERMIT.—

''(1) IN GENERAL.—The Secretary of the Interior may grant, to any State or local government, an easement or right-of-way permit over Federal lands within Golden Gate National Recreation Area for operation and maintenance of projects for control and prevention of flooding and shoreline erosion and associated structures for continued public access.

''(2) CHARGES AND REIMBURSEMENTS OF COSTS.—The Secretary may grant such an easement or right-of-way permit without charge for the value of the use so conveyed, except for reimbursement of costs incurred by the United States for processing the application therefore and managing such use. Amounts received as such reimbursement shall be credited to the relevant appropriation account.''.

ALASKA NATIVE REGIONAL HEALTH ENTITIES AUTHORIZATION EXTENSION

SEC. 445. Section 424(a) of title IV of division G of the Consolidated Appropriations Act, 2014 (Public Law 113–76) shall be applied by substituting ''October 1, 2023'' for ''December 24, 2022''.

This division may be cited as the ''Department of the Interior, Environment, and Related Agencies Appropriations Act, 2023''.

Appendix B
Resource Protection Measures

Resource Protection Measure
NOISE AND VIBRATION
M-NO-3: Noise Monitoring and Traffic Re-Distribution Noise Reduction Plan To reduce roadside noise increases attributable to rerouted traffic resulting from the project, prior to the project's closure of the Great Highway, the SFPUC shall prepare and the city shall implement a Noise Monitoring and Traffic Re-Distribution Noise Reduction Plan for Sloat and Skyline boulevards, as described further below. The goal of the Noise Monitoring and Traffic Re-Distribution Noise Reduction Plan is to reduce roadway noise level increases sufficient to achieve a performance standard of a less than 3 dBA increase over existing ambient traffic noise levels along: a) Sloat Boulevard between Great Highway and 47th Avenue; b) Sloat Boulevard between 47th Avenue and Skyline Boulevard; and c) Skyline Boulevard between Sloat Boulevard and Harding Road. The Noise Monitoring and Traffic Re-Distribution Noise Reduction Plan shall include the following elements: ***Part I – Noise Monitoring*** • Noise monitoring shall be conducted along the three segments of Sloat Boulevard and Skyline Boulevard listed above prior to and after intersection closure to empirically verify the amount of noise reduction required to meet the performance standard of less than 3dBA increase over existing ambient traffic noise. Noise monitoring shall consist of one-week-long 24-hour measurements collected prior to closure of the Great Highway between Sloat and Skyline boulevards, and three, six, and nine months after the roadway closure. A noise monitoring plan shall be approved by the Environmental Review Officer (ERO), or its designee, prior to noise monitoring. ***Part II - Noise Reduction*** • If noise monitoring indicates that the project has resulted in a persistent increase of traffic noise levels of 3 dBA or greater relative to pre-closure conditions, within the three, six, or nine months after post-closure noise monitoring completion, the city, in consultation with a qualified noise consultant, shall identify measures that would achieve the required performance standard (a noise level increase less than 3 dBA) on the affected roadway segments. The proposed traffic noise reduction measures must be described in a Traffic Re-Distribution Noise Reduction Plan that shall be submitted to the ERO for review and approval within 12 months from the completion of noise monitoring. The noise reduction measures may include, but are not limited to: speed limit reductions, installation of new traffic signals, and street redesign (e.g., lane reduction, speed tables, or other traffic calming features). • The city shall confer with Caltrans with respect to elements of the Traffic Re-Distribution Noise Reduction Plan that may require implementation on Skyline Boulevard, which is outside the jurisdiction of the city. • With the exception of measures within Caltrans' jurisdiction whose implementation is beyond the city's control, the SFPUC, in consultation with city shall implement noise reduction measures identified in the Traffic Re-Distribution Noise Reduction Plan within 24 months of ERO approval of the Plan. This timeline may be extended, with ERO approval, if the city identifies separate projects or other circumstances that may reduce traffic noise levels on the affected roadway segments (such as other changes to the transportation network or implementation of other traffic calming measures in the vicinity). • Within 6 months of noise reduction measure implementation, the SFPUC shall: (1) demonstrate to the ERO that implementation of the noise reduction measures has achieved the required performance standard; or (2) in consultation with Caltrans and city departments with jurisdiction over the streets, identify adjustments or alternative measures proposed to achieve the standard, along with an implementation and monitoring schedule.

Resource Protection Measure
NOISE AND VIBRATION (CONT.)
M-C-NO-1: Cumulative Construction Noise Control Measures If exterior construction of the northern end of the buried wall for the proposed project is determined to overlap with that of nearby adjacent project(s) (2700 Sloat Boulevard Project, the Westside Pump Station Reliability Improvements Project, or the Westside Force Main Reliability Project), the SFPUC or contractor shall submit a project-specific construction noise control plan to the ERO or the ERO's designee for approval. Exterior construction for purposes of the proposed project and the nearby cumulative projects includes construction including the following activities; heavy-duty construction equipment for excavation, grading, foundation and shoring, and construction of building shells. The construction noise control plan shall be prepared by a qualified acoustical engineer, with input from the construction contractor, and include all feasible measures to reduce construction noise. The construction noise control plan shall identify noise control measures to meet a performance target of construction activities not resulting in a noise level greater than 10 dBA above the ambient noise level at noise sensitive receptors (daytime ambient noise levels at the time construction begins + 10 dBA performance target). The SFPUC shall ensure that requirements of the construction noise control plan are included in contract specifications. If nighttime construction is required, the plan shall include specific measures to reduce nighttime construction noise. The plan shall also include measures for notifying the public of construction activities, complaint procedures, and a plan for monitoring construction noise levels in the event complaints are received. The construction noise control plan shall include the following measures to the degree feasible, or other effective measures, to reduce construction noise levels: • Use construction equipment that is in good working order, and inspect mufflers for proper functionality • Select "quiet" construction methods and equipment (e.g., improved mufflers, use of intake silencers, engine enclosures) • Use construction equipment with lower noise emission ratings whenever possible, particularly for air compressors • Prohibit the idling of inactive construction equipment to no more than five minutes • Locate stationary noise sources (such as compressors) as far from nearby noise sensitive receptors as possible, muffle such noise sources, and/or construct barriers around such sources and/or the construction site • Avoid placing stationary noise-generating equipment (e.g., generators, compressors) within noise-sensitive buffer areas (as determined by the acoustical engineer) immediately adjacent to neighbors or other noise-sensitive properties • Enclose or shield stationary noise sources from neighboring noise-sensitive properties with noise barriers to the extent feasible. To further reduce noise, locate stationary equipment in pit areas or excavated areas, if feasible • Install temporary barriers, barrier-backed sound curtains and/or acoustical panels around working powered impact equipment and, if necessary, around the project site perimeter. When temporary barrier units are joined together, the mating surfaces shall be flush with each other. Gaps between barrier units, and between the bottom edge of the barrier panels and the ground, shall be closed with material that completely closes the gaps, and dense enough to attenuate noise

Resource Protection Measure
NOISE AND VIBRATION (CONT.)
The construction noise control plan shall include the following measures for notifying the public of construction activities, complaint procedures and monitoring of construction noise levels: • Designation of an on-site construction noise manager for the project • Notification to neighboring noise sensitive receptors within 300 feet of the project construction area at least 30 days in advance of high-intensity noise-generating activities (e.g., pier drilling, pile driving, and other activities that may generate noise levels greater than 10 dBA above the ambient noise level at noise sensitive receptors) about the estimated duration of the activity • A sign posted on-site describing noise complaint procedures and a complaint hotline number that shall always be answered during construction • A procedure for notifying the planning department of any noise complaints within one week of receiving a complaint • A list of measures for responding to and tracking complaints pertaining to construction noise. Such measures may include the evaluation and implementation of additional noise controls at sensitive receptors (residences, hospitals, convalescent homes, schools, churches, hotels and motels, and sensitive wildlife habitat) • Conduct noise monitoring (measurements) at the beginning of major construction phases (e.g., demolition, grading, excavation) and during high-intensity construction activities to determine the effectiveness of noise attenuation measures and, if necessary, implement additional noise control measures
BIOLOGICAL RESOURCES
M-BI-2a: Nesting Bank Swallow Protection Measures This measure applies to construction activities and small sand placements. Nesting bank swallows, their eggs and their nests, and their young shall be protected during construction and during sand placement events through the implementation of the following measures: a. If construction or beach nourishment activities within 650 feet of the bluffs used by the Fort Funston bank swallow colony are conducted during bank swallow nesting season (nesting is from April 1 to August 1), a qualified wildlife biologist shall conduct preconstruction surveys for nesting bank swallow within seven days prior to the start of construction, beach nourishment activities, and prior to reinitiating construction at this location after any construction breaks of 14 days or more. b. If active bank swallow nest sites are located during the preconstruction nesting surveys, a 650-foot no-disturbance buffer shall be established around the burrow nest site and all project work shall halt within the buffer until a qualified biologist determines the nest is no longer in use.

Resource Protection Measure
BIOLOGICAL RESOURCES (CONT.)
M-BI-2b: Worker Environmental Awareness Program Training This measure applies to construction activities and small sand placements. A project-specific Worker Environmental Awareness Program training shall be developed by a qualified biologist for the project and attended by all construction personnel prior to beginning on-site work. As part of the training, brochures may be given to provide reference material to contractors. The training may be provided by the qualified biologist or by designated SFPUC staff trained by the biologist to provide this training, using the materials developed by the qualified biologist, and may be administered via a video-recorded training produced specifically for the project by a qualified biologist. A more in-depth environmental training may be developed and provided for contractor supervisors in leadership roles. The environmental training shall generally include but not be limited to education about the following: a. Applicable state and federal laws, environmental regulations, project permit conditions, and penalties for non-compliance; b. Special-status species with potential to occur on or in the vicinity of the project sites, avoidance measures, and a protocol for encountering such species including a communication chain; c. Preconstruction surveys and biological monitoring requirements associated with each phase of work and at each project site as biological resources and protection measures will vary depending on project component location and the corresponding land managers (see f, below); d. Known sensitive resource areas in the project vicinity that are to be avoided and/or protected, as well as approved project work areas, access roads, and staging areas; e. Best management practices and their location at various project sites for erosion control and species exclusion, in addition to general housekeeping requirements; and f. Specific requirements sanctioned by the National Park Service (NPS) that the project must comply with while working on NPS-managed lands.
M-BI-2c: Bank Swallow Signage and Protective Fencing During the construction period and prior to project completion, the SFPUC, with the oversight of the planning department, shall implement the following: a. Educational Kiosk or Signs. Develop and produce one, permanent educational kiosk or signage to be installed in the Skyline coastal parking lot or along the multi-use trail. Educational content, sign design and structure shall be coordinated with the San Francisco Recreation and Parks Department and the National Park Service (NPS). b. Sensitive Habitat Signs. Develop and produce removable sensitive habitat signs that shall be installed on NPS property along bluff top access points at Fort Funston and within the conservation easement with the Olympic Club above Phillip Burton Memorial beach near the bank swallow nesting locations to alert the public of the sensitive nesting areas. The SFPUC and NPS shall enter into an agreement for the one-time development and production of the removable signs that the NPS shall install at its discretion as long as the bank swallow are listed as special-status and nesting within NPS-managed lands or within the boundaries of its conservation easement. c. Sensitive Habitat Fencing. Install removable fencing at a setback from the bluff edge above suitable nesting habitat to restrict public access above sensitive nesting areas. The SFPUC and NPS shall enter into an agreement for the one-time development and production of the removable fencing that the NPS shall design and install at its discretion as long as the bank swallow are listed as special-status and nesting within NPS-managed lands or within the boundaries of its conservation easement with the Olympic Club.

Resource Protection Measure
BIOLOGICAL RESOURCES (CONT.)
M-BI-2d: Public Engagement Specialist The SFPUC shall enter an agreement with NPS requiring SFPUC to fund bank swallow public engagement work by a seasonal, part-time, public engagement specialist for five bank swallow nesting seasons (April 1 to August 1). The role of the public engagement specialist shall be determined by NPS, and may include visual monitoring of the public's compliance with physical deterrents, supporting ongoing NPS bank swallow monitoring, development of educational materials, and public engagement and education related to bank swallow and their nesting habitat. The public engagement specialist shall prepare a final report for submission to NPS and ERO at the end of the five nesting seasons documenting lessons learned and recommendations for future habitat protection and management actions.
M-BI-2e: Bank Swallow Movement, Population Dynamics, and Coastal Habitat Use Research The SFPUC shall fund up to five years of research related to bank swallow movement, population dynamics, and coastal habitat selection. The research scope shall be developed in coordination with NPS and approved by the ERO, and research shall be conducted by a qualified biologist with relevant expertise. Research supported by this measure would augment existing NPS monitoring data to quantify survivorship and movement patterns of bank swallows in coastal California, specifically the Fort Funston population, to better understand the populations' habitat selection, and identify its key threats. The funding agreement shall stipulate that the findings of the research funded under this measure shall be documented in a final report and made publicly available, to increase the body of knowledge around the species' habitat conservation and management.
M-BI-2f: Blufftop Foraging Habitat Restoration Prior to construction, the SFPUC shall submit to the NPS and the Environmental Review Officer (ERO), a detailed plan and schedule for implementing this measure. The schedule shall provide for completion of the work prior to completion of project construction. If any element of the plan cannot be completed prior to completion of project construction, the SFPUC shall provide an explanation and an alternative completion date. The plan shall also include a proposed monitoring and reporting schedule. Upon completion of the work described in this measure, the SFPUC shall prepare and submit to NPS and the ERO, a final report describing the types, dates, and locations of work performed. The SFPUC, with oversight from the planning department and in coordination with the NPS, shall implement or fund restoration of: 1) approximately 2 acres of bluff-top foraging habitat within the approximately 8-acre portion of Fort Funston identified for habitat restoration in Figure 4.6-3a; and 2) an additional approximately 250 linear feet of blufftop dune habitat at locations above active nesting habitat identified and mapped in the bank swallow habitat assessment memorandum where safe and effective at limiting human disturbance (ESA, 2023. Memorandum: Fort Funston Bank Swallow Habitat Assessment, Revised January 11, 2023). Restoration activities may include removing non-native and/or invasive vegetation and planting native dune plants using hand tools, an NPS-approved herbicide, and mechanical equipment (e.g., small backhoe or excavator), or combination thereof, and in combination with installation of sensitive habitat signage and removable fencing provided in M-BI-2c. All work shall be performed in accordance with the requirements of SFPUC's Standard Construction Measures, as applicable.

Resource Protection Measure
BIOLOGICAL RESOURCES (CONT.)
The SFPUC shall prepare and implement or fund a bank swallow foraging habitat revegetation and restoration plan which sets forth the basis of restoration design, planting plan, and monitoring and reporting requirements for the restoration areas. The plan shall be coordinated with and approved by NPS and shall inform restoration design plans developed by the SFPUC in coordination with NPS. The restoration monitoring plan shall be prepared by a qualified restoration ecologist and shall include or provide for the following: • Restoration methods for selected areas, including site preparation, such as removal of existing vegetation and soil preparation, seed material and application, vegetative plant material harvest (if any), and plant specimen sourcing and planting methods; • Schedule to guide seed and/or vegetative material collection/harvest or procurement, and seeding and/or planting within the restoration areas; • Quantitative monitoring methods to evaluate performance of restored areas, including characterizing species richness, vegetative composition and cover; • Identification of appropriate reference sites to implement monitoring methods and compare results with restoration areas regarding species richness, vegetative composition and cover; • Photo points located at each restoration site and reference area(s) to document conditions during the monitoring period; • Performance criteria and measures to control/remove target invasive plants according to NPS policies. Control species shall include those ranked by Cal-IPC as high or moderately invasive. The performance standard for target invasive weeds shall be no more than 10 percent absolute cover during the five-year performance period; • Performance criteria for native plantings, appropriate for species and quantities planted at the 2-acre restoration site and the blufftop restoration sites (criteria may differ depending on site design); • Adaptive management schedule and actions (maintenance weeding or replanting) to address underperformance throughout the monitoring period; • Restoration areas shall be monitored to assess plant establishment for five years or until the sites meet the success criteria determined in the plan. At a minimum, total native vegetation cover, composition, and species richness in the restored areas shall be monitored and maintained until comparable with suitable reference sites. Upon completion of the work described in this measure, the SFPUC shall prepare and submit to NPS and the ERO or designee, a final report describing the types, dates, and locations of work performed.
M-BI-2g: Bank Swallow Habitat Enhancement The SFPUC shall implement or fund ice plant removal from the bluff face within suitable nesting habitat areas (e.g., active and historic nest sites), as identified in the bank swallow habitat assessment memorandum (ESA, 2023. Memorandum: Fort Funston Bank Swallow Habitat Assessment, Revised January 11, 2023). The ice plant removal shall be completed prior to completion of project construction. If the removal work cannot be completed prior to project completion, the SFPUC shall provide the NPS and the ERO an explanation and an alternative completion date. Upon completion of the work described in this measure, the SFPUC shall prepare and submit to the NPS and the ERO a report describing the types, dates, and locations of work performed.

Resource Protection Measure
BIOLOGICAL RESOURCES (CONT.)
M-BI-2h: Bank Swallow Artificial Habitat Creation Prior to construction, the SFPUC shall submit to the NPS and the ERO a detailed plan and schedule for implementing this measure. The schedule shall provide for completion of the feasibility study described in paragraph 1, below, prior to completion of project construction and installation of the pilot project described in paragraph 2, below, prior to the first nesting season that follows project removal of bank swallow habitat. If any element of the plan cannot be completed on schedule, the SFPUC shall provide an explanation and an alternative completion date. Upon completion of the work described in this measure, the SFPUC shall prepare and submit to the ERO a final report as described in paragraph 2(c) of this mitigation measure. 1. **Feasibility Study.** The SFPUC shall fund development and implementation of a study to explore the feasibility, efficacy, and logistics of installing artificial habitat creation concepts within the project vicinity to support the local nesting bank swallow population. These concepts may include drilling artificial burrows into the bluff face, or installing wooden nest box "bank" habitats along the bluff top, among other concepts that have documented success supporting other nesting bank swallow populations and would not conflict with Coastal Act or other applicable laws or policies. The feasibility study shall be developed in coordination with NPS and analyze how each concept would be implemented along the Fort Funston blufftop or other nearby locations, including design, siting and other locational considerations, and geotechnical considerations. Feasible artificial habitat creation shall avoid disrupting scenic resources, cultural resources, or sensitive habitat. The feasibility study shall be completed in time to ensure the pilot project would be installed prior to the first nesting season after habitat removal by the project and identify at least one concept for implementation as an artificial habitat pilot project, though multiple concepts may be determined feasible and incorporated into the pilot project.
2. **Pilot Project**. The SFPUC shall fund development and implementation of an artificial habitat pilot project. The pilot project shall include implementing and monitoring the effectiveness of the selected experimental concept(s) identified in the feasibility study (e.g., drilling artificial burrows into the bluff face or installing several wooden nest box banks along the Fort Funston blufftop or other nearby locations), in an amount comparable to that removed from the project area, and as recommended by the feasibility study. The artificial habitat should be constructed on a schedule that allows for bank swallow use ahead of the first nesting season following project removal of existing bluff habitat. a) Once installed, the artificial habitat(s) shall be surveyed for nesting activity monthly by a qualified biologist in April, and August, and twice a month in May, June, and July, for five consecutive years to document bank swallow use. b) An annual monitoring report shall be prepared that summarizes seasonal use observations at the artificial habitat(s). This report shall be provided to the NPS and the ERO within 90 days of the end of the annual monitoring period. The artificial habitat shall be considered successful if bank swallow nest or attempt to nest (repeatedly visit the habitat[s]) during the nesting season within the five-year monitoring period. c) Upon completion of the five-year monitoring period, a final report shall be prepared which compiles results of the artificial habitat pilot project. If the artificial habitat(s) was successful, the report shall include recommendations for potential funding mechanisms and partnerships for continued maintenance. This report shall be made publicly available. All work shall be performed in accordance with the requirements of SFPUC's Standard Construction Measures, as applicable.

Resource Protection Measure
BIOLOGICAL RESOURCES (CONT.)
M-BI-9: Avoidance and Minimization Measures for Special-Status Bats and Maternity Roosts A qualified biologist experienced in the identification of special-status bats shall conduct a preconstruction survey for special-status bat species habitat in advance of any tree trimming or removal to identify signs of potential bat habitat, including maternity colonies and any active roost sites. Identified bat maternity colonies shall be avoided, if possible. Should potential maternity colonies or active bat roosts be found in trees but cannot be avoided, SFPUC shall ensure the following measures are implemented: a. Trim trees or install bat exclusion devices when bats are active, approximately between the periods of March 1 to April 15 and August 15 to October 15; outside of the bat maternity roosting season (approximately April 15 to August 15) if a maternity roost is present, and outside the months of winter torpor (approximately October 15 to February 28, or as determined by a qualified biologist experienced in the identification of special-status bats). b. If tree trimming is not feasible during the periods when bats are active, and bat roosts being used for maternity or hibernation purposes are found on or in the immediate vicinity of the tree trimming, a qualified biologist shall delineate a no-disturbance buffer around these roost sites until they are no longer in use as maternity or hibernation roosts or the young are capable of flight. c. Based on the professional opinion of a qualified biologist, buffer distances may be adjusted around roosts depending on the level of surrounding ambient activity (e.g., if the subject tree is adjacent to a busy road) or if an obstruction, such as a large sand dune, is within the line-of-sight between the roost and construction. d. A biologist experienced in the identification of special-status bats shall be present during tree trimming and removal if bat roosts are present. Project activities shall disturb trees with roosts only when no rain is occurring or is not forecast to occur for three days and when daytime temperatures are at least 50 degrees Fahrenheit. e. Under the supervision of the qualified biologist, trim trees containing or suspected to contain roost sites over two days. On the first day, branches and limbs not containing cavities or fissures in which bats could roost shall be cut using chainsaws. The following day, branches or limbs containing roost sites shall be trimmed with chainsaws, under the supervision of the biologist.

Resource Protection Measure

AIR QUALITY

M-AQ-2: Construction Emissions Minimization

A. Engine Requirements.

All off-road equipment greater than 125 horsepower and operating for more than 20 total hours over the entire duration of construction activities shall have engines that meet the USEPA or California Air Resources Board Tier 4 Final off-road emission standards in construction years 2 and 4 (2025 and 2027).

B. Waivers.

The Environmental Review Officer (ERO) may waive the equipment requirements of section A if: (1) engines that comply with Tier 4 Final off-road emission standards are not available, (2) use of a particular piece of off-road equipment is technically not feasible; (3) the equipment would not produce desired emissions reduction due to expected operating modes; or (4) there is a compelling emergency need to use other off-road equipment.

If the SFPUC seeks a waiver from the requirements of section A, it shall submit documentation to the ERO of the following: 1) evidence that a waiver from the section A requirements meets the criteria set forth in section B; 2) identification of the compliance alternative in **Table M-AQ-2-1** to be implemented (or other compliance alternative that yield sufficient emissions reductions); and 3) analysis demonstrating that with the compliance alternative the project would not exceed the significance threshold for NOx of an average of 54 pounds/day. The SFPUC shall maintain records concerning its efforts to comply with this requirement.

Table M-AQ-2-1 Off-Road Equipment Compliance Step-Down Schedule

Compliance Alternative	Engine Emission Standard
1	Tier 4 interim
2	Tier 3
3	Tier 2

How to use the table: If the Tier 4 Final emissions standards cannot be met for a specific piece of off-road equipment, then the SFPUC would need to meet Compliance Alternative 1. Should the SFPUC not be able to supply off-road equipment meeting Compliance Alternative 1, then Compliance Alternative 2 would need to be met. Should the SFPUC not be able to supply off-road equipment meeting Compliance Alternative 2, then Compliance Alternative 3 would need to be met.

GEOLOGY AND SOILS

M-GE-5: Paleontological Resources Monitoring and Mitigation Program

The SFPUC shall engage a qualified paleontologist meeting standards recommended by the Society for Vertebrate Paleontology (SVP) to develop a site-specific monitoring plan prior to commencing soil-disturbing activities at the project site. The Paleontological Monitoring Plan would determine project construction activities requiring paleontological monitoring based on those activities that may affect sediments with moderate or greater sensitivity for paleontological resources. Prior to any ground-disturbing activities, the SFPUC shall submit the Paleontological Monitoring Plan to the Environmental Review Officer (ERO) for approval.

Resource Protection Measure
GEOLOGY AND SOILS (CONT.)
At a minimum, the plan shall include: a. Project Description b. Regulatory Environment – outline applicable federal, state, and local regulations c. Summary of Sensitivity Classification(s)Research Methods, including but not limited to: • Field studies conducted by the qualified paleontologist to check for fossils at the surface and assess the exposed sediments. • Literature Review to include an examination of geologic maps and a review of relevant geological and paleontological literature to determine the nature of geologic units in the project area. Locality Search to include outreach to the University of California Museum of Paleontology in Berkeley. a. Results: to include a summary of literature review and finding of potential site sensitivity for paleontological resources; and depth of potential resources if known. b. Recommendations for any additional measures that could be necessary to avoid or reduce any adverse impacts to recorded and/or inadvertently discovered paleontological resources of scientific importance. Such measures could include: • Avoidance: If a known fossil locality appears to contain critical scientific information that should be left undisturbed for subsequent scientific evaluation. • Fossil Recovery: If isolated small, medium- or large-sized fossils are discovered during field surveys or construction monitoring, and they are determined to be scientifically significant, they should be recovered. Fossil recovery may involve collecting a fully exposed fossil from the ground surface, or may involve a systematic excavation, depending upon the size and complexity of the fossil discovery. • Monitoring: Monitoring involves systematic inspections of graded cut slopes, trench sidewalls, spoils piles, and other types of construction excavations for the presence of fossils, and the fossil recovery and documentation of these fossils before they are destroyed by further ground disturbing actions. Monitoring could identify the need for test sampling. • Data recovery and reporting: Fossil and associated data discovered during ground disturbing activities should be treated according to professional paleontological standards and documented in a data recovery report. The plan should define the scope of the data recovery report. c. The paleontologist shall document the monitoring conducted according to the monitoring plan and any data recovery completed for significant paleontological resource finds discovered, if any. Plans and reports prepared by the paleontologist shall be considered draft reports subject to revision until final approval by the ERO.

SFPUC Standard Construction Measures

1. SEISMIC AND GEOTECHNICAL STUDIES: All projects will prepare a characterization of the soil types and potential for liquefaction, subsidence, landslide, fault displacement, and other geological hazards at the project site and will be engineered and designed as necessary to minimize risks to safety and reliability due to such hazards. As necessary, geotechnical investigations will be performed.

2. AIR QUALITY: All projects within San Francisco City (the City) limits will comply with the Construction Dust Control Ordinance. All projects outside the City will comply with applicable local and State dust control regulations. All projects within City limits will comply with the Clean Construction Ordinance. Projects outside City limits will comply with San Francisco or other applicable thresholds for health risks. All projects, both within and outside of City limits, will comply with either San Francisco or other applicable thresholds for construction criteria air pollutants.

To meet air quality thresholds, all projects (as necessary) will implement air quality controls to be tailored to the project, such as using high tier engines, Verified Diesel Emissions Control Strategies (VDECS) such as diesel particulate filters, customized construction schedules and procedures, and low emissions fuel.

3. WATER QUALITY: All projects will implement erosion and sedimentation controls to be tailored to the project site such as, fiber rolls and/or gravel bags around stormdrain inlets, installation of silt fences, and other such measures sufficient to prevent discharges of sediment and other pollutants to storm drains and all surface waterways, such as San Francisco Bay, the Pacific Ocean, water supply reservoirs, wetlands, swales, and streams. As required based on project location and size, a Stormwater Control Plan (in most areas of San Francisco) or a Stormwater Pollution Prevention Plan (SWPPP) (outside of San Francisco and in certain areas of San Francisco) will be prepared. If uncontaminated groundwater is encountered during excavation activities, it will be discharged in compliance with applicable water quality standards and discharge permit requirements.

4. TRAFFIC: All projects will implement traffic control measures sufficient to maintain traffic and pedestrian circulation on streets affected by construction of the project. Traffic control measures may include, but not be limited to, flaggers and/or construction warning signage of work ahead; scheduling truck trips during non-peak hours to the extent feasible; maintaining access to driveways, private roads, and off-street commercial loading facilities by using steel trench plates or other such method; and coordination with local emergency responders to maintain emergency access. For projects in San Francisco, the measures will also, at a minimum, be consistent with the requirements of San Francisco Municipal Transportation Agency (SFMTA)'s Blue Book. Any temporary rerouting of transit vehicles or relocation of transit facilities would be coordinated with the applicable transit agency, such as SFMTA Muni Operations in San Francisco. All Projects will obtain encroachment permits from the applicable jurisdiction for work in public roadways.

5. NOISE: All projects will comply with local noise ordinances regulating construction noise. The SFPUC shall undertake measures to minimize noise disruption to nearby neighbors and sensitive receptors during construction. These efforts could include using best available noise control technologies on equipment (i.e., mufflers, ducts, and acoustically attenuating shields),

locating stationary noise sources (i.e., pumps and generators) away from sensitive receptors, erecting temporary noise barriers, and other such measures.

6. HAZARDOUS MATERIALS: Where there is reason to believe that site soil or groundwater that will be disturbed may contain hazardous materials, the SFPUC shall undertake an assessment of the site in accordance with any applicable local requirements (e.g., Maher Ordinance) or using reasonable commercial standards (e.g., Phase I and Phase II assessments, as needed). If hazardous materials will be disturbed, the SFPUC shall prepare a plan and implement the plan for treating, containing or removing the hazardous materials in accordance with any applicable local, State and federal regulations so as to avoid any adverse exposure to the material during and after construction. In addition, any unidentified hazardous materials encountered during construction likewise will be characterized and appropriately treated, contained or removed to avoid any adverse exposure. Measures will also be implemented to prevent the release of hazardous materials used during construction, such as storing them pursuant to manufacturer recommendation, maintaining spill kits onsite, and containing any spills that occur to the extent safe and feasible followed by collection and disposal in accordance with applicable laws. SFPUC will report spills of reportable quantity to applicable agencies (e.g., the Governor's Office of Emergency Services).

7. BIOLOGICAL RESOURCES: All project sites and the immediately surrounding area will be screened to determine whether biological resources may be affected by construction. A qualified biologist will also carry out a survey of the project site, as appropriate, to note the general resources and identify whether habitat for special-status species and/or migratory birds, are present. In the event further investigation is necessary, the SFPUC will comply with all local, State, and federal requirements for surveys, analysis, and protection of biological resources (e.g., Migratory Bird Treaty Act, federal and State Endangered Species Acts, etc.). If necessary, measures will be implemented to protect biological resources, such as installing wildlife exclusion fencing, establishing work buffer zones, installing bird deterrents, monitoring by a qualified biologist, and other such measures. If tree removal is required, the SFPUC would comply with any applicable tree protection ordinance.

8. VISUAL AND AESTHETIC CONSIDERATIONS, PROJECT SITE: All project sites will be maintained in a clean and orderly state. Construction staging areas will be sited away from public view where possible. Nighttime lighting will be directed away from residential areas and have shields to prevent light spillover effects. Upon project completion, project sites on SFPUC-owned lands will be returned to their general pre-project condition, including re-grading of the site and re-vegetation or re-paving of disturbed areas to the extent this is consistent with SFPUC's Integrated Vegetation Management Policy. However, where encroachment has occurred on SFPUC-owned lands, the encroaching features may not be restored if inconsistent with the SFPUC policies applicable to management of its property. Project sites on non-SFPUC land will be restored to their general pre-project condition so that the owner may return them to their prior use, unless otherwise arranged with the property owner.

9. CULTURAL RESOURCES: All projects that will alter a building or structure, produce vibrations, or include soil disturbance will be screened to assess whether cultural resources are or may be present and could be affected, as detailed below.

Archeological Resources. No archeological review is required for a project that will not entail ground disturbance. Projects involving ground disturbance will undergo screening for

archeological sensitivity as described below and implement, as applicable, SFPUC's Standard Archeological Measures I (Discovery), II (Monitoring) and III (Testing/Data Recovery) per the Cultural Resources Attachments. Standard Construction Measure I will be implemented on all projects involving ground disturbance and Standard Archeological Measures II and III will be implemented based on the screening process described below for projects assessed as having the potential to encounter archeological sites and/or if an archeological discovery occurs during construction.

Projects involving ground disturbance will initially be screened to identify whether there is demonstrable evidence of prior ground disturbance in the project site to the maximum vertical and horizontal extent of the current project's planned disturbance. For projects where prior complete ground disturbance has occurred throughout areas of planned work, SFPUC will provide evidence of the previous disturbance in the Categorical Exemption application and no further archeological screening will be required.

For projects that are on previously undisturbed sites or where the depth/extent of prior ground disturbance cannot be documented, or where the planned project-related ground disturbance will extend beyond the depth/extent of prior ground disturbance, additional screening will be carried out as detailed below and shown on the attached flow chart titled "SFPUC Standard Construction Measure #9 Archeological Assessment Process". The additional screening will be conducted by the SFPUC's qualified archeologist (defined as meeting the Secretary of the Interior's Professional Qualifications Standards [36 CFR 61]) and, if a consultant, selected in consultation with the San Francisco Planning Department's Environmental Review Officer (ERO) and meeting criteria or specialization required for the resource type as identified by the ERO.

1) The SFPUC qualified archeologist will conduct an archival review for the project site, including review of Environmental Planning's (EP's) archeological GIS data and/or a records search of the California Historical Resources Information System (CHRIS) and other archival sources as appropriate. The qualified archeologist will also conduct an archeological field survey of the project site if, in the archeologist's judgment, this is warranted by site conditions. Based on the results, the archeologist will complete and submit to EP a Preliminary Archeological Checklist (PAC) (version dated 4/2015, to be amended in consultation with the ERO as needed). The PAC will include recommendations for the need for archeological testing, additional research and/or treatment measures consistent with Archeological Measures I, II, and III, to be implemented by the project to protect and/or treat significant archeological resources identified as being present within the site and potentially affected by the project.

2) The EP Archeologist (for projects within the City) or the ERO's archeological designee (for projects outside the City) will then conduct a Preliminary Archeological Review (PAR) of the PAC and other sources as warranted; concur with the PAC recommendations; and/or amend the PAC in consultation with the SFPUC archeologist or archeological consultant to require additional research, reports, or treatment measures as warranted based on his/her professional opinion.

3) The SFPUC shall implement the PAC/PAR recommendations prior to and/or during project construction consistent with Standard Archeological Measures I, II, and III, and

shall consult with the EP Archeologist in selecting an archeological consultant, as needed, to implement these measures.

4) Ground disturbing activities in archeologically sensitive areas, as identified through the above screening, will not begin until required preconstruction archeological measures of the PAC/PAR (e.g., preparation of an Archeological Monitoring Plan, Archeological Treatment Plan, and/or an Archeological Research Design and Data Recovery Plan) have been implemented.

Historic (Built Environment) Resources. For projects within the City that include activities with the potential for direct or indirect effects to historic buildings or structures, initial CEQA screening will include a review, for the project footprint and up to one parcel surrounding the footprint of CCSF's online planning map, all relevant survey data, preservation address files, and other pertinent sources for previously-identified, historically significant buildings and building and structures more than 45 years old that have not been previously evaluated. For projects outside of the City, initial CEQA screening will include a records search of EP's CCSF historical resources data, CHRIS, and other pertinent sources for historically significant or potentially significant buildings and structures older than 45 years.

For projects that would modify an existing building or structure that has been determined by EP as being a significant historical resource (i.e., appears eligible to qualify for the CRHR), or that would introduce new aboveground facilities in the vicinity of a significant historical resource, or that would affect previously unevaluated buildings or structures more than 45 years old, the SFPUC will retain a qualified architectural historian (defined as meeting the Secretary of the Interior's Professional Qualification standards and, if a consultant, also selected in consultation with the ERO) to conduct a historical resource evaluation (HRE). SFPUC will submit the project description and the HRE to the CCSF Planning Department Preservation Planner or to the ERO's-designated qualified architectural historian to assess potential effects. Where the potential for the project to have adverse effects on historic buildings or structures is identified, the CCSF Planning Department Preservation Planner or the ERO's designee will consult with SFPUC to determine if the project can be conducted as planned or if the project design can be revised to avoid the significant impact, and will comply with applicable procedures set forth in Historic Architectural Resource Measure I. If these options are not feasible, the project will need to undergo further review with EP and mitigation may be required. If so, the project would not qualify for a Categorical Exemption from CEQA review.

Where construction will take place in proximity to a building or structure identified as a significant historical resource but would not otherwise directly affect it, the SFPUC will implement protective measures, such as but not limited to, the erection of temporary construction barriers to ensure that inadvertent impacts to such buildings or structures are avoided.

Appendix C
Environmental Justice

AECOM
300 Lakeside Drive
Suite 400
Oakland, CA 94612
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Project name:
Ocean Beach Climate Change Adaptation Project

Date:
February 27, 2024

To: Allison Chan, SFPUC

cc: Karen Frye, SFPUC
Jennifer Ly, SFPUC

Memo

Subject: NEPA Environmental Justice Analysis for the Ocean Beach Climate Change Adaptation Project

1. Introduction

The purpose of this memorandum is to document the environmental justice analysis and conclusions for the Ocean Beach Climate Change Adaptation Project ("Ocean Beach Project" or "project"). The San Francisco Public Utilities Commission (SFPUC) is seeking credit assistance from the Environmental Protection Agency's (EPA) Water Infrastructure Finance and Innovation Act (WIFIA) Program to assist in financing construction of the project. The WIFIA program is a federal credit program for eligible water and wastewater infrastructure projects. The EPA administers the WIFIA program and is the federal lead agency for the National Environmental Policy Act (NEPA) process for the project. The environmental justice analysis contained herein has been prepared to address federal environmental justice requirements, including Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, which prohibits discrimination against or exclusion of individuals or populations during conduct of federal activities.

Environmental justice is a term used to describe the fair and equitable treatment of minority and low-income people—which this memo collectively refers to as *environmental justice populations*—with regard to federally funded projects and activities. Environmental justice concerns can arise if a federal action were to result in disproportionate adverse human health or environmental effects on minority or low-income populations. This memo summarizes the regulatory authority for conducting environmental justice analyses, summarizes information about minority and low-income populations in the project environmental justice study area, identifies potential project-related effects on those populations, and describes relevant public engagement activities conducted for the project by the SFPUC and others.

The NEPA analysis for the project is being conducted under the EPA's Programmatic Environmental Assessment (PEA) for the WIFIA Program (EPA 2018). For the PEA, the EPA defines environmental justice as follows:

> *"The fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment means that no group of people, including racial, ethnic, or socioeconomic group should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local, and tribal programs and policies" (EPA 2017).*

> *The goal of this "fair treatment" is not to shift risks among populations, but to identify potential disproportionately high and adverse effects and identify alternatives that may mitigate these impacts (EPA 1998).*

The Ocean Beach Project recently obtained California Environmental Quality Act (CEQA) approval through an Environmental Impact Report (EIR) completed by the SPFUC (with a Final EIR certified by the San Francisco Planning Commission on September 28, 2023). This memo is intended to specifically address the federal environmental justice requirements to support NEPA clearance for the project under the WIFIA PEA. This memo also acknowledges state and local environmental justice policies and disadvantaged community considerations.

2. Project Description

The project is needed to address shoreline erosion, severe coastal storm and wave hazards, and sea level rise, which threaten city infrastructure, coastal access and recreational facilities, and public safety. The project would enact a combination of managed retreat, beach nourishment, and shoreline protection strategies intended to protect critical wastewater system infrastructure from damage due to these hazards, while also preserving and enhancing coastal public access, scenic quality, and coastal habitat. The project encompasses activities in multiple areas along or near Ocean Beach, including in Fort Funston (see **Figure 1)**. The project is a collaborative, multi-agency initiative involving SFPUC, San Francisco Recreation and Parks (Rec and Park), San Francisco Public Works (Public Works), San Francisco Municipal Transportation Agency (SFMTA), and the National Park Service (NPS).

Major project components fall into five categories:

1) Permanently closing the Great Highway between Sloat and Skyline boulevards to public vehicular traffic, reconfiguring affected intersections and San Francisco Zoo parking access, removing the existing restroom, and maintaining a service road to SFPUC facilities;
2) Constructing an approximately 3,200-foot-long buried wall to protect existing wastewater infrastructure from shoreline erosion;
3) Removing pavement, rock and sandbag revetments,[1] rubble and debris from the beach, reshaping the bluff, and planting native vegetation;
4) Constructing a multi-use trail, beach access stairway, coastal access parking, and restrooms; and
5) Providing long-term beach nourishment (sand replenishment).

The EPA is proposing to provide WIFIA funding for most project components except intersection improvements, San Francisco Zoo entrance improvements, and long-term beach nourishment.

[1] In coastal engineering, revetments are sloping structures placed on the shoreline to protect the shoreline from erosion or other modification by waves.

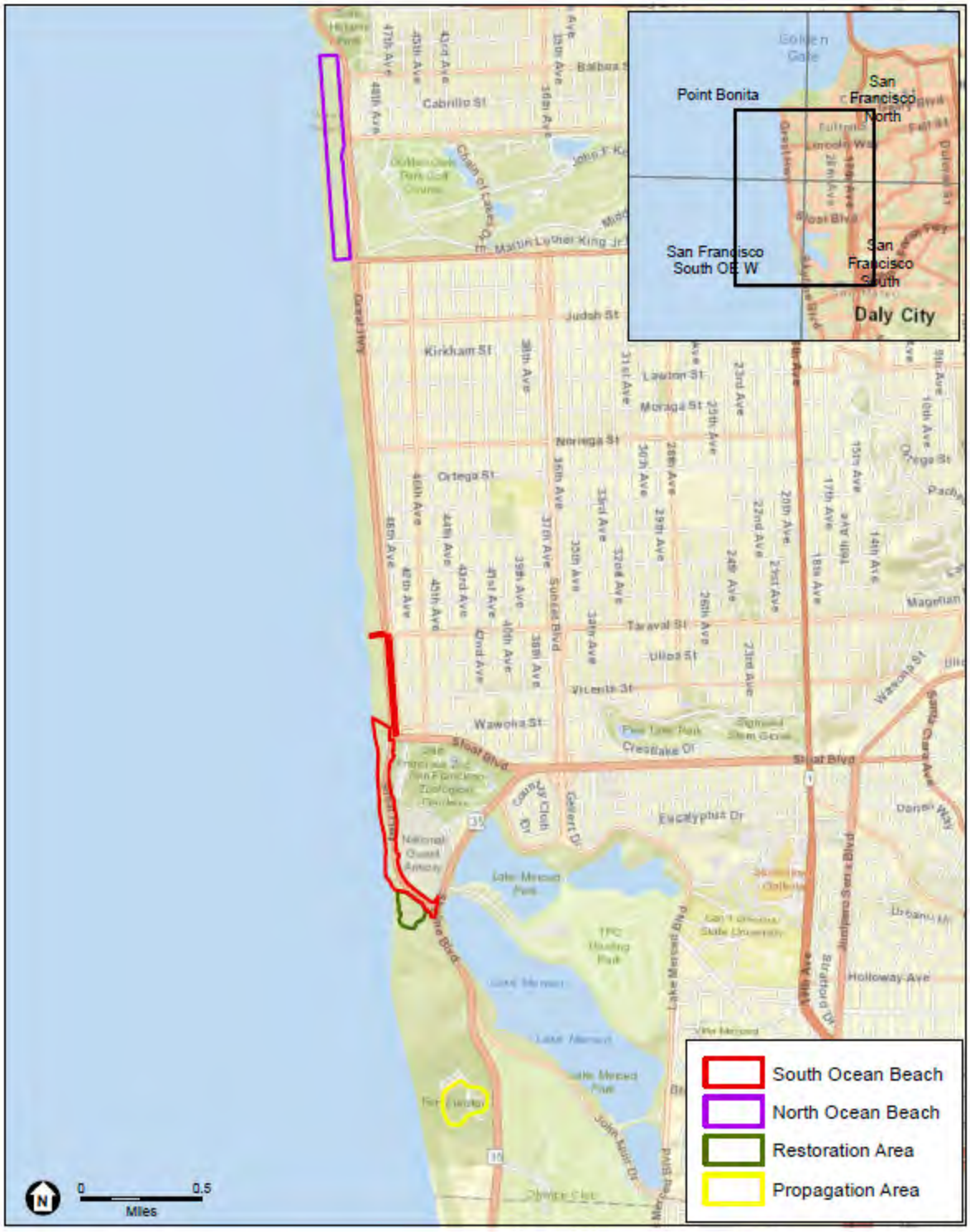

Figure 1. Ocean Beach Climate Change Adaptation Project Location

3. Applicable Regulations and Policies

The following discussion summarizes key regulations and guidelines relating to federal environmental justice compliance as it pertains to projects applying for EPA WIFIA funds. Additionally, the City of San Francisco and the SFPUC have adopted policies that address environmental justice; these policies are also summarized below.

3.1 Executive Order 12898

The methodology used for the environmental justice analysis described herein follows Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*. All projects involving a federal action (i.e., funding, permit, or land) must comply with Executive Order 12898, which was signed by President Clinton in February 1994. It was issued with the goal of achieving environmental protection for all communities and prohibits discrimination against or exclusion of individuals or populations during conduct of federal activities.

This executive order directs federal agencies to take the appropriate and necessary steps to identify and address disproportionately high and adverse effects of federal projects on the health or environment of minority and low-income populations to the greatest extent practicable and permitted by law. A presidential memorandum accompanying the executive order directed agencies to incorporate environmental justice concerns in their NEPA processes and practices. The memorandum states that “each Federal agency shall analyze the environmental effects, including human health, economic and social effects, of Federal actions, including effects on minority communities and low-income communities, when such analysis is required by [NEPA].”

The order also requires that representatives from minority and low-income populations that could be impacted by the project be engaged and given the opportunity to participate in the impacts assessment and public involvement process. With respect to public outreach, the order requires agencies to make diligent efforts to involve the public throughout the environmental process through effective public participation and access to information. These efforts to involve minority and low-income populations may require innovative approaches to overcome linguistic, institutional, cultural, economic, historical, or other potential barriers to effective participation.

3.2 Environmental Justice Guidance under NEPA (Council on Environmental Quality)

The Council on Environmental Quality (CEQ) oversees the federal government’s compliance with Executive Order 12898 and NEPA, and has laid out specific guidance in the *Environmental Justice Guidance under the National Environmental Policy Act* (CEQ 1997). The guidance document advises agencies to recognize that the question of whether an agency action raises environmental justice issues is highly sensitive to the history or circumstances of a particular community or population, the type of environmental or health impact, and the nature of the action itself. The document also includes guidance on key terms used in Executive Order 12898 that are pertinent for environmental justice analysis, including “minority,” “minority population,” “disproportionately high and adverse human health effects,” and “disproportionately high and adverse environmental effects.”

3.3 Final Guidance for Incorporating Environmental Justice Concerns in EPA’s NEPA Compliance Analysis (EPA)

The EPA’s *Final Guidance for Incorporating Environmental Justice Concerns in USEPA's NEPA Compliance Analyses* addresses incorporating environmental justice goals into the EPA’s preparation of Environmental Impact Statements and Environmental Assessments under NEPA (EPA 1998). The document further describes key environmental justice terms and provides guidance on their application in the context of NEPA analyses. It also describes notable steps in the NEPA process where analyses of environmental justice concerns should be incorporated, and outlines various approaches to public participation with a focus on minority and low-income communities.

3.4 Toolkit for Assessing Potential Allegations of Environmental Justice (EPA)

The EPA's *Toolkit for Assessing Potential Allegations of Environmental Justice* (EPA 2004) describes various research tools and provides a systematic approach for gathering and analyzing data related to environmental, social, economic, and health-related technical information to determine if an environmental injustice situation appears to exist or may be avoided altogether. It outlines a process to identify and assess the potential for disproportionately high and adverse effects or impacts, and provides specific examples of the various forms and types of adverse effect or impact that might be identified through a standard NEPA process.

3.5 San Francisco Environmental Justice Framework

The San Francisco General Plan is a citywide document that describes and memorializes the City's vision for the future. The San Francisco Environmental Justice Framework has been incorporated as part of the Introduction to the plan and provides guidance to City agencies on how they can address environmental justice in their work. The framework was co-created with community members and organizations working within the environmental justice communities (defined as communities of color and lower-income communities that face higher pollution and other health risks). It describes policy priorities to advance health in the environmental justice communities, with the intent to further develop these priorities into goals, objectives, and policies incorporated throughout the General Plan Elements. Subsequent efforts should ensure that the environmental justice communities are prioritized for specific policies and resources that can help redress historic injustices and meaningfully improve economic, health, and other outcomes.

3.6 SFPUC Environmental Justice Policy

The SFPUC Environmental Justice Policy defines environmental justice as "the fair treatment of people of all races, cultures, and incomes and believes that no group of people should bear a disproportionate share of negative environmental consequences resulting from the operations, programs, and/or policies of the SFPUC." It was adopted in 2009 in Resolution No. 09-0170, which "affirms and commits to the goals of environmental justice to prevent, mitigate, and lessen disproportionate environmental impacts of its activities on communities in all SFPUC service areas and to ensure that public benefits are shared across all communities."

The resolution acknowledges that enforcement of environmental laws, rules, regulations, and best practices that apply to its resource supply, operations, and delivery of water, wastewater, and power services is core to the fair treatment of the people served and the stewardship of SFPUC lands. The resolution provides further direction to staff regarding implementing initiatives to avoid or eliminate disproportionate impacts, develop and conduct appropriate communication strategies, and work with stakeholders to progress these efforts.

3.7 SFPUC Community Benefits Policy and Program

The SFPUC Community Benefits Policy, adopted as Resolution No. 11-0008 in 2011, is referred to as the SFPUC's "good neighbor policy." It "affirms and commits to the goal of developing an inclusive and comprehensive community benefits program to better serve and foster partnership with communities in all SFPUC service areas and to ensure that public benefits are shared across all communities." The resolution defines community benefits as "those positive effects on a community that result from the SFPUC's operation and improvement of its water, wastewater and power services." It commits the SFPUC to develop a Community Benefits Program and to devote sufficient resources and authority to staff for various efforts, programs, and actions that would support that program. Specific to environmental justice, the resolution directs SFPUC staff to develop processes to effectively engage stakeholders and communities in all SFPUC service areas, implement the SFPUC Environmental Justice Policy, and develop new and continue to implement existing initiatives to avoid or eliminate disproportionate impacts of SFPUC decisions and activities.

4. Project Environmental Justice Populations

4.1 Minority and Low-income Populations

Environmental justice populations (i.e., minority and low-income populations) were identified to determine whether they would experience disproportionately high and adverse impacts from the project. For the purposes of analyzing demographic data, the project environmental justice study area was defined as the census block groups within which elements of the proposed project are located. The data was obtained from the 2016-2020 American Community Service 5-Year Estimates at the census block group level. Demographic data for the entire City and County of San Francisco was also obtained to use for comparative purposes.

Table 1 provides a comparison of minority and low-income populations within the project environmental justice study area with that of the City and County of San Francisco. In accordance with environmental justice guidance, "minority" is defined as individuals who are Black or African American; Asian; American Indian or Alaskan Native; Native Hawaiian or Pacific Islander; and/or Hispanic or Latino. As shown in Table 1, the City and County of San Francisco has a population of 808,437 and a substantial minority population of 49.2 percent. Similarly, the project environmental justice study area has a total population of 4,751, with a 53.3 percent minority population.

Low-income populations were identified based on poverty thresholds as reported by the U.S. Census Bureau. According to the U.S. Census Bureau, the median household income (MHI) for the City and County of San Francisco was $136,689 between 2018 and 2022 (U.S. Census Bureau 2023). Based on the U.S. Census Bureau's poverty data—which is based on income, household size, and number of minors—11.2 percent of the City and County of San Francisco as a whole is at or below the poverty level, while 4.2 percent of the project environmental justice study area is at or below poverty level (U.S. Census Bureau 2023).

Table 1. Minority and Low-Income Populations in the Project Environmental Justice Study Area and the City and County of San Francisco

Geographic Area	Total Population	Minority* Population (Percentage)	Low-Income (Percentage at or below the Poverty Level)
Project Environmental Justice Study Area	4,751	53.3%	4.2%
City and County of San Francisco	808,437	49.2%	11.2%

** Note: "Minority" is defined as individuals who are Black or African American; Asian; American Indian or Alaskan Native; Native Hawaiian or Pacific Islander; and/or Hispanic or Latino.*

Source: U.S. Census Bureau 2023

According to EPA guidelines, a minority population is present if the minority population of the analysis area exceeds 50 percent, or if the minority population percentage of the analysis area is meaningfully greater (i.e., 10 percent or more) than the minority population percentage in the general population or other appropriate unit of geographic analysis. From the perspective of identifying low-income populations, the threshold used for this analysis included census block groups where the percentage of persons below the poverty level exceeds the comparative geographic analysis area (i.e., the City and County of San Francisco) level by 10 percent or more.

Based on these thresholds, the project does include environmental justice populations requiring further analysis, given the project environmental justice study area's minority population exceeds 50 percent. The project environmental justice study area's percentage of persons below the poverty level does not exceed the comparative geographic analysis area (City of San Francisco) by 10 percent or more. Further discussion of potential impacts to the environmental justice populations is provided in Section 6, Impacts Summary, below.

4.2 Disadvantaged Communities

Related to this environmental justice analysis, multiple California regulations and policies further define "disadvantaged communities" or provide guidance on additional considerations beyond the federal requirements for an environmental justice analysis. The figures below show the project location relative to these disadvantaged communities/environmental justice maps:

- CalEnviroScreen is a tool produced by the California Environmental Protection Agency (CalEPA) and California Office of Environmental Health Hazard Assessment (OEHHA) that maps California communities that are most affected by many sources of pollution, and where people are often especially vulnerable to the effects of pollution. The tool uses environmental, health, and socioeconomic information to produce scores for every census tract in the state. The scores are then mapped such that different communities can be compared. An area with a high score is one that experiences a much higher pollution burden than areas with low scores. As shown in **Figure 2**, the project location lies in areas of the city with low-range scores (indicated in green). This indicates communities within the project area generally bear a range of comparatively lesser pollution burdens than some communities in the state.
- The Planning for Healthy Communities Act (California Senate Bill 1000 [2016]) requires cities and counties to either adopt an environmental justice element in their general plan, or integrate policies, objectives, and goals to address environmental justice throughout other elements of their plan. The San Francisco Planning Environmental Justice Communities Map was created to meet the needs of this requirement by providing municipalities with a tool to identify where disadvantaged communities are located. The Environmental Justice Communities Map depicts a gradient of pollution exposure and social vulnerability in San Francisco. It builds upon CalEnviroScreen, and is refined with additional local data on pollution burden and socioeconomic disadvantage.

  For the purposes of this tool, disadvantaged communities are those areas facing elevated pollution burden coupled with a high incidence of low-income residents. "Environmental Justice Communities" in this context are indicated in red and defined as the areas facing the top one-third of cumulative environmental and socioeconomic burdens across the city. Environmental Justice Communities are often (though not exclusively) low-income communities and communities of color. As shown in **Figure 3**, below, the project location lies in areas of the city ranging from least burdened (indicated in green) to mid- to higher-burdened areas (indicated in yellow).

In general, the project's location in relation to CalEnviroScreen scores indicate the project is in an area of the city with comparatively less pollution burdens than some communities in the state (indicated in green in Figure 2). According to the Environmental Justice Communities Map, the southern portion of the project area (indicated in yellow in Figure 3) is located in an area with locally-defined disadvantaged communities. The southern portion of the project area is surrounded by the San Francisco Zoo, Westside Pump Station, and Oceanside Water Pollution Control Plant; whereas, the northern portion of the project area (indicated in green) is surrounded by residential uses. The project's location in relation to the locally-defined disadvantaged communities should at least warrant additional consideration from the perspective of environmental justice best practices such as: effective engagement, minimization of impacts to avoid disproportionate burden or exacerbation of historically borne health or socioeconomic burdens, and optimizing potential project benefits provided to these communities.

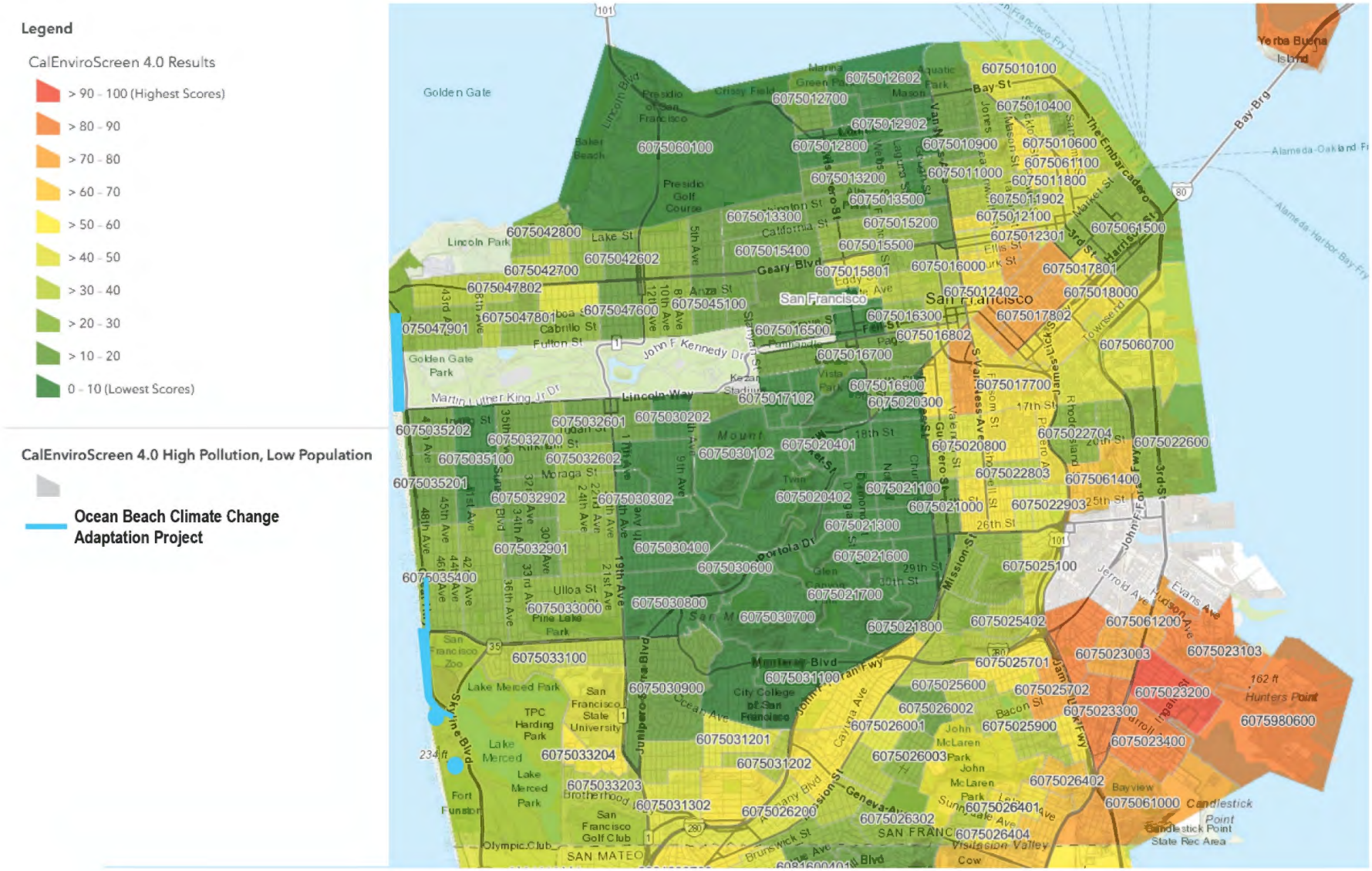

Figure 2. Project Area CalEnviroScreen 4.0 Results

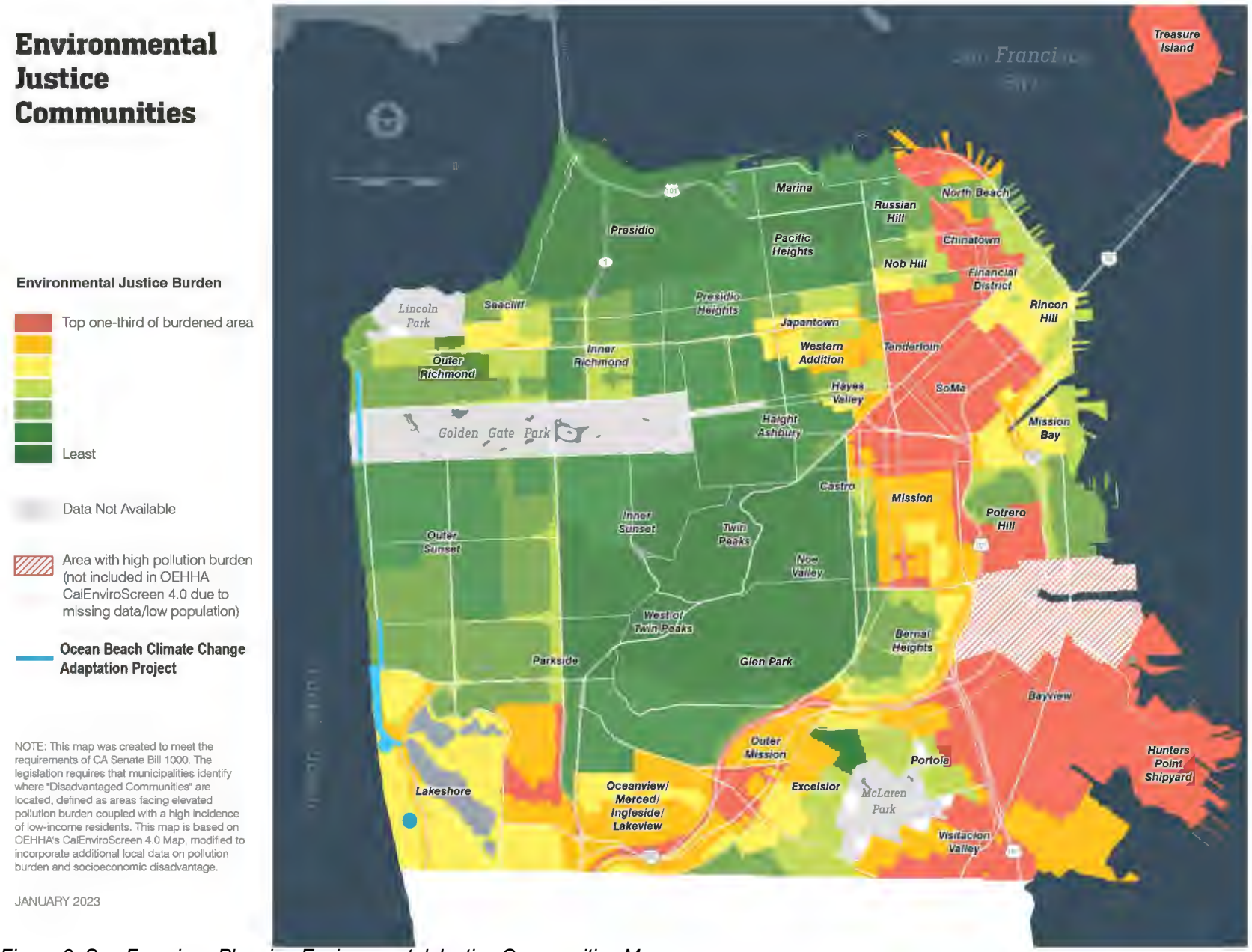

Figure 3. San Francisco Planning Environmental Justice Communities Map

5. Public Outreach Summary

5.1 CEQA Public Outreach

The project description, design, and environmental review processes for the Ocean Beach Project have been developed in collaboration with multiple agencies and organizations, including SFPUC, San Francisco Planning Department, San Francisco Rec and Park, San Francisco Public Works, SFMTA, and the NPS, among others. These efforts have included multiple opportunities for agency, stakeholder, and public engagement starting in 2020 and ranging in methods from website updates to public meetings and opportunities to comment on the CEQA Notice of Preparation (NOP) and Draft EIR.

On September 9, 2020, the planning department sent the NOP for the EIR to responsible public agencies and interested parties to begin the formal CEQA scoping process for the project. The NOP informed agencies and the public about the project and the planning department's decision to prepare an EIR, and included a request for comments on environmental issues that should be addressed in the EIR. The planning department also distributed a public notice of availability of the NOP and notice of public scoping meeting to additional public agencies, interested parties, and landowners/occupants located near the project. These notices were posted on the planning department website and placed in the legal classified section of the *San Francisco Examiner* on September 9, 2020.

The planning department held a virtual public scoping meeting on September 30, 2020, to receive oral comments on the scope of the EIR. The 30-day scoping period ended on October 9, 2020. Comments received during that process were documented as part of the CEQA process and were considered in preparing the Initial Study and EIR for the project.

The planning department published the Draft EIR, including an Initial Study, on December 8, 2021. The planning department mailed paper copies of the notice of availability of the Draft EIR and notice of public meeting to relevant federal, state, regional, and local agencies, potentially interested parties, and owners and occupants of property within 300 feet of the project site. The planning department also distributed the notice by email, to recipients who had provided email addresses, published notification of the Draft EIR's availability in a newspaper of general circulation in San Francisco (the *San Francisco Examiner*), posted the notice at the county clerk's office, and posted 10 notices within and around the project area. More than 1,800 notices were distributed. The planning department posted the Draft EIR on its website and sent hard copies to those who requested it.

The 47-day public review period for the Draft EIR started on December 8, 2021, and ended on January 24, 2022. During the public review period, the planning department conducted a public hearing to receive oral comments on the Draft EIR. The public hearing was held virtually/electronically before the San Francisco Planning Commission on January 6, 2022. During the Draft EIR public review period, the planning department received written and oral comments from six public agencies, five organizations, and 158 individuals. The planning department considered all comments and provided responses to comments regarding major environmental issues in the Response to Comments document, which was distributed for review to the San Francisco Planning Commission, public agencies and commissions, organizations, and individuals who commented on the Draft EIR.

5.2 Additional Public Outreach

The Ocean Beach Project is one of several projects involving changes to the Great Highway between Sloat and Skyline Boulevard. All of these projects have been coordinated together towards increasing resilience, improving reliability, reducing vulnerability, while improving access to recreational and natural open spaces in the project area. As such, SFPUC's outreach efforts have been coordinated with multiple city agencies including Rec and Park, Public Works, SFMTA, NPS, and others.

Outside of the public outreach efforts required under CEQA, SFPUC's public outreach has included regular email updates to an extensive stakeholder list, mailed notices promoting multiple in-person and virtual community meetings, and one-on-one meetings with district supervisors, community organizations, and business owners. To promote these project updates and community engagement opportunities, social media posts and event reminders promoted in the citywide sewer email newsletter reaching several thousand subscribers have been sent throughout the year, hard copy notices were mailed to the Outer Sunset and Outer Richmond neighborhoods, and flyers along the Great Highway and Sloat Boulevard were posted in public areas and disseminated to businesses. Community meetings, held both in-person and virtually, included representatives from partner city agencies to support public requests, district supervisor representatives, and Spanish/Chinese translators for community members requiring language support.

Internal stakeholders include: SFPUC Citizens Advisory Committee, SF Zoo Board of Directors, Ocean Beach Key Stakeholders Group, and Ocean Beach Steering Committee. Some key advocacy groups include but are not limited to: SPUR, San Francisco Bike Coalition, Walk SF, Surfrider Foundation, People for the Parks, Golden Gate Audubon Society, and Coalition to Save Ocean Beach. Some neighborhood/merchant groups include: local resident mailing lists (parcel grabs), Outer Sunset Merchants and Professionals Association, Outer Sunset Parkside Residents Association, the United Irish Cultural Center, Sunset Neighborhood Watch, among others. Other key stakeholders include beach goers and those visiting the area for recreation, locals, tourists, and commuters traveling along the Great Highway.

In addition to the outreach methods noted above, the following methods and tools have been and will continue to be utilized:

- Nextdoor and social media updates
- SF Planning Ocean Beach Adaption web page (sfplanning.org/ocean-beach)
- NPS Coastal Erosion Management at Ocean Beach web page (Coastal Erosion Management at Ocean Beach - Golden Gate National Recreation Area (U.S. National Park Service) (nps.gov))
- Individual project web pages (sfpuc.org/oceanbeach and https://sfrecpark.org/1172/Ocean-Beach-Climate-Adaptation-Project)
- Project stakeholder email lists for each agency
- Development of Ocean Beach projects overview map
- Presentations to Ocean Beach Steering Committee
- Presentations to NPS Project Review Committee
- Ongoing coordination with Supervisor's offices
- Site visits
- Media engagement
- Use of translated materials and interpretation to ensure access to non-English speaking community members
- Partner with existing community group meetings and events to reach people where they are
- Tabling or other in-the-field engagements, including but not limited to community events, Sunday Streets and World Ocean Day

Table 2 summarizes public outreach efforts conducted to date that SFPUC has participated in. Note some of these engagement efforts were coordinated with other City projects proposed in the vicinity of the Ocean Beach Project.

Table 2. Summary of Outreach Conducted

Event	Participating Agency(ies)	Description	Date
Ocean Beach Key Stakeholder Meeting	SPUR, SFPUC, SFMTA, SF Public Works SF Rec and Park, NPS SF Planning, District 4 Supervisor	SPUR led meeting discussing status of various projects at Ocean Beach	October 4, 2018
Regular Community Updates – digital e-mail	SFPUC & Team	Updates on progress, key activities, next steps to our project contact list (~600)	January 30, 2019
Ocean Beach Community Meeting	SPUR, SFPUC, SFMTA, SF Public Works SF Rec and Park, NPS SF Planning,	SPUR led meeting discussing status of various projects at Ocean Beach	August 8, 2019
Regular Community Updates – digital e-mail	SFPUC & Team	Updates on progress, key activities, next steps to project contact list (~600)	December 24, 2019
Regular Community Updates – digital e-mail	SFPUC & Team	Updates on progress, key activities, next steps to project contact list (~600)	April 1, 2020
Regular Community Updates – digital e-mail	SFPUC & Team	Updates on progress, key activities, next steps to project contact list (~600)	July 14, 2020
SPUR Meeting on Ocean Beach efforts	SPUR, SFPUC, Rec and Park, NPS, SFMTA	SPUR hosted a talk about ongoing efforts at Ocean Beach	October 27, 2020
South Ocean Beach Multi-use Trail and Parking Lot	Rec and Park, SFPUC	Virtual Community meeting on project design elements, timeline	December 3, 2020
Great Highway Outer Sunset Traffic Management Project	SFMTA	Project description presentation and start of construction	February 2021
Community Presentation to People of Parkside Sunset (Merchants Association)	SFPUC	Update on Westside Pump Station construction and general update on other project status	May 6, 2021
Great Highway Joint Commission Meeting	SFMTA, Rec and Park	Present study findings and next steps for status of the Upper Great Highway	June 10, 2021
Regular Community Updates – digital e-mail	SFPUC & Team	Updates on progress, key activities, next steps to our project contact list (~600)	July 23, 2021
Joint Notice – Sand Nourishment	SFPUC	Notice about sand nourishment work along coast	July 2021
Regular Community Updates – digital e-mail	SPUR & Team	Updates on progress, key activities, next steps to our project contact list (~600)	August 3, 2021
Army Corps Ocean Beach Nourishment Project Celebration	Army Corps, SFPUC, SF Mayor, SF District 1 and 7 Supervisors	Media event to celebrate the construction of the Ocean Beach Nourishment Project	September 9, 2021
Regular Community Updates – digital e-mail	SFPUC & Team	Updates on progress, key activities, next steps to our project contact list (~600)	January 2022
Virtual Community Webinar	SFPUC, SF MTA and SF Rec and Park	Project Updates – with focus on open space components	April 20, 2022

Media Event – Army Corps dredging and sand nourishment	SFDPW, SFPUC, Army Corps, Senator	Media event	June 17, 2022
Regular Community Updates – digital e-mail	SFPUC & Team	Updates on progress, key activities, next steps to our project contact list (~600)	November 2022
Regular Community Updates – digital e-mail	SFPUC & Team	Updates on progress, key activities, next steps to our project contact list (~600)	April 19, 2023
Various Local Media Coverage	SFPUC	SF Chronicle: S.F.'s Ocean Beach lost tons of sand. El Niño could make it worse (sfchronicle.com)	June 2023
Regular Community Updates – digital e-mail	SFPUC & Team	Updates on progress, key activities including Final EIR publication, next steps to our project contact list (~600)	September 7, 2023

6. Impacts Summary

When there are no minority or low-income populations in the project area, no further environmental justice analysis is required. When there are minority and low-income populations in the project area that may be adversely impacted, the environmental justice guidance needs to be followed to determine whether there is a disproportionately high and adverse impact on the population. As prescribed in the WIFIA PEA, disproportionate high and adverse human health environmental effects on minority populations and low-income populations are analyzed based on definitions and processes outlined in Executive Order 12898. For the purposes of this analysis, an impact related to environmental justice would be significant if the proposed project would cause impacts that are disproportionately high and adverse, either directly, indirectly, or cumulatively, to environmental justice (minority and/or low-income) populations.

Project-related impacts to those resources pertinent to environmental justice considerations are summarized below. The following sections describe impacts related to project components that would be funded by WIFIA. The below sections do not describe construction impacts associated with intersection improvements and Zoo access improvements, or project operation and maintenance impacts.

6.1 Air Quality

Construction activities (e.g., paving, diesel equipment) would generate and temporarily increase odors in the immediate vicinity of the equipment operation. The odors would dissipate rapidly with distance from the odor-generating activity. The generation of odors from the use of diesel engines and paving activities would not be substantial or permanent. A substantial number of people would not be subjected to objectionable odors. Odor impacts would not be adverse.

Project activities would generate air pollutants but would not conflict with the 2017 Clean Air Plan. With implementation of Mitigation Measure M-AQ-2, Construction Emissions Minimization, project construction would not generate emissions greater than the thresholds specified in the Bay Area Air Quality Management District CEQA guidelines. In addition, through compliance with the Dust Control Ordinance, fugitive dust would be minimized.

Project construction emissions would be below the Clean Air Act de minimis thresholds.

A Health Risk Assessment evaluated potential health risks to sensitive receptors from project construction. The assessment determined that the project's activities would not expose sensitive receptors to substantial pollutant concentrations, and the associated health risk impact would not be adverse.

With the project's compliance with the Dust Control and Clean Construction Ordinances, implementation of SFPUC Standard Construction Measure Number 2, Air Quality, and Mitigation Measure M-AQ-2, Construction Emissions Minimization, the impacts on air quality would not be adverse.

6.2 Noise

Ambient noise in the project area includes traffic noise, recreational facilities, and existing active beach sand extraction and placement activities. In the first construction phase, work for the intersection improvements would occur within approximately 60 feet of sensitive receptors. Construction work for the remaining phases would be farther away, with the closest work areas approximately 280 feet away from these same receptors. The project would require the use of heavy equipment, smaller power tools, generators, and other lesser sources of noise during all construction phases. The overall construction timeline is approximately 48 months.

Project construction activities would involve the operation of various types of common construction equipment. The noisiest pieces of equipment anticipated for use would be concrete saws and hoe rams. Hoe rams, as impact equipment, are exempt from noise ordinance standards, and concrete saws would only be used temporarily over the construction period. Construction equipment would be subject to city noise ordinance standards and restricted to allowable work hours, mostly during the daytime. The project would implement SFPUC's Standard Construction Measure Number 5, Noise, pursuant to the City's construction noise ordinance. SFPUC would also implement Mitigation Measure M-C-NO-2: Cumulative Construction Noise Control Measures to reduce potential adverse construction noise impacts.

Once construction is completed, the project could affect noise levels in the project vicinity from vehicle traffic that would be rerouted to different streets when the Great Highway south of Sloat Boulevard is permanently closed. The project would result in traffic noise increases of up to 6.2 dBA on local roadways near the project site from the rerouted traffic after the Great Highway closure. To reduce roadside noise increases from rerouted traffic, the project would implement Mitigation Measure M-NO-3: Noise Monitoring and Traffic Re-Distribution Noise Reduction Plan. The noise reduction measures may include, but are not limited to, speed limit reductions, installation of new traffic signals, and street redesign (e.g., lane reduction, speed tables, or other traffic calming features). One of the roadways is under the control of Caltrans and changes on this roadway would be outside of the jurisdiction of the City and County of San Francisco. In addition, there are other roadway projects in the vicinity that may affect traffic speeds and thus traffic noise in the project area. Due to these uncertainties, noise impacts may occur, even with mitigation.

6.3 Transportation

As a key project component, the project would permanently close a segment of the Great Highway between Sloat and Skyline Boulevards. The permanent closure of the Great Highway between Sloat and Skyline Boulevards would reroute approximately 14,600 northbound/southbound vehicles daily and would result in an increase of total daily vehicle miles traveled (VMT) by 6,716 miles or approximately 2.45 million VMT per year, exceeding the planning department's threshold of 2 million VMT per year. As VMT is a metric related to a broader geographic area over a particular time span (e.g., a year), it does not reflect location-specific concentrations of traffic. The effects of an increase in VMT are expected to be borne throughout the broader area, beyond the project limits, depending on alternate travel routes, time of day, traffic conditions, etc.

During construction, the number of construction trucks traveling to and from the work site would vary depending on the phase and the type of construction activity; peak construction traffic would occur over a six-month period during phase overlaps. However, project construction would not be considered intense given the existing daily volume of vehicles.

Through implementation of Standard Construction Measure 4, Traffic, the SFPUC would develop a traffic control plan, which would include circulation and detour routes, advanced warning signage, construction truck routes, maintenance of pedestrian and bicycle access and circulation, designation of sufficient staging areas, scheduling and monitoring of construction vehicle movement, and coordination with public service providers. Further, implementation of Standard Construction Measure 4 would also require consistency with SFMTA's blue book

regulations, which would prevent potentially hazardous conditions for pedestrians, bicyclists, drivers, or interfering with emergency access. Implementation of these measures would minimize disruption to the public, address public safety and travel during construction; therefore, construction-related impacts to transportation are not anticipated.

6.4 Recreational/Community Services

Project components specific to changes to community services include the closure of an approximately 0.5-mile segment of South Ocean Beach for approximately four years. Nearby recreational areas and facilities would temporarily experience increased use, like that which currently occurs during beach nourishment. Approximately 3 miles of Ocean Beach north of South Ocean Beach would remain open and accessible to recreationists during project construction. In addition, the Great Highway multi-use trail and California Coastal Trail would remain accessible. The construction of the new multi-use trail, restrooms, beach access stairway, and beach access parking lot would have an overall beneficial impact on community services as these amenities would increase recreational opportunities and improve public access to South Ocean Beach. Given the number and extent of recreational/community services in the project vicinity and the temporary closure of a beach segment, the project would not result in adverse impacts related to recreational/community services.

7. Conclusion

Based on analysis of the project environmental justice study area, the project would occur in an area with environmental justice populations.

Construction activities would primarily occur in the South Ocean Beach area within the overall project area (shown in Figure 1). During construction of the buried wall, sand would be excavated from a portion of North Ocean Beach and placed atop the buried wall's slope stabilization layer. Construction activities within the proposed restoration and plant propagation areas would generally involve invasive plant removal and installing native plants and temporary irrigation systems. Such work would be less intense from a construction disturbance perspective as those proposed in the South Ocean Beach area. However, with implementation of identified Standard Construction Measures and mitigation measures, project-related impacts to communities are not expected to be disproportionate to identified environmental justice populations.

Based on the findings above, it is determined that the project would not result in an environmental justice community bearing a disproportionate share of negative environmental consequence resulting from construction or operation of the project. Benefits of this project include increased and improved recreational opportunities and access for all at South Ocean Beach, as well as protection of existing wastewater infrastructure which benefits the community as a whole. The risks associated with this project and the impact on the local community would not disproportionately affect minority and low-income populations.

8. References

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Appendix D
Cumulative Projects

Table D-1 Projects Considered in Cumulative Impact Analysis

Project No. on Map	Project Name (Project Sponsor or Jurisdiction)	Project Description	Construction Dates
1	Westside Pump Station Reliability Improvements (SFPUC)[a]	The Westside Pump Station Reliability Improvements Project would involve underground utilities and aboveground improvements. The aboveground structures would include an electrical building to house new electrical equipment, pump facilities, and electrical switchgear.	2021-2025
2	Vista Grande Drainage Basin Improvement (City of Daly City)[b]	The Vista Grande project would alleviate flooding in the Vista Grande Drainage Basin by expanding the hydraulic capacity of the existing stormwater infrastructure to accommodate peak flows generated by the 25-year design storm. The project would involve improvements to stormwater conveyance infrastructure adjacent to and within Lake Merced, and extending beneath Fort Funston and onto the Fort Funston beach. The existing ocean outlet structure would be removed and replaced with a low-profile outlet structure set back nearer to the existing cliff face. Sea walls would be constructed to the north and south of the rehabilitated ocean outlet. Operational components of the project would include management of water surface elevations in Lake Merced and a lake management plan that would include water quality best management practices, including upstream improvements in the basin and additional actions.	2022-2027
3	Reconfiguration of the Sloat Boulevard and State Route 35 (Skyline Boulevard) Intersection (SFMTA)[c]	The intersection of State Route 35 (Skyline Boulevard) and Sloat Boulevard would be reconfigured with a traffic signal at all three approaches to the intersection to improve safety for all road users, increase visibility of pedestrians, and improve or maintain transit and vehicle circulation at the intersection. This work is expected to be completed by early 2024.	2024
4A	Oceanside Treatment Plant Improvements - Biosolids Cake Hopper Reliability Upgrade (SFPUC)	The SFPUC would refurbish the three biosolids cake hoppers, including replacement of the discharge gates and actuators (type of gate to be determined by pilot study), load cells, and ultrasonic level instrumentation.	2026-2030
4B	Oceanside Treatment Plant Improvements - Seismic Retrofits (SFPUC)	To meet seismic reliability goals (provide treatment within 72 hours of an earthquake and provide life safety protection for occupied facilities), the SFPUC would undertake seismic and structural retrofits on the primary clarifiers, administration building, and pretreatment and solids building.	2026-2030
5	Signalization of State Route 35 (Skyline Boulevard) and Great Highway Intersection (Caltrans)	Caltrans would install a traffic signal at the intersection of the Great Highway and State Route 35 and install two 15-foot-tall streetlights approximately 300 feet west of the intersection.	2023-2024

Table D-1 Projects Considered in Cumulative Impact Analysis

Project No. on Map	Project Name (Project Sponsor or Jurisdiction)	Project Description	Construction Dates
6	San Francisco Zoo Recycled Water Pipeline (SFPUC, San Francisco Zoo)[d]	The San Francisco Zoo Recycled Water Pipeline Project would convert the current groundwater supply and distribution system to a recycled water supply and distribution system, except for end uses that need to be converted to potable water (e.g., drinking water for animals). Recycled water would replace groundwater currently used to supply various uses including irrigation, cleaning and replenishment of surface water bodies, animal exhibit washdown and pool refilling, and general cleaning. A new recycled water pipeline would be installed connecting the zoo's groundwater reservoir to the existing Westside Enhanced Recycled Water Project distribution line. The project would also include a series of small retrofits including signage installation and tagging of fixtures. This project does not include landscaping, irrigation system retrofits, or cross-connection testing.	2023-2024
7	Lake Merced West Project - 520 John Muir Drive (Rec and Park)	The Lake Merced West Project would create a recreational facility on approximately 11 acres located at 520 John Muir Drive, on the southwest side of Lake Merced. The proposed recreation facility would offer an array of activities open to the public. The facility would include a restaurant, community building, skateboard park, boat dock and rentals, sport courts, and areas that could be used flexibly for a wide variety of uses such as picnics or larger gatherings.	2024-2026
8	Westside Force Main Reliability (SFPUC) [e]	A redundant force main would be installed between the Westside Pump Station and the Oceanside Treatment Plant. The approximately 2,765-linear-foot pipeline would run west from the Westside Pump Station and then south and parallel to the existing force main, either west of the existing force main within the paved outer northbound lane in the Great Highway or east of the existing force main within the east shoulder of the Great Highway, then turn east to connect to the headworks at the Oceanside Treatment Plant. Open cut construction would likely be required, with a trench depth ranging from approximately 3 feet near the Westside Pump Station to up to 60 feet near Oceanside Treatment Plant.	2027-2030
9	2700 Sloat Boulevard[f] (2700 Sloat Holdings, LLC)	The project would demolish the existing Sloat Garden Center consisting of a commercial building, display areas, storage, and parking lot and construct a new residential development with ground floor commercial/retail and a basement. residential units. A new project application for the site includes a 50-story building with 712 residential units, a 31,075 square-foot fitness center and spa, 21,864 square feet of community facility space, 15,302 square feet of retail	Unknown

Table D-1 Projects Considered in Cumulative Impact Analysis

Project No. on Map	Project Name (Project Sponsor or Jurisdiction)	Project Description	Construction Dates
		space, 212 carshare parking spaces, and 327 bicycle parking spaces. Because the planning department has determined this recent application is incomplete and does not meet the requirements of the planning code and state density bonus law, there is uncertainty regarding this project. Nonetheless, for the purposes of this EIR, this project is considered in the cumulative impact analysis as proposed.	
10	*Potential Upper Great Highway Closure between Sloat Boulevard and Lincoln Way (Rec and Park/SFMTA)*	*This potential project could be proposed by Rec and Park and SFMTA following additional study. This project is included in a second program-level cumulative impact analysis for relevant topics. The analysis conservatively assumes permanent full closure of the Great Highway between Sloat Boulevard and Lincoln Way for a pedestrian and bicycle promenade.*	*Unknown*
11	Great Highway Pilot Project (Rec and Park/SFMTA)	The Great Highway Pilot Project authorized a three-year pilot study using the Upper Great Highway between Lincoln Way and Sloat Boulevard as a car-free promenade on weekends, holidays, and Friday afternoons until 2025.	2022-2025
12	Ocean Beach Storm Damage Reduction Beach Nourishment Project (Army Corps of Engineers with SFPUC as the local sponsor)[g]	In August to September 2021 the Corps placed approximately 380,000 cubic yards of material dredged from the main ship channel along South Ocean Beach, instead of its past practices of placing the material offshore at SF-8 or the Ocean Beach Demonstration Site. With roughly 32 percent losses during placement, post-placement surveys confirm 256,588 cubic yards of sand remained on the beach as of October 1, 2021.	2021
13	Sloat Boulevard Quick Build Project (SFMTA)[h]	The Sloat Quick-Build Project would upgrade pedestrian crossings, add a two-way protected bikeway, improve accessibility, and consider other measures to reduce vehicle speeds while keeping traffic moving on Sloat Boulevard between the Great Highway and Skyline Boulevard. The two-way protected bikeway would be located on the south side of Sloat Boulevard. Bus boarding islands, painted safety zones at unsignalized intersections, a speed table in the exit lane to Skyline Boulevard, and parking and loading changes near the San Francisco Zoo would also be installed.	2023
14	2700 45th Avenue (United Irish Cultural Center of San Francisco)	The project would demolish the existing 21,263 square foot two-story private community building and construct a new six-story 125,380 square foot mixed-use building. The building will contain a combination of public and private uses including a library, museum, restaurant, office, and gym, 31 off-street parking spaces, and approximately 7,116 square feet of open space.	Unknown

Table D-1 Projects Considered in Cumulative Impact Analysis

Project No. on Map	Project Name (Project Sponsor or Jurisdiction)	Project Description	Construction Dates
15	Sunset Boulevard Project (Public Works)	The project would install curb ramps, bus stops, and repave Sunset Boulevard between Golden Gate Park and Lake Merced. Paving work would be limited to three blocks at a time during off-peak hours.	2024-2025
16	Large Sand Placements Project (Army Corps of Engineers with SFPUC as the local sponsor)[i]	The Corps would place up to 575,000 cubic yards of material dredged from the main ship channel along South Ocean Beach. Similar to the work performed for the 2021 Ocean Beach Storm Damage Reduction Beach Nourishment Project, the Corps would pump sand in a slurry from an offshore barge onto or near South Ocean Beach. The sand may then be moved and shaped by dozers along the shore. The sand placements would occur approximately once every 10 years, on average.	Unknown

SOURCES:
[a] San Francisco Public Utilities Commission (SFPUC), Westside Pump Station Reliability Improvements, https://*www.sfpuc.org/construction-contracts/construction-projects/westside-pump-station-reliability-improvements*, accessed July 31, 2020.
[b] U.S. Department of the Interior, National Park Service, Record of Decision Vista Grande Drainage Basin Improvement Project Environmental Impact Statement, July 26, 2018.
[c] San Francisco Municipal Transportation Agency, *Sloat & Skyline Intersection Alternatives Analysis*, https://*www.sfmta.com/projects/sloat-skyline-intersection-alternatives-analysis*, accessed August 29, 2023.
[d] SFPUC, Water Enterprise FY 2021-2030 Capital Plan Summary, Water Appendix.
[e] SFPUC, Water Enterprise FY 2021-2030 Capital Plan Summary, Water Appendix.
[f] San Francisco Planning Department, Case No. 2021-012382PRJ, 2700 Sloat Boulevard, Project Application (PRJ) – Exhibit A, December 9, 2021, Supplemental (SB 330) rev. 4.6.23; Supplemental CUA 4.9.23; San Francisco Planning Department, Plan Check Letter, 2700 Sloat Boulevard, Planning Record Number 2021-012382PRJ/ENV/CUA/SDB/SHD/CTZ/TDM, May 8, 2023. The initial project application proposed a 12-story building with 400 residential units, 224 bicycle parking spaces, 56 off-street parking spaces, and 9,719 square feet of retail space.
[g] etrac, 2021. West Coast Hopper – Ocean Beach Pump Ashore Final Pay Volumes. Memo from Greg Gibson (Etrac, Inc.) to Marshall Thompson (Dutra Group), Subject: Ocean Beach – Final Pay Volume for Ocean Beach. October 1, 2021.
[h] San Francisco Municipal Transportation Agency. Sloat Quick-Build Project. Available online at: https://www.sfmta.com/projects/sloat-blvd-quick-build-project. Accessed September 7, 2023.
[i] San Francisco Planning Department, Ocean Beach Climate Change Adaptation Project Final Environmental Impact Report, September 14, 2023. Available at: https://sfplanning.org/environmental-review-documents.

SOURCE: ESA, 2020; ESRI, 2020

Ocean Beach Climate Change Adaptation Project

Figure D-1
Cumulative Projects

Appendix E
Biological Resources

TABLE E-1
SPECIAL-STATUS SPECIES THAT MAY OCCUR IN THE TERRESTRIAL AND MARINE STUDY AREAS

Common Name *Scientific Name*	Federal Status	State Status	Habitat Description	Potential to Occur in the Study Area	Time Period of Identification or Presence in the Study Area
SPECIES LISTED OR PROPOSED FOR LISTING					
Plants					
San Francisco lessingia *Lessingia germanorum*	FT	CE	Coastal scrub, sandy soils free of competing species.	**Present.** Occurs in the vicinity of the southern portion of the project study area at Fort Funston. Not observed during 2019 and 2020 protocol-level special-status plant surveys.	July – November
Birds					
Western snowy plover *Charadrius alexandrinus nivosus*	FT	CSC	Sandy beaches, salt pond levels, and shores of alkali lakes. Needs sandy, gravelly or friable soils for nesting.	**Present (no nesting potential).** Overwinters on Ocean Beach. Concentrated presence within the NPS designated protection area between Stairway 21 and Sloat Boulevard (present within the North Ocean Beach borrow site).	July – May (non-breeding)
Fish					
Green Sturgeon (Southern Distinct Population Segment [DPS]) *Acipenser medirostris*	FT	CSC	Marine and estuarine environments and Sacramento River; all of San Francisco Bay-Delta	**Moderate.** There are little data on green sturgeon presence in coastal waters. This species may forage in or near the study area but its distribution in ocean waters is essentially unknown. Spawning only occurs in the upper Sacramento River watershed for the southern DPS, but fish are known to frequent coastal waters along the Pacific Coast.	Year-round
Longfin Smelt *Spirinchus thaleichthys*	FC	CT	Anadromous estuarine species occupying the middle or bottom of the water column in salinities between 15 and 30 parts per trillion.	**Moderate.** This species is documented to inhabit the deep channels of Central San Francisco Bay for most of the year. Seasonally observed within the offshore environment including potentially in the waters adjacent to the project area.	Year-round

Common Name *Scientific Name*	Federal Status	State Status	Habitat Description	Potential to Occur in the Study Area	Time Period of Identification or Presence in the Study Area
Marine Mammals					
California Sea Lion *Zalophus californianus*	MMPA	--	Coastal waters off California; ranges from the Farallon Islands off San Francisco to the San Benito Islands off Baja California.	**Moderate**. Common within San Francisco Bay and the nearshore coastal environment. Adults migrate south to Channel Islands to breed May thru September.	October – April; some presence year-round
Harbor Seal *Phoca vitulina richardii*	MMPA	--	Common along the California coast and within San Francisco Bay.	**Moderate**. Common within San Francisco Bay and the nearshore coastal environment.	Year-round
Harbor Porpoise *Phocoena phocoena*	MMPA	--	Common along the California coast and occasionally observed within San Francisco Bay.	**Moderate**. Common within San Francisco Bay and the nearshore coastal environment.	Year-round
California Coast Fish Species Managed Under the Magnuson-Stevens Fishery Conservation and Management Act					
Fisheries Management Plan				**Potential to Occur in the Study Area**	**Time Period Present in Study Area Waters**
Coastal Pelagic (2 Species)*				Moderate	Seasonal
Pacific Groundfish (15 Species)*				Low-Moderate, Moderate	Seasonal

NOTES:

For the "Potential to Occur in the Study Area" column, definitions are as follows:

Present = Species was observed during reconnaissance or focused surveys of the project area, or is otherwise known to be present.
Moderate (Terrestrial Species) = Habitat is marginally suitable (i.e., of low or moderate quality) or the study area is within the known range of the species, even though the species was not observed during biological surveys.
Moderate (Marine Species) = Suitable foraging or spawning//rookeries/birthing habitat is present and/or the species has been documented to be present for part of the year
MMPA = Marine Mammal Protection Act
* = See the Ocean Beach Project EIR, Appendix F, Table F-4, for the individual species protected under the Coastal Pelagic and Pacific Groundfish management plans with potential to occur in the marine study area.

Federal: National Marine Fisheries Service (NMFS)
FT = Listed as "threatened" under the FESA
FC = Candidate for listing under the FESA

State: California Department of Fish and Wildlife (CDFW)
CT = Listed as "threatened" under the California Endangered Species Act (CESA)
CSC = CDFW designated "species of special concern"

SOURCES: BioMaAS, 2021; NPS, 2023.

SOURCES: National Oceanic and Atmospheric Administration (NOAA), 2015, 2019, 2020; San Francisco Public Utilities Commission (SFPUC), April 2014; Huff, D., Lindley, S., Ranking, P, Mora, E., 2011; Tenera, 2014; Boehlert & Mundy, 1987; PFMC, 2005.

TABLE E-2
OTHER SPECIAL-STATUS ANIMAL SPECIES THAT MAY OCCUR IN THE TERRESTRIAL STUDY AREA

Common Name *Scientific Name*	Federal Status	State Status	Habitat Description /	Potential to Occur in the Study Area
OTHER SPECIAL-STATUS SPECIES				
Birds				
Bank swallow *Riparia riparia* (nesting)	--	CT	Vertical banks and cliffs with sandy soil, near water. Nests in holes dug in cliffs and river banks. Forages insects over open water, marsh, and grassland habitats.	**Present (potential to nest).** Breeding colony located in the vertical bluffs above Ocean Beach across from the Oceanside Treatment Plant and south of the study area within the bluffs below Fort Funston; referred to generally as the "Fort Funston colony." Species is present during the breeding season, which spans April through July, according to the 1992 California Department of Fish and Wildlife Bank Swallow Recovery Plan and the National Park Service 2019 and 2020 Bank Swallow Monitoring Reports. Nesting was not documented within the project area in 2020 and 2021. Adult bank swallows were observed within the project area during three surveys in 2022. One active nest was documented in the project area above the revetement in 2023.
Western burrowing owl *Athene cunicularia* (overwintering burrow sites)	--	CSC	Open grasslands with low or no vegetation where existing rodent burrows occur for occupation.	**High (no nesting potential).** One individual was documented overwintering within the riprap revetment west of the Oceanside Treatment Plant within the project area, and one individual was documented beneath the staircase and walkway at Noriega Street and the Great Highway, north of the project area. No suitable nesting or foraging habitat is present in the study area.
San Francisco common yellowthroat *Geothlypis trichas sinuous*	--	CSC	Forages in various marsh, riparian and upland habitats. Nests on or near the ground in concealed locations.	**Moderate (unlikely to nest).** Suitable dense riparian and wetland habitat for nesting is not present in the study area but is located within Lake Merced to the east. This species may occur in the study area while foraging.
Mammals				
Western red bat *Lasiurus blossevillii*	--	CSC	Roosts primarily in trees, 2 to 40 feet above ground, from sea level up through mixed conifer forests. Prefers habitat edges and mosaics with trees that are protected from above and open below with open areas for foraging.	**Moderate (potential to establish maternity roosts).** Suitable roosting habitat for this species is available in the matures trees around the San Francisco Zoo and along the west shoreline of Lake Merced. May forage over the dune vegetation communities of the project area. Detected at Fort Funston during acoustic monitoring between 2004 and 2005.

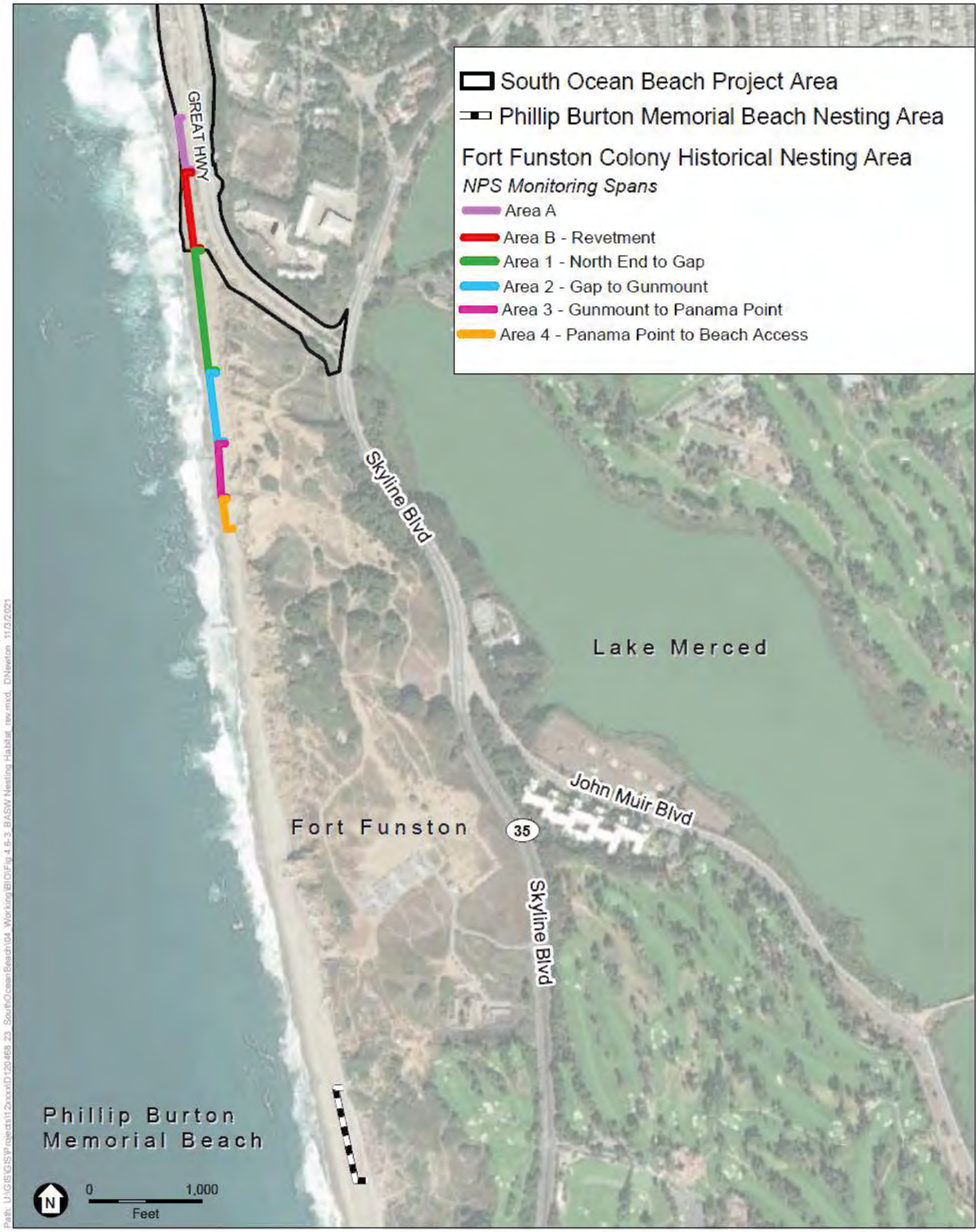
NOTES:

Other special-status species unlikely to occur in the project area are described in the Ocean Beach Project EIR Appendix F.

The terrestrial study area includes the terrestrial construction and operations areas and a 15- to 50-foot buffer.

For the "Potential to Occur in the Study Area" column, definitions are as follows:
Present = Species was observed during reconnaissance or focused surveys of the terrestrial study area.
High = Species is expected to occur, habitat meets species requirements and is of moderate or high quality, and the study area is within the known species range.
Moderate = Habitat is marginally suitable (i.e., of low or moderate quality) or the study area is within the known range of the species, even though the species was not observed during biological surveys.
CT = Listed as "threatened" under the CESA
CSC = CDFW designated "species of special concern"

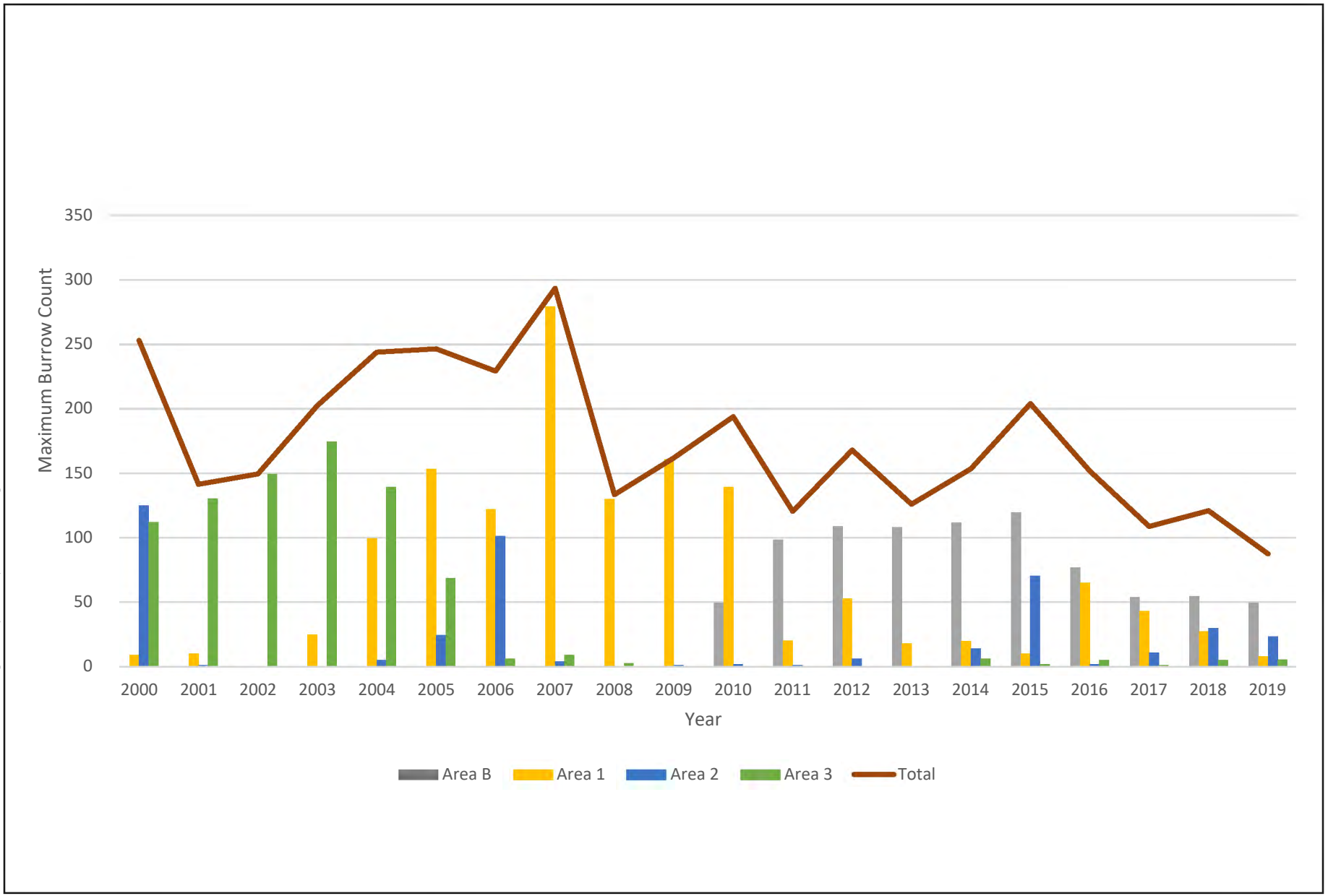
SOURCES: GGNRA, 2013; Fellers, Gary M, 2005; CDFW, 1992; CDFW, 2021; NPS, 2019; NPS, 2020; NPS, 2021; NPS 2022; USFWS, 2021; Merkle, William, 2023. Personal communication with National Park Service Wildlife Ecologist on September 27, 2023.



SOURCE: NPS, 2019; NPS, 2020; NPS, 2021

Ocean Beach Climate Adaptation Project

Figure E-1
Bank Swallow Nesting Areas



SOURCE: NPS, 2019

Ocean Beach Climate Change Adaptation Project

Figure E-2
Bank Swallow Maximum Burrrow Counts by Year and Area,
Bank Swallow Monitoring at Fort Funston 2000-2019

Appendix F

National Historic Preservation Act Section 106 Consultation

United States Department of the Interior

NATIONAL PARK SERVICE
Golden Gate National Recreation Area, Interior Region 10
Building 201, Fort Mason
San Francisco, CA 94123-0022

IN REPLY REFER TO:
1.A.2 (GOGA-CRMM)

Dr. Jonathan Cordero
Founder and Director of the Association of Ramaytush Ohlone
Fort Mason Center
Building C, Suite 260
San Francisco, CA 94123

Subject: Initiating Consultation for National Park Service Ocean Beach Easement to City and County of San Francisco

Dear Dr. Cordero:

The National Park Service, Golden Gate National Recreation Area (NPS), in accordance with the regulations at 36 CFR 800, is initiating Section 106 consultation under the National Historic Preservation Act (NHPA) with the Association of Ramaytush Ohlone (ARO) for the NPS Ocean Beach Easement to the City and County of San Francisco (the City) (the Easement Undertaking). The NPS owns Ocean Beach, a 4 ½ mile stretch of sandy beach located in San Francisco along the Great Highway, from Balboa Street at the north, to the area south of Sloat Boulevard (see Attachment 1).

This consultation package is part of a broader, complex project that involves the City's undertaking on NPS land with Environmental Protection Agency (EPA) partial funding. This NPS Easement Undertaking is an administrative action only; the NPS will not be conducting any ground disturbance associated with this action. The NPS is providing an easement to the City because the San Francisco Public Utilities Commission (SFPUC) is proposing the Ocean Beach Climate Change Adaptation Project (the City Project) to protect the City's wastewater system infrastructure from ongoing bluff erosion and property damage due to climate change and sea level rise. A portion of the City Project will occur on NPS Ocean Beach land, prompting the need for the easement from the NPS. The EPA is proposing to provide federal credit assistance to SFPUC for the City Project through the Water Infrastructure Finance and Innovation Act and will be the lead federal agency responsible for conducting the NHPA Section 106 consultation for the City Project (except for this NPS easement).

The NPS will conduct National Environment Policy Act (NEPA) compliance for the entire City Project and produce an Environmental Assessment (EA). Within the Planning, Environment & Public Comment (PEPC) system, the NPS has identified this Easement Undertaking within PEPC # 108243.

With this letter, the NPS is initiating consultation (Step 1) identifying the area of potential effect (APE) and the historic properties within the APE (Step 2). The NPS has a finding of *No Historic Properties Affected* and requests your concurrence. The NPS recognizes that the ARO review

time for this letter, per 36 CFR 800, will be 60 days (30 days per each Section 106 step). The NPS is also initiating NHPA consultation with the State Historic Preservation Office (SHPO).

The City's Ocean Beach Climate Change Adaptation Project (the City Project)

The City's Need to Protect Infrastructure from Critical Storm Erosion and Sea Level Rise

Over the past fifteen years, the City has needed to issue three emergency declarations related to coastal erosion situations and placed emergency stabilization measures on the beach (south of Sloat Boulevard) primarily to protect the Great Highway and the SFPUC's critical wastewater infrastructure, including the Lake Merced Tunnel, the Westside Pump Station, and the Oceanside Water Pollution Control Plant. The emergency measures consisted of placement of large rock revetments and sandbags that impede safe public access to the beach. The City Project seeks to eliminate the need for ongoing emergency measures and mitigate against future emergencies by introducing a multipurpose coastal protection, restoration, and access system to address the effects of climate-induced sea level rise; removing emergency shoreline armoring; improving public access and recreation; and protecting the safety and integrity of critical wastewater assets.

Most of the City Project is along the Great Highway, which is under the San Francisco Recreation and Parks Department's (Rec and Parks) jurisdiction. The NPS owns and manages lands to the west of the Great Highway (i.e. parking lot, bluffs, and beach). Various agencies own or manage properties to the east of the Great Highway, including the San Francisco Zoo, the California Army National Guard, the Oceanside Water Pollution Control Plant, the Westside Pump Station, and the Pomeroy Recreation and Rehabilitation Center.

The EPA's Responsibility, conducting NHPA Section 106 for the City Project

The EPA will be responsible for conducting the NHPA Section 106 consultation for the City Project's following components:

- Permanently closing the Great Highway between Sloat and Skyline boulevards to public vehicular traffic, removing the existing NPS restroom, and maintaining a service road to SFPUC facilities
- Constructing an approximately 3,200-foot-long buried wall (with approximately 2,200 feet of the wall constructed on City property and 1,000 feet on NPS property) to protect existing wastewater infrastructure from shoreline erosion
- Removing existing pavement, rock and sandbag revetments, rubble and debris from the beach, reshaping the bluff, and planting native vegetation in accordance with the project's habitat restoration and enhancement plan (includes the area between the service road and multi-use trail, west of multi-use trail above the slope stabilization layer and buried wall, and the backshore beach
- Planting native vegetation at the proposed Fort Funston plant propagation site and proposed bank swallow habitat enhancement area
- Constructing a multi-use trail, beach access stairway, coastal access parking, and new restrooms

The City's Actions, made Permissible by the NPS Easement

With the NPS easement, the City will conduct the following City Project actions at South Ocean Beach:

- To protect the Lake Merced Tunnel (an essential wastewater system facility located within and under the Great Highway), the City Project will construct a below-grade wall adjacent to and seaward of the Lake Merced Tunnel from Sloat Boulevard to approximately 3,200 feet to the south. A 1,000-foot portion of the buried wall will be on NPS land.
- To restore and improve safe public access to the beach, the City Project will construct a beach access stairway. A portion of the stairway would encroach on NPS land.
- To continue to provide soft shoreline protection, the City Project would need ongoing vehicular access to South Ocean Beach to monitor beach erosion and replenish existing sand dunes, as needed through the placement of large quantities of sand (long-term beach nourishment).

The NPS' Special Use Permit to the City, to be conducted under the PA

In addition to the City Project work proposed at the South Beach Ocean area, the City also needs to conduct City Project work in other NPS Ocean Beach locations. For this to happen, the NPS will be providing a special use permit (SUP) to the City. For the purpose of Section 106 consultation, the NPS' SUP to the City is not part of this Easement Undertaking. The NPS will be conducting Section 106 consultation for the SUP's actions under the NPS' 2014 *Programmatic Agreement among the Golden Gate National Recreation Area, National Park Service, The Advisory Council on Historic Preservation, and the California State Historic Preservation Officer and the Federated Indians of Graton Rancheria Regarding Operational and Maintenance Activities in Golden Gate National Recreation Area* (PA). The NPS SUP to the City will allow the City to conduct the following City Project-related work:

Work Area for the Buried Wall, Slope Stabilization Layer, Habitat Restoration and Enhancement: This is the SUP for the City Project itself (see PEPC # 108243).

Sand Nourishment: Over time, South Ocean Beach may experience erosion. When monitors determine that more sand is needed to cover up the wall or maintain the beach the City will conduct sand nourishment actions by obtaining sand from the North Ocean Beach area or a commercial vendor and placing it in the South Ocean Beach area (see PEPC # 108243).

Taraval Beach Access Improvements: The City Project will add beach mats ("mobi mats") at Taraval Street to support wheelchair accessibility to Ocean Beach (see PEPC # 108243).

Bank Swallow Habitat Enhancement and Plant Propagation at Fort Funston: The City Project will use 0.5 acres of Fort Funston land to support the propagation of new native plants (to be used to reshape the bluffs at the east side of the buried wall), and will enhance an additional 2 acres of Fort Funston land as bank swallow foraging habitat (as a mitigation measure from the wall construction) (see PEPC # 108243).

Fort Funston Trail Connection: The NPS will connect two existing trails at Fort Funston (see PEPC # 108243).

Identifying the Easement Undertaking APE
The Easement Undertaking's indirect APE is the South Ocean Beach area; the northern, western, and southern boundaries are the South Ocean Beach and the eastern boundary is the Great Highway. The Easement Undertaking's direct APE is made of three discrete parcels in the South Beach Area; the most northern parcel is 10,452 sq. ft.; the second most northern parcel is 13,984 sq. ft and the most southern parcel is 1,202 sq. ft. (see Attachment 2).

- The work area for the buried wall, slope stabilization layer, and habitat restoration and enhancement is approximately 0.64 miles long and on average 162 feet wide.
- The easement space for the buried wall, deep soil mixing (DSM) area, and slope stabilization layer is approximately 345 feet long and 30 feet wide (on average) to the north of the City's existing easement (Easement I). South of Easement I, the easement space for the buried wall and slope stabilization layer is approximately 640 feet long and 22 feet wide (on average). Both easement areas extend from the area west of the Sloat Boulevard/Great Highway intersection south along South Ocean Beach.
- The easement space for the beach access stairway and DSM area is approximately 135 feet long and approximately 9 feet wide (on average).

We request your concurrence that the APE is adequate to encompass the anticipated direct and indirect effects of the City Project work, made permissible by the NPS Easement Undertaking.

Identification of Historic Properties within the APE
The SFPUC has prepared the *Ocean Beach Climate Change Adaptation Project Cultural Resources Survey and Archeological Sensitivity Analysis* (CR Report) (see Attachment 3) to assess the evidence of historic properties within the entire City Project. Please note that the CR Report references the APE for the entire City Project. With this letter, the NPS is identifying the APE for the Easement Undertaking, which is only the South Ocean Beach area.

Archeological sites:
ESA, the City Project's cultural resource consultants, conducted a pedestrian surface survey at the South Ocean Beach/Easement Undertaking area in 2019. In 2019 and 2020, ESA conducted extensive geotechnical testing. No prehistoric archeological resources or other indications of past use or occupation were encountered in the survey or during the geotechnical inspections and there are no known significant prehistoric sites in the South Ocean Beach APE (see Attachment 3, Executive Summary, pg. ES-1). The NPS Cultural Resources division also identifies no archeological resources at South Ocean Beach.

Cultural Landscapes:
The CR report also does not identify any cultural landscapes within the South Ocean Beach area. The NPS Cultural Resources division also identifies no cultural landscapes at South Ocean Beach.

Buildings and Structures:
ESA conducted a cultural resource inventory and survey, and the CR report identifies no historic buildings or structures (see Attachment 3, Executive Summary pg. ES-2).

The NPS has a finding of *No Historic Properties Affected* within the Easement Undertaking APE. Approximately three miles north of South Ocean Beach is the Ocean Beach Esplanade and

Seawall, a historic property determined eligible to the NRHP and concurred by the SHPO in 2021. The NPS finds this historic property located outside the Easement Undertaking APE and is not affected by this Easement Undertaking (see Attachment 4). The NPS finds that Fort Funston (a former military site located on the bluffs, to the south of the South Ocean Beach easement area) was determined ineligible for the NHRP and concurred by the SHPO in 2006 (see Attachment 5). We request your concurrence that these identification efforts for historic properties are adequate to fully assess the effects of this Easement Undertaking.

SHPO Consultation Plans
This consultation letter will also be sent to Julianne Polanco, State Historic Preservation Officer. The NPS will continue to engage with the SHPO regarding this undertaking and will keep the ARO informed of all on-going, project-related consultation.

Next Steps
The NPS seeks the ARO's concurrence with the NPS finding of *No Historic Properties Affected*. We look forward to continuing this Section 106 consultation with your office. If you have any questions regarding this project, please contact Kristin Baron, architectural historian, at kristin_baron@nps.gov.

Sincerely,

DAVID SMITH Digitally signed by DAVID SMITH
Date: 2023.11.17 16:01:01 -08'00'

David Smith
General Superintendent

Enclosures:

Attachment 1: Ocean Beach Location Maps
Attachment 2: Undertaking APE Map
Attachment 3: *Ocean Beach Climate Change Adaptation Project Cultural Resources Survey and Archeological Sensitivity Analysis Report*
Attachment 4: Ocean Beach Esplanade & Seawall Determination of Eligibility and SHPO concurrence letter (2021)
Attachment 5: SHPO concurrence letter regarding Fort Funston's ineligibility (2006)

cc: Ashley Longrie, US EPA
Allison Chan, SFPUC

State of California • Natural Resources Agency
Gavin Newsom, *Governor*

DEPARTMENT OF PARKS AND RECREATION
OFFICE OF HISTORIC PRESERVATION
Armando Quintero, *Director*

Julianne Polanco, State Historic Preservation Officer
1725 23rd Street, Suite 100, Sacramento, CA 95816-7100
Telephone: (916) 445-7000 FAX: (916) 445-7053
calshpo.ohp@parks.ca.gov www.ohp.parks.ca.gov

January 3, 2024

VIA Email

In reply, refer to: NPS_2023_1120_001

David Smith, Superintendent
Golden Gate National Recreational Area
Building 201, Fort Mason
San Francisco, CA 94123-0022

Subject: Ocean Beach Easement to City and County of San Francisco

Dear Mr. Smith:

The California State Historic Preservation Officer (SHPO) has received undated correspondence initiating consultation regarding an undertaking in Golden Gate National Recreation Area. The National Park Service (NPS) is consulting with the SHPO to comply with Section 106 of the National Historic Preservation Act of 1966 (54 U.S.C. §306108), as amended, and its implementing regulations at 36 CFR Part 800.

Along with the letter, NPS submitted the following supporting documents:

- Ocean Beach Location Maps
- Undertaking Area of Potential Effect (APE) Map
- *Ocean Beach Climate Change Adaptation Project Cultural Resources Survey and Archeological Sensitivity Analysis Report*
- Ocean Beach Esplanade & Seawall Determination of Eligibility and SHPO concurrence letter (2021)
- SHPO concurrence letter regarding Fort Funston's ineligibility (2006)

The undertaking, as described, involves NPS providing an easement to the City and County of San Francisco because the San Francisco Public Utilities Commission (SFPUC) is proposing the Ocean Beach Climate Change Adaptation Project (the City Project) to protect the City's wastewater system infrastructure from ongoing bluff erosion and property damage due to climate change and sea level rise. A portion of the City Project will occur on NPS Ocean Beach land, prompting the need for the easement from the NPS. The Environmental Protection Agency (EPA) is proposing to provide federal credit assistance to SFPUC for the City Project through the Water Infrastructure Finance and Innovation Act and will be the lead federal agency responsible for

conducting the NHPA Section 106 consultation for the City Project (except for this NPS easement).

NPS identified an Area of Potential Effect (APE) that includes the South Ocean Beach area. NPS relied upon the SFPUC Cultural Resources Survey and Archeological Sensitivity Analysis to assess the evidence of historic properties within the entire City Project. Through a pedestrian survey in 2019 and geotechnical testing in 2019 and 2020, no prehistoric archeological resources or other indications of past use or occupation were encountered. No cultural landscapes are present in the APE, and no historic buildings or structures are present.

There are no federally-recognized Native American Tribes associated with the APE. However, NPS sent consultation correspondence to Jonathan Cordero and Gregg Castro of the Association of the Ramaytush Ohlone (ARO) to seek their comments.

Based upon this information and analysis, NPS proposes a Finding of No Historic Properties Affected for this undertaking (easement). After reviewing the information submitted by NPS, the SHPO offers the following comments.

- The proposed project constitutes an undertaking with the potential to affect historic properties.
- The APE appears to be sufficient to take direct and indirect effects into account.
- Property identification and evaluation efforts are sufficient.
- The SHPO has no objection to the proposed Finding of No Historic Properties Affected.
- Please be advised that under certain circumstances such as an unanticipated discovery or a change in project description, you may have future responsibilities for this undertaking under 36 CFR Part 800.

If you have any questions or concerns, please contact Mark Beason, State Historian, at (916) 445-7047 or at mark.beason@parks.ca.gov.

Sincerely,

Julianne Polanco
State Historic Preservation Officer

As the nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering sound use of our land and water resources; protecting our fish, wildlife, and biological diversity; preserving the environmental and cultural values of our national parks and historical places; and providing for the enjoyment of life through outdoor recreation. The department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people by encouraging stewardship and citizen participation in their care. The department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

NPS 641/08243 April 2024

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