SECTION 404(B)(1) ALTERNATIVES ANALYSIS

Draft
Section 404(b)(1)
Alternatives Analysis

Prepared for:

THE PORT
OF LOS ANGELES

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Chapter 1
Introduction

Project Background

The Los Angeles Harbor Department (LAHD) operates the Port of Los Angeles (Port) under the legal mandates of the Port of Los Angeles Tidelands Trust (Los Angeles City Charter, Article VI, Sec. 601; California Tidelands Trust Act of 1911) and the California Coastal Act of 1976, as amended (PRC Div 20 S30700 et seq.), which identify the Port and its facilities as a primary economic/coastal resource of the state and an essential element of the national maritime industry for promotion of commerce, navigation, fisheries, and harbor operations. Activities should be water dependent and give highest priority to navigation, shipping, and necessary support and access facilities to accommodate the demands of foreign and domestic waterborne commerce. LAHD is chartered to develop and operate the Port to benefit maritime uses and functions as a landlord by leasing Port properties to more than 300 tenants.

The proposed San Pedro Waterfront Project (Project) is located in the Port adjacent to the San Pedro community of the City of Los Angeles. LAHD administers development within the Port and overall Port operations. This section 404(b)(1) alternatives analysis relates to the Federal action associated with the Project, which includes specific development projects and associated infrastructure improvements from the Vincent Thomas Bridge southward to Inner Cabrillo Beach within LAHD property. The proposed Project involves development of a variety of land uses within the proposed Project area, most notably expanded cruise ship facilities and operations and new harbor cuts along the existing shoreline of the Main Channel to increase waterfront access and use. Other features include public waterfront and open space areas, commercial development, and transportation and parking facilities.

Section 404(b)(1) Regulatory Background

Section 404 of the Clean Water Act (CWA) authorizes the U.S Army Corps of Engineers (USACE) to issue permits for the discharge of dredged or fill materials into waters of the United States (waters of the U.S.), including wetlands (33 United States Code [U.S.C.] 1344). Waters of the U.S., defined at 33 *Code of Federal Regulations* (C.F.R). Part 328, include coastal and inland waters, lakes, rivers, and streams, including adjacent wetlands and tributaries.

The U.S. Environmental Protection Agency (USEPA) Section 404(b)(1) Guidelines (40 Code of Federal Regulations [CFR] 230 *et seq*.) are the substantive environmental criteria used by the USACE to evaluate permit applications. Under these guidelines, an

analysis of practicable alternatives is the primary tool used to determine whether a proposed discharge can be authorized.

The Section 404(b)(1) Guidelines prohibit discharges of dredged or fill material into waters of the U.S. if a practicable alternative to the proposed discharge exists that would have less adverse impacts on the aquatic ecosystem, including wetlands, as long as the alternative does not have other significant adverse environmental impacts (40 C.F.R. Part 230[a]). An alternative is considered practicable if it is available and capable of being implemented after considering cost, existing technology, and logistics in light of overall project purpose (40 C.F.R. Part 230[a][2]).

The Section 404(b)(1) Guidelines suggest a sequential approach to project planning that considers mitigation measures only after the project proponent shows no practicable alternatives are available to achieve the overall project purpose with less environmental impacts. Once it is determined that no practicable alternatives are available, the guidelines then require that appropriate and practicable steps be taken to minimize potential adverse effects on the aquatic ecosystem (40 C.F.R. Part 230.10[d]). Such steps may include actions controlling discharge location, material to be discharged, the fate of material after discharge or method of dispersion, and actions related to technology, plant and animal populations, or human use (40 C.F.R. Parts 230.70-230.77).

Beyond the requirement for demonstrating that no practicable alternatives to the proposed discharge exist, the Section 404(b)(1) Guidelines also require the USACE to compile findings related to the environmental impacts of discharge of dredged or fill material. The USACE must make findings concerning the anticipated changes caused by the discharge to the physical and chemical substrate and to the biological and human use characteristics of the discharge site.

These guidelines also indicate that the level of effort associated with the preparation of the alternatives analysis be commensurate with the significance of the impact and/or discharge activity (40 C.F.R. Part 230.6(b)). The following draft section 404(b)(1) alternatives analysis shows that discharges into waters of the U.S. associated with all of the alternatives, including the proposed Project, are relatively small and, with the exception of the No Federal Action Alternative, all of the alternatives would result in a similar and insignificant discharge activity.

Overall, neither the proposed Project nor any of the alternatives that involve in-water discharges would result in significant adverse effects to the aquatic ecosystem.

Organization of Report

This draft section 404(b)(1) alternatives analysis is based primarily on the findings of the *Draft Environmental Impact Statement/Environmental Impact Report* (EIS/EIR)

(September 2008) and the *Final Environmental Impact Statement/Environmental* (EIS/EIR) *Report* (September 2009) prepared by ICF Jones & Stokes for the LAHD and USACE. The impact evaluations herein are summarized from the Draft and Final EIS/EIR for the proposed Project at the Port, and the section 404(b)(1) alternatives analysis is not intended to be a stand-alone document. References are given throughout this analysis to sections of the Draft or Final EIS/EIR where additional information may be obtained.

The Draft and Final EIS/EIR were prepared for the Port and USACE in accordance with the requirements of the National Environmental Policy Act (NEPA) (42 U.S.C. 4341 *et seq*.) and in conformance with the Council for Environmental Quality (CEQ) Guidelines and the USACE NEPA Implementing Regulations. The EIS/EIR also fulfilled the requirements of the California Environmental Quality Act (CEQA) (California Public Resources Code [PR.C.] 21000 et seq.) and the Guidelines for Implementation of the California Environmental Quality Act of 1970 (CEQA Guidelines) (14 California Code of Regulations [C.C.R.] 15000 et seq.).

This document will allow the USACE to make a determination of the least environmentally damaging practicable alternative (LEDPA). Chapter 1 provides the **Introduction**, including the project background, section 404(b)(1) regulatory background, and this organization section. Chapter 2 provides the **Basic and Overall Project Purpose**. Chapter 3 discusses the **Proposed Action: San Pedro Waterfront Project**, including the components of the project. Chapter 4 discusses the **Proposed Action: Environmental Impacts**, as set forth in Parts C through H of the Section 404(b)(1) Guidelines. Chapter 5 describes the **Alternatives Considered and their Environmental Effects**, including several different categories of actions that would achieve the objectives of the project. Chapter 6 includes the **References and Preparers** of this document.

Chapter 2
Purpose and Need

Project Purpose

The project purpose frames the scope of the alternatives analysis. For CWA Section 404(b)(1) evaluations, project purpose is expressed in terms of "basic purpose" and "overall purpose." While these terms are not strictly defined in the guidelines, in practical application, they are generally defined as presented in the following sections.

Basic Project Purpose

The basic project purpose comprises the fundamental, essential, or irreducible purpose of the proposed project, and is used by the USACE to determine whether the applicant's project is *water-dependent*. The Section 404(b)(1) Guidelines state that if an activity associated with the discharge proposed for a water body does not require access or proximity to, or siting within, water to fulfill its basic purpose, the activity is not water-dependent. However, the proposed Project is water dependent because it is a waterfront redevelopment project that includes in-water/over-water Port facility improvements, such as the over-water and waterside promenade and the Outer Harbor berth upgrades.

The basic project purpose is "to improve waterfront accessibility and use."

Overall Project Purpose

The overall project purpose serves as the basis for the USACE's section 404(b)(1) alternatives analysis and is determined by further defining the basic project purpose in a manner that more specifically describes the applicant's goals and accounts for logistical considerations for the project, and which allows a reasonable range of alternatives to be analyzed. It is critical that the overall project purpose be defined to provide for a meaningful evaluation of alternatives. It should not be so narrowly defined as to give undue deference to the applicant's wishes, thereby unreasonably limiting the consideration of alternatives. Conversely, it should not be so broadly defined as to render the evaluation unreasonable and meaningless. The overall project purpose, comprised of two water-dependent elements, is to:

1. *Implement modifications to the existing San Pedro Waterfront along the west side of the harbor's Main Channel to improve its accessibility and use without impeding the public's right to free navigation; these modifications would*

include increasing the open water area to provide a variety of waterfront uses such as berthing for visiting tall ships and other vessels, such as tugboats and other recreational, commercial, and port-related uses.

2. *Use and increase the value of deep-water berths to accommodate existing and projected growth in the cruise ship industry in the Port of Los Angeles.*

Chapter 3
Proposed Action: San Pedro Waterfront Project

The proposed Project being considered is to upgrade existing facilities and infrastructure on approximately 400 acres of LAHD property from the Vincent Thomas Bridge southward to Inner Cabrillo Beach (Figure 2-1 of the *San Pedro Waterfront Project Draft EIS/EIR* [Figures referenced throughout this document are located in the Draft or Final EIS/EIR]). The improvements related to the cruise facilities are necessary to accommodate increased demands in the cruise ship industry to serve new, larger, and a greater number of projected cruise ships. The proposed Project also includes plans, in association with the harbor cuts, to provide additional marine facilities for service craft, such as tug boats, and to increase public access to the waterfront from both the landside, through creation of the promenade and various visitor-serving recreational opportunities, and from the waterside, by providing mooring locations for visitor-serving watercraft and temporary mooring for vessels using the landside facilities.

Project Components

Cruise Ship Facility Construction

The proposed Project would include upgrading Berths 45–47, which are currently used on occasion by visiting cruise ships and other large wharf vessels, such as the visiting U.S. Navy vessels on Armed Forces Day. Also, Berths 49-50 are currently used by Pasha for break/bulk operations (Omni terminal). The proposed upgrades would allow Berths 45–47 to be used as a cruise ship berth in the Outer Harbor to accommodate the berthing of a Freedom Class (1,150 feet long requiring a 1,250-foot-long berth) or equivalent vessel. These berths would replace the cruise ship berth occasionally used at Berths 87–90, which would be displaced by construction of the North Harbor water cut (discussed below). The proposed Project also would include the construction of a new cruise ship berth by extending the existing wharf at Berths 49-50 (Omni terminal) in the Outer Harbor by approximately 200 feet (1,250-foot-long berth total) to accommodate a second Freedom Class or equivalent vessel. Figure 2-2 shows a more detailed plan for the Outer Harbor berths and cruise terminals.

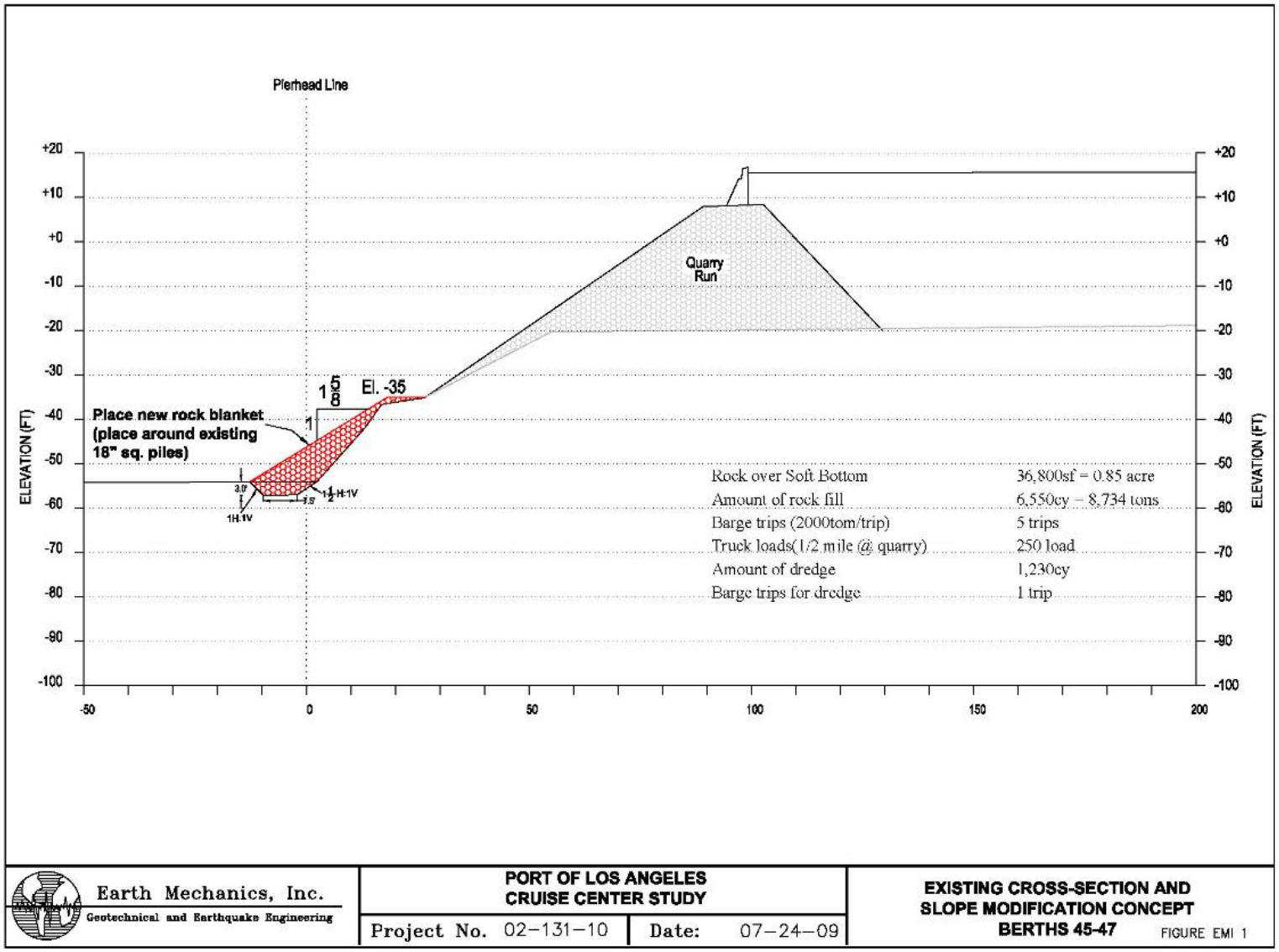
The proposed Project would also include construction of two new, two-story terminals that would total up to 200,000 square feet (approximately 100,000 square feet each) in the Outer Harbor. The terminals would be designed to accommodate the simultaneous berthing of two Freedom Class or equivalent

cruise vessels at Berths 45–47 and Berths 49–50 in the Outer Harbor, while satisfying the security requirements essential to operate a cruise ship terminal. The Outer Harbor Cruise Terminals would incorporate the proposed Outer Harbor Park as an integral feature that would be complementary to the secure operations of the Outer Harbor Cruise Terminals; park visitors would be separated from the secure areas of the cruise terminals.

Proposed waterside work includes adding mooring and breasting dolphins. The upgrade of Berths 45–47 would involve demolition of approximately 1,900 square feet of existing floating docks. New construction would include installation of approximately 288 piles and construction of an approximately 40,100-square-foot marine structure with approximately 2,200 square feet of new floating docks. Floating security barriers would be deployed at Berths 45–47 to maintain an approximately 75-foot-wide secure perimeter around the proposed cruise vessel berth and to maintain unimpeded access to the West Channel marinas (shown on Figure 2-2). This barrier would consist of buoys anchored to the bottom of the Outer Harbor, but would not create a barrier for fish or marine mammals beneath the surface of the water. Additionally, a seaward extension of the toe of slope along the existing wharf at Berths 45-47, approximately 40 feet wide and 920 feet long, would be required, beginning at -35 Mean Lower Low Water (MLLW) and extending down to approximately -57 MLLW. (see *Existing Cross-Section and Slope Modification Concept Berths 45-47)*. This would result in approximately 0.85-acre (36,800 square feet) of submerged rock fill on top of the existing soft bottom. Prior to rock placement in soft-bottom habitat, the area will require dredging so that rock can be keyed in place. Total dredging at Berths 45-47 would be approximately 1,230 cubic yards.

The proposed new wharf at Berths 49–50 would include installation of a 200-foot-long wharf extension of approximately 220 piles and construction of an approximately 51,900-square-foot marine structure. In addition, rock would be placed on portions of the slope below the waterline. The rock blanket would be approximately 75 feet wide and 1,250 feet long and submerged from approximately -10 MLLW and extending down to approximately -57 MLLW. (see *Berths 49-50: New Dike Concept [Revised*]). This would result in 1.58 acres (68,750 square feet) of submerged rock fill being placed over existing soft bottom and 0.57 acre (25,000 square feet) of new rock submerged rock being added over existing rock. Similar to Berths 49-50, dredging would be required at Berths 45-47 prior to placing the new submerged rock. Total dredging at Berths 49-50 would be approximately 2,100 cubic yards. As shown in Table 3-1 below, in total, construction and upgrades of the Outer Harbor berths would result in dredging of approximately 3,330 cubic yards of sediment followed by the placement of new, 3.0 acres of submerged rock fill into 3.0 acres waters of the U.S.

Existing Cross-Section and Slope Modification Concept Berths 45-47



Berths 49-50: New Dike Concept [Revised]

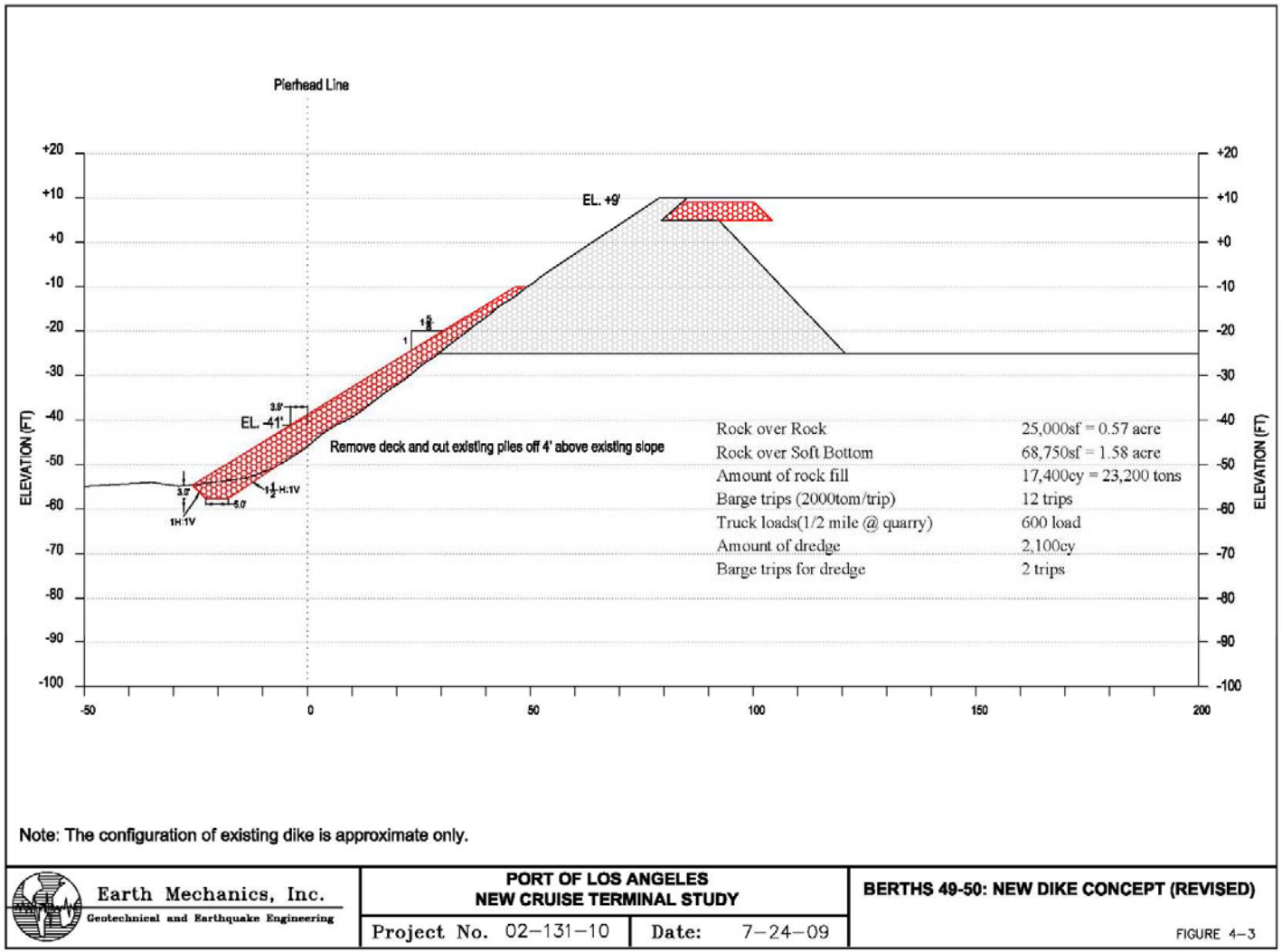


Table 3-1. Total Square Feet/ Cubic Yards of Fill Discharged into and Dredged from Waters of the U.S. at the Outer Harbor Berths

Habitat Type	Berth 45-47	Berth 49-50
Soft Bottom	0.85 acre	1.58 acres
Hard Substrate	N/A	0.58 acre
Dredging	1,230 cubic yards	2,100 cubic yards

Waterfront Promenade

The proposed Project would feature a continuous promenade measuring approximately 30 feet wide along the waterfront extending throughout the entire project area. The promenade would tie in to promenade elements that are already in place or are being constructed. At the northern end of the project area, the proposed promenade would tie in to the promenade that was constructed as part of the Waterfront Gateway Project; it would also connect to the promenade approved as part of the Waterfront Enhancements Project in 2006 (pending construction); and to the promenade approved for construction in Cabrillo Way Marina in the West Channel area (Figure 2-5). While construction of the promenade would not involve a section 404 discharge, it is a major component of the proposed Project that would require USACE authorization under section 10 of the River and Harbor Act (RHA).

The promenade would generally include a boardwalk, railing, lighting, pedestrian signage, landscaping, and seating. The promenade components would further develop the California Coastal Trail along the San Pedro Waterfront (Figure 2-6), providing signage and linking open spaces and points of interest. The promenade would run along the edges of the proposed new harbors. Figures 2-4 and 2-5 depict the location of the proposed promenade.

The promenade would entail construction of approximately 58,900 square feet of new wharf structures and approximately 14,300 square feet of floating docks, and would require the installation of approximately 419 piles to support the new promenade and docks. Prior to construction of the new promenade, approximately 36,400 square feet of existing wharf decks, and approximately 53,500 square feet of existing floating docks, would be demolished. The existing

floating docks, including 126 marina slips, would be removed and would be replaced as part of construction of the Cabrillo Way Marina Project (also known as Cabrillo Marina Phase II; Phase I was constructed in the mid-1980s). However, the new promenade and docks would facilitate existing water uses (i.e., sport fishing, harbor tours, etc), and add new transient boating opportunities.

An existing wood bulkhead adjacent to the mudflat at Berth 78 would be replaced with a new sheet pile bulkhead (approximately 150 linear feet), and the mudflat would be affected by installation of approximately 32 piles and construction of a new 10,500-square-foot deck as part of the promenade. While these activities would not involve a section 404 discharge, as with other promenade-related construction, they would require USACE authorization under section 10 of the RHA, and impacts to the small 0.175-acre mudflat would be mitigated as part of the proposed Project at Salinas de San Pedro Salt Marsh.

The promenade would continue around the northern side of S.P. Slip. The promenade in this location would be constructed off the water's edge to provide space for the commercial fishing activities and storage of fishing equipment and nets. The promenade would be constructed across the existing Jankovich fueling station site upon decommissioning of the site.

The promenade would extend to the south toward City Dock No. 1, along the edge of the Main Channel providing access to Warehouse No. 1. The promenade in this area would entail construction of approximately 66,000 square feet of new structures over the water, supported by the installation of approximately 224 new piles.

The promenade would extend along both sides of the East Channel and continue to the proposed Outer Harbor Park and Cruise Ship Terminals at both ends of an existing waterfront promenade that extends along the water's edge around the Watchorn Basin past Cabrillo Marina Phase I.

The proposed Project includes extension of the promenade from the Cabrillo Way Marina along the waterside of the existing Cabrillo Beach Youth Camp and the Salinas de San Pedro salt marsh. This section of the promenade would be constructed on approximately 100 pilings 18 to 19 feet above the mean higher high water (MHHW) mark, and would be approximately 1,500 linear feet. The promenade in this area would also include construction of a new wharf structure (approximately 31,500 square feet). The promenade would span the 25-foot-long opening of the salt marsh and cover approximately 750 square feet at this location. Figure 2-8 shows a more detailed plan of the waterfront promenade along the Cabrillo Beach Youth Camp and Salinas de San Pedro salt marsh area.

New Harbor Water Cuts

The proposed Project includes the development of three new harbors along the west side of the Main Channel: the North Harbor, Downtown Harbor, and 7th Street Harbor. As proposed, the construction of the new harbors would require excavation and dredging along the adjacent upland to create the approximately 6.8 acres of new surface water as summarized in Table 3-2 below. It should be noted that the total volume of material to be excavated at the Downtown and 7th Street Harbor cuts discussed throughout this section 404(b)(1) analysis is less than what is presented in the EIS/EIR *for the San Pedro Waterfront Project,* prepared by ICF Jones & Stokes, September 2008 (Draft) and September 2009 (Final) based on a more recent study prepared by Weston Solutions, *Final Report Downtown and 7th Street Water Cuts Soil and Sediment Assessment* (Weston 2009). The only anticipated section 404 discharge associated with Harbor Cuts is the construction of approximately 30 square feet of bulkheads at the interface of the new cuts with the Main Channel. The other impacts to waters of the U.S. associated with constructing/connecting the new Harbor Cuts to the Main Channel would require USACE authorization under section 10 of the RHA (i.e., addition of navigable waters of the U.S.).

Table 3-2. Summary of Proposed Harbor Water Cuts

Project Element	*Water Area Created (+4.8MLLW[1])*		*Volume of Excavation/ Dredging (Cubic Yards)*
	Square Feet	*Acres*	
North Harbor	217,800	5.0	442,000
Downtown Harbor	65,300	1.5	88,300
7th Street Harbor	14,000	0.32	36,100
Total	**297,100**	**6.82**	**566,400**

North Harbor

The North Harbor would include a 5-acre water cut located at Berths 87–90 that would accommodate the Crowley and Millennium tugboats (approximately 12 vessels) and the historic naval ship, the S.S. Lane Victory (to be relocated from Berth 94).

[1] Mean Lower Low Water (MLLW): A tidal datum. The average of the lower low water height of each tidal day observed over the National Tidal Datum Epoch. +4.8 MLLW is the approximate Mean High Water line, which delimits River and Harbor jurisdiction in the project area.

Construction of the North Harbor would involve:

- Removal of the existing bulkhead and wharf structure (approximately 700 linear feet; 34,800 square feet);
- Excavation and dredging of approximately 442,000 cubic yards;
- Installation of perimeter sheet pile bulkheads (approximately 1,600 feet);
- Installation of approximately 140 piles;
- Construction of new floating docks (approximately 25,200 square feet);
- Installation of rock slope protection (approximately 45,000 square feet) below the high tide line; and
- Removal/abandonment of an existing 18-inch-diameter fuel surge line that belongs to the U.S. Navy in order to create the North Harbor and parking structures for the cruise terminals.

Downtown Harbor

The Downtown Harbor would include a 1.50-acre water cut to accommodate the Los Angeles Maritime Institute's TopSail Youth Program vessels, Port vessels, and other visiting ships. The existing wharf at Berth 86 would be modified to provide access to the new harbor. Relocation of the existing uses in this area, including the temporary facility for the TopSail Youth Program at Berth 87 and surface parking, would be required. Figure 2-10 shows a plan for the Downtown Harbor project elements.

Construction of the Downtown Harbor would involve:

- Removal of existing docks (approximately 1,600 square feet);
- Excavation and dredging of approximately 88,300 cubic yards;
- Installation of perimeter sheet pile bulkheads (approximately 770 linear feet);
- Installation of approximately 35 piles;
- Construction of a new plaza wharf deck (approximately 7,800 square feet);
- Construction of new floating docks (approximately 27,100 square feet); and
- Installation of rock slope protection (approximately 17,000 square feet) below the high tide line.

7th Street Harbor

The 7th Street Harbor would include a 0.32-acre water cut for visiting public/vessels near the Los Angeles Maritime Museum. This harbor would share docking space with the Downtown Harbor and would provide additional berthing opportunities for visiting tall ships. The new harbor would feature the 7th Street Pier, which would be the public dock for short-term berthing of visiting vessels. Figure 2-10 (referenced above) shows a more detailed plan for the 7th Street Harbor project elements.

Construction of the 7th Street Harbor would involve:

- Removal of a portion of the existing bulkhead (approximately 140 linear feet),
- Removal of existing docks (approximately 2,400 square feet),
- Excavation and dredging of approximately 36,000 cubic yards,
- Installation of perimeter sheet pile bulkheads (approximately 430 linear feet),
- Installation of 26 piles,
- Construction of new floating docks (approximately 9,500 square feet), and
- Installation of rock slope protection (approximately 8,000 square feet) below the high tide line.

Construction Schedule

While construction would not all occur simultaneously, the build-out of the proposed Project would occur generally within two phases over a 5-year period between 2009 and 2014. Specifics regarding construction phasing are located in Section 2.4.4 of the EIS/EIR *for the San Pedro Waterfront Project,* prepared by (ICF Jones & Stokes, September 2008 (Draft) and September 2009 (Final).

Impacts to Waters of the U.S.

Dredge, Fill, and Ocean Disposal Activities

In total, the proposed new harbors would create approximately 7 acres of new open-water area connected to the Main Channel. With the creation of the new harbors, the proposed Project is anticipated to generate approximately 566,400 cubic yards of dredge and excavated material. There would also be approximately 3,330 cubic yards dredged in the vicinity of Berths 45-50 in the Outer Harbor. Table 3-1 details the proposed total submerged rock placement in waters of the U.S. that would convert soft-bottom habitat to hard substrate at a depth range of approximately -10 to -57 MLLW as result of the

proposed Project (2.43 acres) and the total new rock placement over existing rock (0.57 acre), associated with protecting and stabilizing the toe of slope at Berths 45-47 and 49-50.

Proposed project construction would result in an increase in open water and marine habitat area, which could add up to 6.8 Inner Harbor mitigation credits, pursuant to the Inner Harbor Memorandum of Understanding[2] (MOU) executed in 1984 by the LAHD, National Marine Fisheries Service (NMFS), California Department of Fish and Game (CDFG) and the U.S. Fish and Wildlife Service (USFWS), pending agreement by the signatory agencies. The MOU allows the Port to debit and credit only water areas measured at +4.8 MLLW identified as Inner Harbor. All dredge and fill activities proposed at the Outer Harbor berths would occur from elevations of approximately -10 to -57 MLLW.

Tables 3-1 and 3-2 (above) and Table 3-3 (below) detail the proposed dredge and fill activities and new harbor excavation activities that would require USACE authorization pursuant to section 404 of the CWA, section 10 of the RHA, and section 103 of the Marine Protection, Research, and Sanctuaries Act (MPRSA). Submerged rock fill discharged in the vicinity of Outer Harbor Berths 49-50 and Berths 45-47 would result in conversion of soft-bottom substrate to hard-substrate at a depth range of approximately -10 to -57 feet MLLW and temporal effects to rock-bottom area where new rock would be placed; based on port studies;, however, the affected areas would be expected to provide comparable biological functions within a few years following the rock discharges. Overall, the Federal action associated with the proposed Project would result in a gain of open water and marine habitat area in the Los Angeles Harbor. This creation of Inner Harbor new water areas would result in increased biological production in the Los Angeles Harbor until the time that accumulated mitigation credits might be used for some future Port fill. There would be no permanent loss of open water or marine habitat as a result of the proposed Project or any of its alternatives. Although there would be changes in habitat character/type from submerged discharge of fill materials and physical structures, this change would occur in deep outer harbor habitat, and represents a small loss relative to the amount of deep sandy bottom habitat available in the San Pedro Bay. The total quantity of open water and marine habitat area under the proposed Project would be increased.

2 This crediting and debiting mitigation program was established in 1984 through a multi-agency MOU, intended to *Establish a Procedure for Advance Compensation of Marine Habitat Losses Incurred by Selected Port Development Projects Within the Harbor District of the City of Los Angeles*

Table 3-3. Proposed Fill Discharges into Waters of the U.S.

Fill	Sheet pile	Rock over soft bottom	Rock over rock
	30 square feet*	2.43 acres	0.57 acre
Total Fill		**3.0 acres**	

**All sheet pile installations will occur in areas that are currently uplands or will be replacing existing wooden bulkheads, with the exception of a small area at the seaward ends of the new harbor cuts*

In 2005, the USEPA redesignated two sites for limited disposal of suitable (nontoxic) dredge material off the Los Angeles/Orange County shoreline, identified as LA-2 and LA-3, respectively. Disposal of qualifying, relatively clean dredge material is planned for LA-2 and/or LA-3 offshore disposal, with upland disposal of contaminated sediments, should they be present. Upland disposal may be placed at the Anchorage Road Soil Storage Site within the Port. Should other approved in-harbor disposal sites become available or other potential beneficial reuse opportunities develop, they would also be considered.

Chapter 4
Proposed Action: Environmental Effects

The purpose of the Section 404(b)(1) Guidelines is to restore and maintain the chemical, physical, and biological integrity of the waters of the U.S. through the control of discharges of dredged or fill material. Except as provided under CWA Section 404(b)(2), no discharge of dredged or fill material will be permitted if there is a practicable alternative to the proposed discharge that would have less adverse impact on the aquatic ecosystem, as long as the alternative does not have other significant adverse environmental consequences. In accordance with the Section 404(b)(1) Guidelines, the potential short-term or long-term effects of a proposed discharge of dredged or fill material on the physical, chemical, and biological components of the aquatic environment must be determined.

The potential for environmental impacts as a result of construction and operation of the proposed Project have been analyzed in the *EIS/EIR for the San Pedro Waterfront Project,* prepared by ICF Jones & Stokes, September 2008 (Draft) and September 2009 (Final). The following discussion provides the location of the analysis in the document for each of the factors or criteria that must be considered, as set forth in Subparts C through H of the Section 404(b)(1) Guidelines. It should be noted that because the proposed Project and alternatives are relatively similar in impacts to the aquatic ecosystem/environment and would result in similar effects, the analysis for Subparts C through H below focuses mainly on the proposed Project and the differences in fill for each alternative associated with the Outer Harbor berths only. A summary of these differences is provided in this chapter with the exception of Alternative 5, which is the No Federal Action Alternative and, therefore, has no in-water or over-water activities associated with it. A discussion of other minor differences in effects to the aquatic ecosystem and other differences for each alternative is provided in Chapter 5.

Subpart C: Potential Impacts on Physical and Chemical Characteristics of the Aquatic Ecosystem

Substrate

The majority of the proposed Project area is highly developed with various industrial, commercial, and recreational uses, and the areas proposed for berthing improvements that would involve a Section 404 discharge of fill into waters of the U.S. are existing berths that already have substantial rock slope protection. Currently, Berths 45–47 are occasionally used for berthing of cruise ships or other large vessels and this berthing location has an existing wharf with the necessary rock slope protection underlying the berth. The proposed Project intends to upgrade Berths 45–47 for use as a permanent cruise ship berth in the Outer Harbor to accommodate the berthing of a Freedom Class (1,150 feet-long

requiring a 1,250-foot-long berth) or equivalent vessel. These berths would replace the cruise ship berth occasionally used at Berths 87–90, which would be displaced by construction of the North Harbor water cut. The proposed Project also would include the construction of a new cruise ship berth by extending the existing wharf at Outer Harbor Berths 49–50 by approximately 200 feet (providing a 1,250-foot-long berth that would accommodate a second Freedom Class or equivalent vessel). Berths 49-50 is currently used by Pasha for break/bulk operations (Omni terminal).

Proposed in-water construction activities would include dredging, dredged material disposal, bulkhead and dock removal, pile and sheet pile installation/replacement, dock installation, and placement of rock slope protection. The locations and quantities of these activities are shown in Table 4-1 (note that the only section 404 discharges would be the placement of fill/rock and required dredging for keying in the submerged rock at Berths 45-47 and 49-50; the other activities would be regulated pursuant to section 10 of the RHA of section 103 of the MPRSA). Conversion of 2.43 acres of soft bottom habitat to hard substrate (rock) at a depth of approximately -10 MLLW and deeper would occur as a result of the proposed Project (1.58 acres at Berths 49-50 and 0.85-acre at Berths 45-47), resulting in a minor loss of benthic invertebrates and water-column habitat. However, the areas that would be converted are extensions of existing berths with existing rock slope protection in industrialized areas of deep water habitat in the Port. As discussed in Section 3.3 (Biological Resources) of the EIS/EIR (September 2008 [Draft] and September 2009 [Final]), studies have shown that rock-bottom areas are as biologically productive as soft-bottom habitats in port areas and the affected 2.43-acre area is expected to provide comparable biological functions within a few years after the rock is placed. Additionally, 0.57 acre of new rock would be placed over existing rock at Berths 49-50. This would result in a temporary disturbance of this area, but recolonization would be expected to occur within 1 to 3 years.

During construction/upgrade of cruise ship Berths 45-47 and construction of Berths 49-50, some disturbances of the bottom sediments would occur during dredging (approximately 2,100 cubic yards at Berth 49-50 and 1,230 cubic yards at Berth 45-47) and rock placement and installation of piles and placement of rocks around the base of the piles. Re-suspended sediments would settle back to the bottom, although some horizontal displacement by currents would be expected to occur. The presence of these pier pilings would cause some localized deposition of sediments near the piles, and some bottom sediments in the vicinity of Berths 45-47 and 49-50 may be disturbed by turbulence from propeller wash. However, this would not promote erosion of the harbor bottom or excessive sedimentation near the project area. In addition, the discharges of fill/rock in the Outer Harbor to further protect/stabilize the berths, would affect 3.0

acres of waters of the U.S. from approximately -10 to -57 MLLW at Berths 49-50 and from approximately -35 to -57 MLLW at Berths 45-47These discharges would replace open water along the subsurface slopes at both locations with rock.

Alternatives 1, 3, and 4 would have less impact on substrate over the No Federal Action condition when compared to the proposed Project and Alternative 2 (for which submerged rock fill and dredging are the same as the proposed Project). Under Alternatives 1 and 3, only one Outer Harbor Berth (Berths 45-47) would be constructed/upgraded and, therefore, fill discharges requiring section 404 authorization under Alternative 1 and 3 would be 0.85 acre and dredge totals would be approximately 1,230 cubic yards. Under Alternative 4, no Outer Harbor berths would be constructed, and no fill or other discharges would occur in the Outer Harbor. Because the Harbor is an industrialized working port, the quantity and type of fill discharges into waters of the U.S. associated with the proposed Project or any of the alternatives would not result in significant changes to existing conditions.

Table 4-1. Proposed Project In-Water and Over-Water Activities

Activity	*Location*	*Quantity*
Excavation/Dredging (cubic yards) (all excavation to occur in existing uplands for creation of new harbor cuts)	North Harbor	442,000
	Downtown Harbor	88,300
	7th Street Harbor	36,100
	Total	**566,400 cy**
Dredging in waters of the U.S.	Berths 49-50	2,100
	Berths 45-47	1,230
	Total	**3,330 cy**
Excavated material disposal (cubic yards) ***Approved, qualifying material at LA-2 or LA-3 (offshore disposal); if available, qualifying material beneficially reused (to date Downtown and 7th St. Harbor cuts have been tested and of the 163,000 cubic yards generated, 97,300 qualify for reuse); upland or contaminated material at an approved upland site such as Anchorage Road Soil Storage Site***	From Harbor cuts	566,400
	Berths 49-50 and 45-47 dredging	3,330
	Total	**569,730 cy**

Activity	*Location*	*Quantity*
Bulkhead removal (linear feet)	North Harbor	700
	7th Street Harbor	140
	Promenade, Berth 78	150
	Total	**990 linear ft**
Over-water structure removal (square feet)	North Harbor	34,800
	Downtown Harbor	1,600
	7th Street Harbor	2,400
	7th Street Pier	5,400
	Ports O' Call Promenade	89,900
	Cruise Ship Berths 45–47	1,900
	Total	**136,000 ft^2**
Piling placement (no. of piles)	North Harbor	140
	Downtown Harbor	35
	7th Street Harbor	26
	Berth 240 Boat Fueling Facility	46
	7th Street Pier	52
	Ports O' Call Promenade	451
	City Dock #1 Promenade	224
	Cruise Ship Berths	288
	Cruise Ship Berths	220
	Catalina Express	46
	Boy Scout Camp Promenade	18
	Salt Marsh Promenade	92
	Total	**1,638 piles**
Bulkhead installation (all sheet pile; linear feet)	North Harbor	1,600
	Downtown Harbor	770
	7th Street Harbor	430
	Ports O' Call Promenade (replacement of existing wooden bulkhead with steel)	150
	Total	**2,950 linear ft**

Activity	*Location*	*Quantity*
Over-water structure installation (square feet)	North Harbor (floating / pier)	25,200
	Downtown Harbor (floating / pier)	34,900
	7th Street Harbor (floating)	9,500
	Berth 240 Boat Fueling Facility (floating)	6,400
	7th Street Pier (pier)	5,800
	Ports O' Call Promenade (floating / pier)	83,700
	City Dock #1 Promenade (pier)	66,600
	Cruise Ship Berths 45–47 (floating / pier)	42,300
	Cruise Ship Berths 49–50 (pier)	51,900
	Catalina Express (floating)	8,800
	Boy Scout Camp Promenade (pier)	4,500
	Salt Marsh Promenade (pier)	27,000
	Total	**366,600 ft^2**
Rock slope protection installation in existing uplands (below high tide line; square feet)	North Harbor	45,000
	Downtown Harbor	17,000
	7th Street Harbor	8,000
	Total	**70,000 ft^2**
Rock slope protection in waters of the U.S. (square feet)	Berths 45-47	36,800
	Berths 49-50	93,750
	Total	**130,550 ft^2**
Loss of open water (square feet)	N/A	0
	Total	**0 ft^2**

Suspended Particulates and Turbidity

Impacts from dredging, bulkhead and dock removal and construction, pile and sheet pile installation, dock installation, and rock slope protection placement include short-term increases in suspended sediments and turbidity levels. This, in turn, can result in decreases in dissolved oxygen (DO) concentrations, increases in nutrient concentrations, as well as increases in dissolved and particulate

contaminant concentrations should contaminated sediments be disturbed by demolition and construction activities.

Water quality effects of dredging depend on the quality of sediments, currents, and type of dredge equipment used. However, based on water quality monitoring data from other harbor dredge projects using suction and clamshell dredge equipment (Jones & Stokes 2007), water quality effects are expected to be transitory, lasting for less than one tide cycle following active dredging, and covering an area generally within 1,000 feet of the activity, and often less than 300 feet. Suction dredging generally has a smaller impact area, often less than 300 feet (Jones & Stokes 2007, 2008). Turbidity may also be temporarily increased during installation of piles, bank protection rock, and bulkheads. However, the extent would generally be much less than the area affected by dredging, probably affecting a radius of no more than about 100 feet from the activity.

The proposed Project includes placement of 1,638 piles (Table 4-1). Assuming that each pile would be 2 feet in diameter and that an annulus of sediment 1-foot wide would be disturbed during pile placement, this activity would disturb and potentially generate turbidity from 20,584 square feet of bottom sediments. Most of these pilings would be placed in open water (1,437 piles for the Promenade, Berths 45–47, Berths 49–50, and Catalina Express) and thus, turbidity effects would directly affect waters of the harbor. The remaining piles would be placed in the North, Downtown, and 7th Street Harbors, in newly-excavated waters separated from the harbor by bulkheads. Temporary turbidity impacts would be of less concern in these waters, which would only exist because of the proposed Project and would not be expected to provide the beneficial uses afforded by waters of the existing harbor until near the completion of construction, when bulkheads separating the new harbors from the waters of the Los Angeles Harbor would be removed.

Bulkhead installation and removal, which would affect 3,940 linear feet of water body (2,950 linear feet installation, 990 linear feet removal; Table 4-1) also has potential to increase turbidity. Assuming that the bulkhead was approximately 18 inches wide and that another 18 inches of sediment was temporarily disturbed on either side of the bulkhead during installation/removal activity, this activity would disturb and potentially generate turbidity from 17,730 square feet of bottom sediments. All but 150 feet of the bulkhead installation would occur in the North, Downtown, and 7th Street Harbors, in newly excavated waters separated from the harbor by existing bulkheads. Another 150 feet of bulkhead installation would occur along the Ports O' Call Promenade, but it is intended to replace an existing wooden bulkhead. Turbidity associated with this activity could directly affect water quality in the harbor. Bulkhead removal would primarily occur along the

outer margins of North, Downtown, and 7th Street Harbors, when the completed harbors are connected to the Main Harbor. Therefore, turbidity associated with this activity could directly affect water quality in the harbor.

Rock slope protection placement (at the Outer Harbor berths) would affect a larger area (3.0 acres; Table 4-1), but the rock would be placed at very low elevations (approximately -10 to -57 MLLW) and the rock placement process is less invasive than pile placement or removal. Placement of submerged rock fill in the Outer Harbor berths would result in some turbidity, but it is expected to dissipate quickly. The rock placement for the North, Downtown, and 7th Street Harbors would occur in uplands prior to their connection to the Main Channel. The existing bulkheads that separate the channel from the new harbor cut areas would remain in place until near the completion of construction, after the rock slope protection would be placed. Therefore, limited turbidity effects are expected during rock placement in the new harbor cut areas.

Sediments suspended by dredging, pile removal/driving, bulkhead removal/placement and rock slope protection placement would settle back to the bottom within a period of several hours. Transport of suspended particles by tidal currents would result in some redistribution of sediment. The redistribution would be localized within the Main Channel or the Outer Harbor adjacent to the work area.

The proposed new harbors are in areas where the Main Channel is currently adjoined by bulkheads. Proposed harbor areas would be excavated while the bulkheads are still in place, in isolation from the Main Channel. Excavated materials would be “dry” above the water table and loaded into trucks or barges to upland fill or disposal sites. Below the water table, material would be excavated with a dragline to the design depth with excavated materials loaded into barges (for subsequent disposal, the nature and location of which would depend on material characteristics and reuse options) moored to the bulkheads in the Main Channel. After design depth is achieved, the bulkhead would be removed. Some further work in the water would be needed at the harbor entrance to finish new bulkhead installation, rock slope protection, and piling placements at the harbor entrance. These measures would minimize requirements for in-water dredging and subsequent increases in turbidity.

Alternatives 1, 3, and 4 would result in less suspended materials and turbidity over the No Federal Action condition (Alternative 5) when compared to the proposed Project and Alternative 2 (for which all in-water features are the same as the proposed Project). Under Alternatives 1 and 3, construction of berth upgrades would only occur at one Outer Harbor Berth (Berths 45-47). Compared to the proposed Project and Alternative 2, this would result in less in-water work that could cause short-term turbidity effects (e.g. less pile driving and no

dredging or clean fill discharges at Berths 49-50). Under Alternative 4, no Outer Harbor berths would be constructed and, therefore, no fill discharges would occur in the vicinity of the Outer Harbor. Because turbidity impacts associated with the proposed Project and all of the alternatives that include in-water work (all alternatives except 5) are short-term and localized primarily along the west side of the Port's Main Channel and Outer Harbor (except Alternative 4), these effects are not considered significant.

Contaminants

Potential water column contaminants include metals (particularly cadmium, chromium, copper, lead, mercury, nickel, silver, and zinc), oil and grease, chlorinated hydrocarbons (DDT and DDE), and polychlorinated biphenyls (PCBs). Surface water bodies adjacent to the project area contain some of the above-mentioned contaminants.

Test results for sediments in the Main Channel near the three proposed harbors showed copper and total DDT concentrations exceeding their respective effects range-low (ERL) criteria, while test results for sediments near the Berths 45–50 showed copper, zinc, chrysene, and total PCBs exceeding their respective ERL criteria, and total DDT exceeding the effects range-medium (ERM) criterion. Such contaminants could be released into the water column during the pile removal/driving, bulkhead construction, and rock slope protection placement operations. However, like pH and turbidity, any increase in contaminant levels in the water is expected to be localized within the mixing zone and of short duration. The magnitude of contaminant releases would be related to the bulk contaminant concentrations of the disturbed sediments, as well as the organic content and grain size, which affect the binding capacity of sediments for contaminants. Because the sediment characteristics vary across the project area, the magnitude of contaminant releases and water quality effects would also vary. Assuming that sediment contaminants in the dredging, pile removal/driving, bulkhead construction, and rock slope protection placement areas were similar in species and concentration to those identified in the Main Channel test results, contaminant releases from sediments disturbed by dredging and other demolition and construction activities would not likely substantially affect the concentrations or bioavailability of contaminants in waters in the project area.

The Basin Plan prepared by the Los Angeles Regional Water Quality Control Board (LARWQCB 1994) defines limits for chemical contaminants in terms of bioaccumulation, chemical constituents, pesticides, PCBs, and toxicity. LAHD has been coordinating with the Contaminated Sediments Task Force (CSTF) Advisory Committee to identify potential reuse sites for material excavated and/or

dredged from the project site; a CSTF meeting was held on March 3, 2009 to review the Downtown Harbor and 7th Street Harbor sampling results and recommendations for material placement (the only areas in the project tested thus far).

In all, construction of the proposed Project or Alternative 2 would generate approximately 566,400 cubic yards of material excavated and/or dredged in uplands to create the harbor cuts and approximately 3,330 cubic yards of material dredged at the Outer Harbor berths to provide key-in locations for the submerged rock slope protection. As part of the *Final Report Downtown and 7th Street Water Cuts Soil and Sediment Assessment* (Weston, 2009), material proposed for excavation in the Downtown and 7th Street Harbor cut areas was evaluated for environmental suitability for: beneficial reuse, upland placement, and ocean disposal. Material above +5.43 feet MLLW (maximum level of seawater inundation) was evaluated as soil. At Downtown Harbor, approximately 20,100 cubic yards of soil will be excavated. At 7th Street Harbor, approximately 7,000 cubic yards of soil will be excavated. A toxicity characteristic leaching procedure (TCLP) was performed to provide an estimate of the soil contaminant leachate and to determine if this material was classified as hazardous waste or if it is considered suitable for upland placement. Results of TCLP indicated material was suitable for upland placement, thus making it potentially suitable for reuse at an approved Port construction site.

Although not suitable for ocean disposal, chemical and physical analyses of these soils determined they were relatively clean (nearly all concentrations below ERL values and all below ERM values) and coarse-grained (approximately 77 to 85 percent coarse-grained materials [sand and gravel]). Based on the coarse-grain size and low concentrations of contaminants, this material may be suitable for beach replenishment according to guidelines outlined in the Sand Compatibility and Opportunistic Use Program (SCOUP). To be suitable for beach replenishment, the material must be compatible with the receiver site (grain size within 10 percent). Depending on the receiver site, excavated soil from this project is most likely suitable for nearshore beach replenishment.

At the Downtown Harbor and 7th Street Harbor cuts, material occurring below +5.43 MLLW, which is tidally wetted sediment, would be dredged to -27 MLLW or -23 MLLW (includes 2 feet of overdredge), respectively, as part of creating these harbor cuts. Including 2 feet of overdredge, approximately 68,200 cubic yards of sediment will be dredged from the Downtown Harbor cut and approximately 29,100 cubic yards of sediment will be dredged from the 7th Street Harbor cut. Based on an initial set of chemistry, the Downtown Harbor and 7th Street Harbor cut areas were divided into two separate areas for analysis. Two areas (one from

Downtown Harbor cut [DT D-H] and one from 7th Street Harbor cut [SS C-E]) were evaluated for ocean disposal and beneficial uses.

- Area DT D-H demonstrated significant toxicity to the amphipod *Eohaustorius estuaries* and, therefore, did not meet the limiting permissible concentration (LPC) for ocean disposal. TCLP analysis indicated material at Area DT D-H was suitable for upland placement, thus making it potentially suitable for reuse at an approved Port construction site.

- Area SS C-E did not demonstrate toxicity during suspended particulate phase (SPP) or solid phase (SP) toxicity testing. Bioaccumulation potential (BP) testing at Area SS C-E indicated that all contaminant concentrations in tissues were below published relevant effect levels. Sediment from SS C-E was determined to be suitable for ocean disposal and, therefore, suitable for other beneficial reuse alternatives. In addition, this sediment was predominantly coarse-grained (90 to 94 percent), indicating the material may be suitable for beach replenishment.

- Based on elevated chemistry (concentrations of mercury and polycyclic aromatic hydrocarbons [PAHs] above the ER-M), two areas (one from Downtown Harbor cut [DT A-C] and one from 7th Street Harbor cut [SS A-B]) were evaluated for upland placement and beneficial uses. TCLP analysis indicated material was suitable for upland placement, thus making it potentially suitable for reuse at an approved Port construction site.

Opportunities for reuse of these sediments would be evaluated based on sites available at the time of construction of the proposed Project or one of its alternatives, as well as the recent sediment testing results. If material does not meet the requirements for beneficial reuse or it is not logistically, technically, and economically feasible for the beneficial reuse, material from SS C-E will be proposed for placement at LA-2 or LA-3 ocean disposal sites and material from the Downtown Harbor cut and SS A-B will be proposed for placement at an approved upland disposal site.

Sediment characterization of the material proposed to be excavated or dredged at North Harbor (totaling approximately 442,000 cubic yards) and the proposed dredged material from Berths 49-50 and 45-47 (approximately 3,330 cubic yards) has not yet occurred. Testing of the materials at these sites would occur before they are impacted by excavation/dredging, pile placement or removal, bulkhead construction (North Harbor only), or rock slope protection. If testing indicates that LARWQCB standards would be exceeded, then excavated or dredged material could only be disposed at an approved upland site or possibly a Confined

Disposal Facility (CDF) (if available), and additional minimization and mitigation measures would likely be required to protect water quality from turbidity and the potential release of contaminants to the aquatic environment. Appropriate measures would be determined in collaboration with permitting agencies based on the types and concentrations of identified contaminants.

To summarize, implementation of the various reuse options for material excavated or dredged to create the harbor cuts or dredged in the vicinity of the Outer Harbor berths would depend on timing and need. There would need to be an appropriate Port fill site available to accept the material at the time of excavation or dredging (this would also be dependent upon the results of sediment testing). LAHD will coordinate further with the CSTF Advisory Committee to identify potential reuse sites. Ocean disposal of suitable material would remain an option, but only after all potential reuse sites have been exhausted and only for material qualifying for ocean disposal (i.e., meeting specific physical, chemical, and biological criteria). Material not suitable for reuse or ocean disposal would be taken to a confined disposal facility (e.g. Anchorage Road Soil Storage Site).

In the absence of available and practicable beneficial use options, materials determined to be suitable for unconfined in-water disposal would be placed at the LA-2 or LA-3 offshore disposal sites. These are sites designated by the USEPA for limited disposal of suitable (non-toxic) dredge material off the Los Angeles/Orange County shoreline. Ocean disposal sites LA-2 and LA-3 have been previously assessed for oceanography and water quality effects in environmental documents approving the use of those sites for use (USEPA and USACE 2005). For both sites, effects on oceanography and water quality were determined to be less than significant for material that has been tested and found suitable for ocean disposal. Water currents would disperse the discharged sediments, avoiding permanent impacts on oceanography, and waterquality impacts would predominantly consist of turbidity effects lasting a few hours.

Under Alternative 4, no Outer Harbor berth upgrades would be constructed and no North Harbor cut would be created. Under the proposed Project or Alternatives 1 through 4, a total of 124,400 cubic yards of excavated and/or dredged material would be generated by the Downtown and 7th Street Harbor cuts. All material above +5.43 MLLW (27,100 cubic yards) was found to be suitable for beneficial reuse assuming there is a feasible location at the time of project construction (Weston 2009). Material excavated or dredged below +5.43 MLLW (97,300 cubic yards) was also found to be suitable for beneficial reuse and only Area DT D-H was found to not be suitable for ocean disposal.

For the proposed Project and Alternative 2, there could be an additional 442,000 cubic yards of excavated and dredged upland material (from the North Harbor

cut) and 3,330 cubic yards of dredged material (from Outer Harbor Berths 45-47 and 49-50) that would require reuse or disposal. Under Alternatives 1 and 3, which would only involve dredging in the vicinity of Berths 45-47, there would be less dredged material requiring reuse or disposal (1,230 cubic yards), but the North Harbor cut would occur and, therefore, Alternatives 1 and 3 would also add 442,000 cubic yards of material for which reuse or disposal would be necessary pending sediment testing results. Although it is likely that all material above and below +5.43 MLLW from the North Harbor cut would be suitable for beneficial reuse as is the case with the Downtown and 7th Street Harbor cuts, under the proposed Project and Alternatives 1 through 3, there would be a larger quantity for which a section 103 permit would potentially be necessary (for whatever material cannot be beneficially reused and qualifies for ocean disposal) when compared to Alternative 4 (which does not include the 5.0-acre North Harbor cut or the Outer Harbor berth dredging). Under all alternatives, material that would be excavated or dredged from the North Harbor cut area and/or from the Outer Harbor berth dredging areas would first be tested per standard USEPA and USACE protocols, and material unsuitable for ocean disposal would be reused for beach nourishment (if meeting specific criteria), placed in a CDF (if available), or disposed of at an approved upland site. Material determined suitable for unconfined ocean disposal (at LA-2 or LA3) would be subject to water currents that would disperse sediments, avoiding permanent impacts on oceanography, and water quality impacts would predominantly consist of temporary turbidity effects lasting a few hours.

Water

The water areas along the San Pedro Waterfront are affected by boat docks, floats, slope stabilization, and shading from over-water walks, buildings, and vertical walls. Nutrients could be released into the water column during pile removal/driving, bulkhead construction, and rock slope protection placement. Release of nutrients may promote nuisance growths of phytoplankton if operations occur during warm water conditions. Phytoplankton blooms have occurred during previous dredging projects, including the Deep Draft Navigation Improvement Project. However, there is no evidence that the plankton blooms observed were not a natural occurrence or that they were exacerbated by dredging activities. The Basin Plan (LARWQCB 1994) limits on biostimulatory substances are defined as "…concentrations that promote aquatic growth to the extent that such growth causes nuisance or adversely affects beneficial uses." Given the limited temporal extent of proposed Project activities with the low potential for releasing nutrients from bottom sediments, effects on beneficial uses of the Main Channel or Outer Harbor are not anticipated to occur in response to the proposed Project.

The proposed Project would result in placement of submerged rock into 3.0 acres of waters of the U.S. to protect/stabilize the slopes at Berths 49—50 (2.15 aces) and Berths 45-47 (0.85 acre). These areas are currently under the landward edge of the existing wharves and their value as open water is therefore reduced. Rock placement would result in a habitat conversion of 2.43 acres of soft bottom to rocky bottom habitat and the addition of rock over existing rock at -10 MLLW and deeper (deep outer harbor habitat).

The proposed Project and Alternative 2 would result in 6.8 acres of new open-water area along the west side of the Main Channel through the construction of the three new harbor cuts. Newly created open water would be similar to that found in existing Inner Harbor areas, which include Inner Harbor channels, slips, and marinas. Proposed project construction would, however, add various materials (e.g., rock, steel, concrete) to the aquatic environment in these new harbors (as well as at the existing Outer Harbor Berths 45-47 and 49-50). These fills would change the aquatic habitat types in the affected areas from soft-bottom or water column to hard substrates. Over time, these in-water materials would be colonized by aquatic organisms and similarly function as marine habitat, albeit of different character. In total, the acreage of the harbor cuts would exceed the acreage of aquatic habitat altered by discharge of materials from constructing the proposed Project.

Under Alternatives 1 and 3, only dredge and fill associated with construction of the upgrades at Berths 45-47 (approximately 1,230 cubic yards and 0.85 acre, respectively) would occur and all three harbor cuts would be completed. Alternatives 1 and 3 would also result in gain of new 6.8 acres of open water and Inner Harbor mitigation credits, which could be eligible for later use pursuant to the Inner Harbor MOU executed in 1984 by the LAHD, NMFS, USFWS, and CDFG, (pending agency agreement).

Although Alternative 4 would not construct any berth upgrades in the Outer Harbor, there would be less open water created under this alternative. Under Alternative 4, the North Harbor cut cannot occur, as this area would be necessary to provide berthing for cruise ships in the Inner Harbor. Therefore, the gain of open water and acreage available for Inner Harbor mitigation credits would be less when compared to the proposed Project and Alternatives 1 through 3.

The analysis of the potential for direct, indirect, and cumulative water-related impacts by the proposed Project and alternatives is provided in Section 3.3, “Biological Resources”, Section 3.14, “Water Quality, Sediments and Oceanography”, and Sections 4.2.3, “Cumulative Analysis, Biological Resources” and 4.2.14, “Cumulative Analysis, Water Quality, Sediments and Oceanography”

of the *EIS/EIR for the San Pedro Waterfront* (September 2008 [Draft] and September 2009 [Final]).

Current Patterns and Water Circulation

Dredging and filling activities associated with the proposed Project would alter the existing bathymetry and slightly increase the volume of Los Angeles Harbor in the proposed Project area. Excavation to create three new harbors—the North Harbor (5.0 acres), Downtown Harbor (1.5 acres), and the 7th Street Harbor (0.32 acres)—would result in an increase of 6.82 acres in the water surface area of the Los Angeles Harbor. Blind slip areas, such as these harbors, tend to be areas of lower circulation due to their morphology. Thus, water flow velocities would be expected to be lower than in the Main Channel. However, because these harbors are all directly adjacent to the Main Channel, the principal tidal channel for the Inner Harbor, tidal current velocities and tidal range in the Main Channel would be adequate to ensure that circulation through the proposed harbors would not result in stagnation or adversely affected water quality. The principal in-water activities proposed would be placement of pilings for new dock and wharf facilities, bulkhead construction, dredging for wharf construction in the Outer Harbor (approximately 3,330 cubic yards total), and the addition of submerged rock protection/stabilization to the slopes at Berths 49-50 (2.15 acres) and Berths 45-47 (0.85) (summarized in Table 4-1). Pile placement would reduce water movement beneath the wharves, but due to the distance between pilings and the continual tidal action in the Main Channel, this would not result in stagnation or cause adverse impacts to marine water quality (note the piles would also not be considered a section 404 fill). Bulkhead construction would primarily occur at existing bulkhead locations and would, therefore, not be expected to alter current patterns or water circulation (nor would they involve a section 404 discharge). Additionally, the placement of rock into 3.0 acres of waters of the U.S. at the Outer Harbor berths at elevations of approximately -10 to -57 MLLW would not significantly alter water currents or circulation in this area.

Once construction of facilities for the proposed Project is completed, operations within the in-water portions of the project area would not have the potential to materially affect water circulation within the Main Channel or the Outer Harbor.

The analysis of the potential for direct, indirect, and cumulative impacts to water circulation and patterns by the proposed Project and alternatives is provided in Section 3.3, “Biological Resources”, Section 3.14, “Water Quality, Sediments and Oceanography”, and Sections 4.2.3, “Cumulative Analysis, Biological Resources” and 4.2.14, “Cumulative Analysis, Water Quality, Sediments and Oceanography”

of the *EIS/EIR for the San Pedro Waterfront* (September 2008 [Draft] and September 2009 [Final]).

Salinity Gradients

Water quality in the Los Angeles Harbor is influenced primarily by water flushed from the harbor and vessel activity. Water quality within the harbor is also affected episodically by stormwater runoff from the watershed, which is highly urbanized. Because the (approximately) 400-acre proposed project area represents only 2 percent of the area of the Harbor sub-watershed, runoff from the upland portion of the project area would represent a small (about 2 percent) contribution to the total stormwater loading to the harbor. Variations in salinity occur due to the effects of stormwater runoff, waste discharges, rainfall, and evaporation (LAHD 2002:3.9-5). Salinity values at seven monitoring locations near the project area range from 32.64 to 33.38 parts per thousand (ppt) or approximately the typical seawater value of 33 ppt (LAHD 2002:3.9-5).

Pile removal/driving, bulkhead construction, and rock slope protection placement are not expected to affect the temperature or salinity of waters within the project area because these activities would not involve any wastewater discharges or processes that would be substantially different from No Federal Action conditions.

Most runoff from the upland portions of the project area would flow into the Main Channel. Runoff from the Outer Harbor cruise ship terminals, and in project areas from Cabrillo Marina to Inner Cabrillo Beach, would flow into the Outer Harbor. This runoff would deliver fresh water that, depending on the strength and duration of the storm event, could be more turbid and have lower salinity and DO levels compared to the receiving waters. These fresh water discharges could overlap with discharges from other drainage systems and storm drains discharging to the harbor. Nevertheless, subsequent mixing of runoff and receiving waters, and settling of particles carried by runoff into the harbor, would prevent persistent changes in the quality of receiving waters. It is also expected, based on current regulatory requirements, including the State Water Resource Control Board's (SWRCB's) CWA Section 402/National Pollutant Discharge Elimination System (NPDES) program, that Best Management Practices (BMPs) would be implemented and maintained to reduce and treat surface runoff before it enters the harbor.

Because the (approximately) 400-acre proposed Project area represents only 2 percent of the area of the Harbor sub-watershed, runoff from the upland portion of the proposed Project area would represent a small (about 2 percent) contribution to the total stormwater loading to the harbor. Most of this area is

already developed and subject to urbanized stormwater runoff under current conditions. Because effects to salinity levels would be mainly from runoff activities in upland areas and would be subject to CWA Section 402/NPDES and associated BMP requirements, the proposed Project and all of the alternatives (including Alternative 5 *No Federal Action*) are expected to have similar, but less than significant, effects on water quality and salinity levels.

The analysis of the potential for direct, indirect, and cumulative impacts to water quality by the proposed Project and alternatives is provided in Section 3.14 "Water Quality, Sediments and Oceanography" and Section 4.2.14 "Cumulative Analysis, Water Quality, Sediments and Oceanography" of the *EIS/EIR for the San Pedro Waterfront* (September 2008 [Draft] and September 2009 [Final]).

Subpart D: Potential Impacts on Biological Characteristics of the Aquatic Ecosystem

Threatened and Endangered Species

California Least Tern

The California least tern, which occurs in the vicinity of the project area, is a federally listed endangered species. The project area is more than 1.5 miles from the California least tern (*Sternula antillarum brownii*) nesting site on Pier 400. California least terns nest on the 15-acre site on Pier 400 from April through August. California least terns feed on small fish in the surface waters of the harbor. The shallow waters (<20 feet MLLW) in the Outer Harbor are considered important feeding areas for the nesting California least tern. Outer Harbor shallow water would be unaffected by the proposed Project with the exception of the proposed expansion and restoration of the salt marsh and mudflat in the Salinas de San Pedro Salt Marsh, which would be undertaken as part of the mitigation for proposed Project impacts to mudflat areas from construction of the Promenade. Although not part of the proposed Project, expansion and restoration of the salt marsh intended to mitigate for minor mudflat impacts at Port O'Call (0.175 acre) would create additional mudflat and coastal salt marsh habitat. Construction activities that cause turbidity and other disruptions in the salt marsh and mudflat areas during the California least nesting season has the potential to affect California least tern foraging in the direct vicinity of construction activities. However, this represents an extremely small percentage of the 519 acres of shallow water habitat currently available to terns foraging in the harbor.

The proposed Project includes restrictions on work conducted in and around the salt marsh area and Inner Cabrillo Beach during the California least tern nesting

season (April to August). Construction activities for the enhancement of the salt marsh area and promenade construction in this vicinity would not be conducted during the California least tern nesting season. Therefore, no effect is anticipated to this species during project construction.

California Brown Pelican

California brown pelicans (*Pelecanus occidentalis californicus*) use the harbor year-round, but their abundance is greatest in the summer when post-breeding birds arrive from Mexico. The highest numbers are present between early July and early November, when several thousand can be present (MBC, 1984). Pelicans use all parts of the harbor, but they prefer to roost and rest on the harbor breakwater dikes, particularly the Middle Breakwater (MBC, 1984; MEC 1988; MEC and Associates 2002). They forage over open waters for fish such as the northern anchovy. Brown pelicans were observed adjacent to Pier 400 throughout the year during the 2000 baseline surveys.

The proposed project construction activities would not result in adverse short- or long-term effects on the California brown pelican. The California brown pelican, which does not nest in the harbor, feeds throughout the harbor including the Main Channel and often rests on pilings, boat floats, floating docks, and docks. During construction, California brown pelican in the immediate vicinity would be expected to move away voluntarily to undisturbed areas. Post-construction, the additional open water, floating docks, etc. from the harbor cuts could provide additional foraging and roosting areas for California brown pelican.

Although no adverse effects to this species are anticipated under any of the scenarios, Alternatives 1 and 3 would have even less potential to affect California brown pelican compared with the proposed Project and Alternative 2, because there would be no in-water/over-water work such as pile driving, dredging and rock placement and other construction activities at Berths 49-50; in-water/over-water work would be limited to Berths 45-47. Alternative 4 would have even less temporary disturbance than Alternatives 1 and 3 because construction of berth upgrades at neither of the Outer Harbor berths would occur. Alternative 4 would also reduce the additional area available for California brown pelican to forage and roost, as it would not construct the North Harbor; therefore, only 1.8 acres of open water and associated docks and structures would be available to California brown pelican post-construction.

Western Snowy Plover

The Pacific Coast population of the western snowy plover (*Charadrius alexandrines nivosus*) was federally listed as threatened in 1993. This small shorebird nests on coastal beaches from southern Washington to southern Baja

California and winters along the coast of California and Baja California (NatureServe 2005). The birds forage on invertebrates (crustaceans and worms) along the shore in or near shallow water (Bent 1929). Western snowy plovers were observed on Pier 400 (approximately 1.5 miles from the proposed Project) during California least tern nesting surveys in 2003 through 2007. The plovers were not nesting but appeared to be utilizing this area during migration for foraging (Keane Biological Consulting 2003, 2005). Impacts to this species are not expected as a result of the proposed Project or any of the alternatives.

Marine Mammals

A disturbance threshold (Level B harassment) of 160 dB_{RMS} has been identified for cetaceans (71 *Federal Register* (FR) 3260) and would also apply to other marine mammals. Exposure to sound at this level would likely cause avoidance but not injury to marine mammals. The practical spreading model of underwater sound loss assumes a loss of 4.5 decibels (dB) per doubling distance (WSDOT 2007), and is used here to calculate the extent of underwater sound. The Level A harassment threshold for pinnipeds is 190 dB_{RMS} (71 FR 3260). Sound produced by impact driving concrete piles could be in excess of the disturbance threshold (160 dB_{RMS}) at a distance of up to 742 feet (approximately 0.75 of the distance across the Main Channel) and would likely cause marine mammals to avoid this range during impact pile driving. Sound from driving steel piles, necessary for setting the final depth, would exceed the Level A and Level B thresholds.

Impact driving of concrete piles would create sound of levels up to 188 dB_{PEAK} to a radius of up to 32.8 feet from each pile. Steel piles that are 12 inches in diameter that are impact driven are expected to produce up to 190 dB_{PEAK} and 177 dB_{RMS} at a distance of 32.8 feet (WSDOT 2007). In some locations, steel pilings up to 24 inches in diameter would be used. Although sound volume produced depends on local conditions, monitoring from other projects indicates that sound levels up to 217 dB_{PEAK} and 203 dB_{RMS} may be produced for steel piles up to 24 inches during impact driving (WSDOT 2007) that is required to set the piles to final depth. Vibratory methods would be used to drive the steel piles (proposed for support of the salt marsh promenade and rails for floating docks), with the exception of the last 20 feet, which would need to be hammer driven.

The proposed Project and Alternatives 1 through 4 would initiate steel pile driving via the lower sound-producing vibratory method. Marine mammals near the project area would likely vacate the area prior to receiving a potential injury from impact driving of steel because the vibratory method would act as a “soft start." The soft-start method is commonly employed when only impact pile driving methods will be used for pile driving and is accomplished by operating the hammer at less than full capacity (i.e., approximately 40 to 60 percent

energy levels) with no less than a 1-minute interval between each strike for a 5-minute period. Similar levels of noise reduction (40 to 60 percent) are expected underwater. Because hammering or impact driving of steel piles would be employed only for the last approximately 20 feet of the steel piles, the vibratory method would function as the soft start, and marine mammals are expected to voluntarily move away from the area upon commencement of the vibratory pile driving.

As a precautionary measure, pile-driving activities occurring within the Outer Harbor would include establishment of a safety zone, and the area surrounding the operations would be monitored by a qualified marine biologist for pinnipeds. As the disturbance threshold level sound is expected to extend at least 1,000 feet from the steel pile driving operations, a safety zone would be established around the steel pile driving site and monitored for pinnipeds within a 1,200-foot-radius safety zone around the pile. If marine mammals are found within the safety zone, pile driving of the segment will be delayed until they move out of the area. If a marine mammal is seen above water and then dives below, the contractor will wait at least 15 minutes, and if no marine mammals are seen, it may be assumed that the animal has moved beyond the safety zone.

The proposed Project and Alternative 2 would result in the greatest increase in noise levels over No Federal Action conditions because they include the greatest number of piles for construction of upgrades at both Outer Harbor berths. Alternatives 1 and 3 would have slightly fewer increases in noise within the project area than would the proposed Project and Alternative 2, as approximately 220 less piles would be driven. However, this difference is not substantial and temporary noise impacts to this species would be relatively the same under the proposed Project and Alternatives 1 through 3 when compared to No Federal Action conditions. Alternative 4 would drive only 990 piles, 658 less than the proposed Project and Alternative 2, and 438 less than Alternatives 1 and 3. Alternative 4 provides the smallest increase in noise over No Federal Action conditions. However, with the use of a soft-start approach and the establishment of a safety zone that would be monitored by a qualified marine biologist, adverse noise impacts to marine mammals are not expected.

Submerged rock fill for additional protection/stabilization of the slopes at Berths 49-50 and Berths 45-47 would be transported from a Catalina Island quarry by barge. Bringing in rock necessary for both Berths 45-47 and 49-50 would require 17 barge trips (pulled by two tugboats) over the course of several months. Additionally, dredge material from the Outer Harbor berths would require three additional barge trips for a total of 20. A total of 20 barge trips would not adversely affect marine mammals in the ocean or in the Outer Harbor or Main Channel. Barges move very slowly (5 to 6 knots) and few, if any, individuals

would be present in those vessel traffic routes due to the sparse distribution of marine mammals (whales, porpoises/ dolphins, seals, and sea lions) in this area of the harbor (sea lions and harbor seals only) or the open ocean. No adverse affects are expected to occur to marine mammals due to their relatively sparse populations, their agility, and their ability to avoid damage by vessels during the 2 to 4 months of infrequent and slow-moving barge trips. Alternative 2 would have the same number of barge trip as the proposed Project. Alternatives 1 and 3 would have 14 barge trips, which is fewer than the proposed Project and Alternative 2. Alternative 4 and Alternative 5 (No Federal Action Alternative) would not require any barge trips, as neither includes in-water dredging or rock placement activities for the Outer Harbor berths.

Cruise ships transiting the coastal waters of southern California could potentially cause harm to endangered, threatened, or species of concern such as marine mammals and sea turtles from vessel collisions. Impacts of project-related vessel strikes on marine mammals have a very low probability of occurring. Less than three vessel strikes with whales are reported on average per year for the California coast. Very few ship strikes involving pinnipeds have been reported over the past 28 years by the Santa Barbara Marine Mammal Center (1976–2004). No sea turtle ship strikes have been reported in the area, although an Olive Ridley sea turtle stranded in the Santa Barbara Channel in 2003 showed signs of blunt force trauma consistent with a vessel strike (Santa Barbara Marine Mammal Center 1976–2004).

Given the small increase in number of vessels (24 annually) compared to the small number of reported strikes per year (less than three), the likelihood of such a collision from the proposed Project or any of the alternatives is very low and only a small incremental increase in the likelihood of a vessel strike would occur as a result of the proposed Project or alternatives.

The complete analysis of the potential for direct, indirect, and cumulative impacts to threatened and endangered species by the proposed Project and alternatives is provided in Section 3.3, “Biological Resources,” and Section 4.2.3, “Cumulative Analysis, Biological Resources” of the *EIS/EIR for the San Pedro Waterfront Project* (ICF Jones & Stokes, September 2008 [Draft] and September 2009 [Final]).

Fish, Crustaceans, Mollusks, and Other Aquatic Organisms in the Food Web

The baseline biological survey of the harbor (MEC 2002) indicates only four species in the Coastal Pelagics Fisheries Management Plan (FMP) (northern anchovy, Pacific sardine, Pacific mackerel, and jack mackerel) are common

water-column species in the harbor, and that only one Pacific Coast groundfish species (Pacific sanddab) is common in the harbor. Neither the proposed Project nor any of its alternatives would have a significant impact on Essential Fish Habitat (EFH). The proposed berth upgrades in the Outer Harbor would result in conversion of 2.43 acres of soft-bottom habitat to hard substrate, at a depth of approximately -10 MLLW and deeper and placement of rock over 0.57 acre of existing rock would result in a temporal loss of organisms using that habitat, which would recolonize within 1 to 3 years. This would also result in a temporary loss of habitat and food sources for the FMP species that use the Outer Harbor. However, this temporary loss of habitat would not likely have a measurable effect on sustainable fisheries because it would not measurably reduce the stocks of these species in the areas where they are harvested (primarily offshore in the open ocean). Loss of habitat for pelagic fish species that might use the Outer Harbor, particularly northern anchovy, would be considered a substantial effect that would be replaced in accordance with established inter-agency mitigation agreements. However, because the proposed Project includes new harbor cuts (6.8 acres) that would result in an increase in open water marine habitat available to FMP species, this relatively minor loss would be more than compensated for once the new harbor cuts are created. Additionally, operation of the new harbor cuts would not fundamentally change vessel activities, and it is expected that these species would use the new open-water area created by the harbor cuts as they use other Inner Harbor areas. The proposed expansion and enhancement of the salt marsh and mudflat in the Salinas de San Pedro Salt Marsh would also benefit these fish species.

Pilings and floating docks provide a shaded vertical attachment surface that supports a different community of invertebrates compared to rock (Glasby 1999a, 1999b) or soft bottom. Piling communities of barnacles, mussels, anemones, sea stars, and sessile marine worms would colonize concrete and steel pilings, and some fish species (especially rockfish and perch) would likely be attracted to the new over-water structures. The proposed Project would increase the number of pilings in the harbor by 990 (new piles minus existing piles to be removed).

Dredging can affect aquatic organisms in many ways, and organisms living within the sediments removed as part of the dredging activity (approximately 2,100 cubic yards at Berths 49-50 and 1,230 cubic yards at Berths 45-47) would be lost. Dredging can adversely affect aquatic organisms if toxic substances are present in sediments and if those sediments are suspended in the water column during dredge activities or when disposed of at a marine disposal site. Dredging can affect fish by temporarily increasing turbidity in the dredge vicinity. Turbidity can adversely affect fish and other aquatic life by impairing vision and sense of smell, injuring gills, reducing water transparency, and covering sessile organisms. If anoxic sediments are disturbed, dissolved oxygen may also be

reduced in the water column during dredging in the vicinity of the dredge operation.

Installation of rock for bank/slope protection affects the composition of the intertidal invertebrate community of the affected intertidal areas. Benthic invertebrate communities of soft-bottomed intertidal habitat areas in the harbor are dominated by worms and mollusks, while rock provides attachment for sessile invertebrates, macro-algae, and cover for motile organisms (MEC 2002).

Placement of fill/rock to upgrade the Outer Harbor berths would kill or displace benthic invertebrates. At a biomass of 21 grams per square meter (g/m^2) in soft bottom, an infaunal loss of about 0.20 metric tons would result under the proposed Project and Alternative 2. For Alternatives 1 and 2, this loss would be about half or 0.1 metric tons. No loss of biomass would occur under the other alternatives. For the proposed Project and Alternative 2, the extension of rocky dike for construction upgrades along Berths 45-47 and 49-50 would provide 2.43 acres of new hard substrate that would replace the existing soft-bottom substrate and 0.57 acre of new rock placed over existing rock. Alternatives 1 and 3, which would only upgrade Berths 45-47 in the Outer Harbor, would convert only 0.85 acre soft-bottom habitat to new rocky substrate. There would be no submerged rock fill in the Outer Harbor and conversion of soft bottom to hard substrate under the other alternatives, although piles would still be driven along the Main Channel under Alternative 4.

Soft-bottom habitat in this industrialized area of deep outer harbor habitat of the Port would be converted to hard substrates (rocks and piles), which studies have shown are as biologically productive as soft-bottom habitat in a port setting. While Berths 45-45 and 49-50 are classified as Outer Harbor, this particular area is not as high in value as areas that are not covered by over-water structures and that have stabilized slopes; the biological value of the Outer Harbor berth areas is probably closer to those occurring in the Inner Harbor.

Where rock replaces vertical bulkheads, there would also be an increase in physical habitat complexity and cover. Conventional vertical bulkheads, on the other hand, lack complexity and are thought to provide relatively poor habitat. Bulkhead replacement would be accomplished in-line, behind the existing bulkheads, thereby minimizing turbidity and other adverse effects to biological communities. Any small adverse effects from this type of bulkhead placement would be short-term, localized, and minor.

The proposed Project would remove 760 old pilings, most of which are creosote-treated timber piles that tend to have toxic compounds that inhibit colonization by invertebrates to some degree. The proposed Project would install 1,750 new concrete or steel piles. The concrete piles would offer a point of attachment for a

number of colonizing invertebrate species, such as barnacles, mussels, sponges, and anemones. Steel piles would not provide additional habitat for colonization by invertebrate species. Overall, there would be a net increase of 990 piles in the study area, many of which would provide substrate for a more diverse and productive invertebrate community. Floating docks also would provide hard horizontal and, to a minor extent, vertical substrate suitable for colonization by algae and sessile invertebrates, and would shade underlying areas. The proposed Project would remove 0.58 acre of floating dock area and would create 1.39 acres of floating dock area, creating a net increase of 0.81 acre of floating docks. The proposed Project would also remove 1.0 acre of riprap from the North, Downtown, and 7th Street Harbor areas, which is offsetting any additional bulkhead or rock slope protection needs at the corners of the new harbor cuts, with the exception of 30 square feet that are not offset.

Studies of oil platforms in southern California have shown that rockfish are found in significantly greater numbers around vertical structures, such as pier pilings, where both shelter and forage sources are available (Love et al. 2006). The net result of the potential loss of water column habitat due to rock placement around new piles would be offset, to some degree, by the benefits from increased cover and forage opportunities. Changes in biological communities as a result of over-water structures would not necessarily be detrimental, but would occur on a relatively large scale. However, the over-water structures created as a result of the proposed Project or an alternative would be located mainly in open-water habitat that is not dissimilar to what exists currently in the harbor; so disruption to biological communities under the proposed Project or an alternative would be expected to be short-term and localized primarily to the west side of the Main Channel.

The analysis of the potential for direct, indirect, and cumulative impacts to aquatic organisms by the proposed Project and alternatives is provided in Section 3.3, “Biological Resources,” and Section 4.2.3, “Cumulative Analysis, Biological Resources” of the *EIS/EIR for the San Pedro Waterfront Project* (ICF Jones & Stokes, September 2008 [Draft] and September 2009 [Final]).

Other Wildlife

Although double-crested cormorant, black skimmer, elegant tern, California gull, burrowing owl, and common loon have been observed in the vicinity of the project area, no nesting habitat for these species exists within the study area, so their presence at or near the project area would be for feeding in the harbor waters, resting on the water surface, and/or roosting on structures.

Black skimmers have been observed nesting on the central portion of Pier 400 (1998–2000 and in 2004 with poor success). No black skimmer nesting has occurred on Pier 400 since 2004 because this portion of Pier 400 is now a container terminal that has been approved by the Harbor Commission for construction of a crude oil terminal. The proposed Project or alternatives do not include improvements for Pier 400 in the area where black skimmers used to nest. Non-nesting black skimmers have been observed during California least tern monitoring at their 15-acre nesting site in 2006 and 2007. Black skimmers are not expected to nest within the study area due to lack of nesting habitat; therefore, black skimmer would not be affected by the proposed Project.

Proposed Project or alternative-construction activities could result in short- or long-term effects on the black-crowned night heron, which have nested in trees near the Berth 78–Ports O'Call area during past years, but were not observed in nesting surveys conducted in May 2008. Great blue heron, which have nested in light stands at Berths 49–51 and have nested at Reservation Point approximately 0.50 mile from the project area, could also be affected by proposed Project/alternative-construction activities. Prior to any ground-disturbing activities that would commence between February 15 and September 1, a qualified biologist would conduct surveys for the presence of black-crowned night herons, blue herons, and other nesting birds within Berth 78–Ports O'Call or other appropriate and known locations within the study area that contain potential nesting bird habitat. Surveys would be conducted 24 hours prior to the clearing, removal, or grubbing of any vegetation or ground disturbance and, if nesting birds are present, appropriate buffers would be established in coordination with the USFWS and CDFG. These buffers would be maintained until the young have fledged.

The analysis of the potential for direct, indirect, and cumulative impacts to wildlife by the proposed Project and alternatives is provided in Section 3.3, "Biological Resources" and Section 4.2.3, "Cumulative Analysis, Biological Resources" of the *EIS/EIR for the San Pedro Waterfront Project* (ICF Jones & Stokes, September 2008 [Draft] and September 2009 [Final]).

Subpart E: Potential Impacts on Special Aquatic Sites

Sanctuaries and Refuges

The California least tern is a migratory species that is present and breeds in California from April through August. This species has been nesting during the summer on Terminal Island (including Pier 300) since at least 1973 (Keane Biological Consulting, 1999). In 1979, LAHD began providing nesting habitat for

the species and entered into a Memorandum of Agreement (MOA) with the USACE, USFWS, and CDFG in 1984 for management of a 15-acre California least tern nesting site. The MOA sets forth the responsibilities of the signing parties for management of the designated California least tern nesting site within the harbor, and it is renewed every 3 to 5 years. A new MOA was approved by the Board of Harbor Commissioners in June 2006 (City of Los Angeles 2006). The MOA also allows the designated nesting site to be relocated under specific conditions.

The location of this nesting site has changed over time due to Port development activities, and it is now on the southeastern tip of Pier 400 (Keane Biological Consulting, 2003), which is approximately 1.5 miles away from the project area. California least terns nesting on Pier 400 may utilize the shallow water habitat in the Salinas de San Pedro salt marsh area adjacent to Inner Cabrillo Beach. As discussed previously, no expansion or enhancement activities in the salt marsh area or promenade construction in the vicinity of Cabrillo Beach would occur during the California least tern nesting season (April through August). Therefore, neither the proposed Project nor Alternatives 1-4 would be expected to adversely affect nesting California least tern or their foraging habitat.

The analysis of the potential for impacts to the California least tern nesting site associated with construction activities for the proposed Project and alternatives is located in Section 3.3, “Biological Resources” and Section 4.2.3, “Cumulative Analysis, Biological Resources” of the *EIS/EIR for the San Pedro Waterfront Project* (ICF Jones & Stokes, September 2008 [Draft] and September 2009 [Final]).

Wetlands

A single remnant coastal freshwater marsh that was identified within the study area comprises approximately 0.30 acre and is located within the 22nd Street/Old Tank Farm Land open space. This area is highly disturbed vacant land at the base of a bluff. The USACE Regulatory Division staff preliminarily determined that this coastal freshwater marsh area would be considered an isolated wetland and, therefore, would not be regulated pursuant to CWA Section 404. Furthermore, this area would be avoided by the proposed Project and thus, would not be included in the CWA Section 404 permit for fill issued for the proposed Project even if it were included in the USACE’s geographic jurisdiction.

The analysis of the potential for direct, indirect, and cumulative impacts to wetlands and other waters of the U.S. by the proposed Project and alternatives is provided in Section 3.3, “Biological Resources” and Section 4.2.3, “Cumulative Analysis, Biological Resources” of the *EIS/EIR for the San Pedro Waterfront*

Project (ICF Jones & Stokes, September 2008 [Draft] and September 2009 [Final]).

Mudflats

Mudflat is considered a special aquatic site pursuant to the CWA Section 404(b)(1) Guidelines (40 C.F.R. Part 230). Within the study area, mudflat habitat is limited to two locations: Berth 78–Ports O'Call adjacent to the fish market (0.175 acre) and within the Salinas de San Pedro Salt Marsh (0.87 acre). No discharge of dredged or fill material (i.e., no section 404 discharge) in mudflat would occur as a result of the proposed Project or any of its alternatives. However, a minor amount of mudflat habitat would be covered (0.04 acre) as a result of placement of the rock groin (proposed as part of the enhancement and expansion of this area, which would, among other benefits, mitigate the Berth 78 impacts) at the inlet to the salt marsh. Minor shading in this area would also occur as a result of promenade construction (for the proposed Project and Alternatives 1, 3, and 4); and shading and pile placement would affect the mudflat at Berth 78-Ports O'Call (the proposed Project and Alternatives 1 through 4). Although no fill of the 0.175-acre mudflat habitat at Berth 78–Ports O'Call would occur, minor shading and pile placement impacts to this feature, and rock groin placement and the minor shading at the Salinas de San Pedro Salt Marsh inlet, would be offset by planned expansion and enhancement of the Salinas de San Pedro Salt Marsh area.

Please see the analysis of the potential for direct, indirect, and cumulative impacts to wetlands and other waters of the U.S. by the proposed Project and alternatives provided in Section 3.3, "Biological Resources," and Section 4.2.3, "Cumulative Analysis, Biological Resources" of the *EIS/EIR for the San Pedro Waterfront Project* (ICF Jones & Stokes, September 2008 [Draft] and September 2009 [Final]).

Vegetated Shallows

The Salinas de San Pedro Salt Marsh comprises approximately 3.25 acres of southern coastal salt marsh community, and was created as mitigation in 1982 for impacts associated with construction of Berth 232. No discharge of dredged or fill material (i.e., no section 404 discharge) would occur at this location as part of the proposed Project; rather, any discharges would be associated with implementing mitigation to compensate for project impacts. Currently, the salt marsh is not functioning optimally because of its muted tidal exchange. As part of the mitigation for the proposed Project and Alternatives 1 through 4, LAHD is proposing to expand and enhance the salt marsh by excavating, recontouring,

revegetating, and monitoring this area. This expansion and enhancement would result in short-term impacts to the salt marsh and eelgrass habitat within it, but higher-functioning salt marsh and eelgrass are expected in the long term.

The analysis of the potential for direct, indirect, and cumulative impacts to wetlands and other waters of the U.S. by the proposed Project and alternatives is provided in Section 3.3, "Biological Resources" and Section 4.2.3, "Cumulative Analysis, Biological Resources" of the *EIS/EIR for the San Pedro Waterfront Project* (ICF Jones & Stokes, September 2008 [Draft] and September 2009 [Final]).

Coral Reefs

The proposed Project would consist of activities within the San Pedro Harbor complex and no coral reefs are present in this area. Neither the proposed Project nor any of the alternatives would result in a discharge of dredged or fill material into the ocean where coral reefs are located.

Riffle and Pool Complexes

The proposed Project would consist of activities within the San Pedro Harbor complex and no pool and riffle complexes are present in this area. Neither the proposed Project nor any of the alternatives would result in a discharge of dredge or fill material into streams supporting riffle and pool complexes.

Subpart F: Potential Effects on Human Use Characteristics

Municipal and Private Water Supplies

The proposed Project and all of the alternatives (including Alternative 5 *No Federal Action)* would utilize existing municipal water supplies, so very little difference is expected among the alternatives. The project area is not located within or near an intake for a water supply, and neither the proposed Project nor any of the alternatives would be expected to have an effect on this supply. Implementation of the proposed Project or any of the alternatives would not affect private water supplies or wells.

Recreational and Commercial Fisheries

Recreational fishing is an important activity within the Los Angeles Outer Harbor area and in San Pedro Bay in general. Fishing occurs most frequently on the fishing pier in Point Fermin Park, along the San Pedro breakwater near the Los Angeles side of the Middle Breakwater, and offshore. Offshore sport fishing and charter opportunities are available through Los Angeles Harbor Sport Fishing, located at Berth 79, and the 22nd Street Landing. The 22nd Street Landing is the major commercial sport fishing facility, offering year-round services and operating with a fleet of eight vessels (22nd Street Landing Home Page 2007).

Today, although smaller than it once was, the commercial fishing fleet at the Port is intact, providing fresh fish to both U.S. and Asian markets. The Municipal Fish Market at Berth 72, and adjacent to the S.P. Slip, is associated with these fishing operations. The Port also accommodates boat repair yards and provides slips for approximately 3,950 recreational vessels, 150 commercial fishing boats, 35 miscellaneous small service crafts, and 15 charter vessels that handle sport fishing and harbor cruises.

Construction of the proposed Project would significantly impact the recreational opportunities for fishing provided by the open waters of the harbor, at least temporarily. Impacts would include decreased boat ramp access, temporary removal and relocation of docking space and slips to Cabrillo Way Marina, and the movement of construction vessels and construction equipment in the harbor, thus increasing the chance for collisions with recreational craft.

Although recreational and commercial fishing users would continue to be able to access the open waters of the harbor, construction is expected to impede parking for recreational/commercial fishing users and patrons of sport fishing operations, vessel access to launch ramps, and access to dock space and slips as a result of the placement of construction staging areas and the movement of construction equipment around and within harbor waters. Additionally, docking space for recreational fishing boaters would also be temporarily reduced during construction activities, although transient slips would be provided during construction as part of a separate project, the Cabrillo Way Marina Project.

Cabrillo Beach and West Channel areas of the Port are devoted to public recreation, commercial sport fishing, and recreational boating facilities. The proposed Project would maintain these locations for recreation uses, including sport fishing and recreational boating. Over the long term, access to the Los Angeles Harbor for recreational fishing would increase as a result of the North Harbor, Downtown Harbor, and 7th Street Harbor water cuts. Under the proposed Project or Alternatives 1 through 3, the total open water in the harbor would

increase by approximately 6.8 acres; Alternative 4 would increase the open water by approximately 1.8 acres. The marina slips removed as part of the proposed Project would be replaced in full by the separate Cabrillo Way Marina Project.

The existing commercial fishing fleet would be maintained within the Southern Pacific Slip, with a proposed "working promenade" to be developed around the perimeter of the slip. Redevelopment and expansion of Fish Harbor, Southern Pacific Slip, and the Municipal Fish Market for the commercial fishing industry is also proposed as part of the proposed Project. Proposed new/upgraded berths for cruise ship activity are being designed to ensure they would not interfere with other commercial watercraft in the Port and the accompanying uses/commerce. Marina slips in the Ports O'Call area would be relocated to Cabrillo Way Marina, which is under construction.

Therefore, although construction of the new harbor cuts and other project features would temporarily disrupt commercial and recreational fishing opportunities, the operation of the proposed Project or Alternatives 1 through 3 would result in a beneficial impact to recreational fishing within the harbor over the long term. Because Alternative 4 does not include construction of the North Harbor, recreational and commercial fishing opportunities would not be significantly different or improve over current or No Federal Action conditions.

The analysis of the potential for direct, indirect, and cumulative impacts to recreation (including recreational and commercial fishing) by the proposed Project and alternatives is provided in Section 3.10, "Recreation" and Section 3.8 "Land Use and Planning" and Section 4.2.8, "Cumulative Analysis, Land Use" of the *EIS/EIR for the San Pedro Waterfront Project* (ICF Jones & Stokes, September 2008 [Draft] and September 2009 [Final]).

Water-Related Recreation

Cabrillo Beach and West Channel areas of the Port are devoted to public recreation, commercial sport fishing, and recreational boating facilities. The LAHD and construction contractors would minimize obstructions to the boat ramp during construction periods by placing construction areas outside of roadways and parking lots leading to boat ramps, where possible. In cases where the boat ramp must be closed, or access would be severely impeded due to construction activities, LAHD would inform the public prior to commencement of construction that would result in closures or possible disruptions to boat ramp access.

The Port has community facilities that include the Cabrillo Beach Youth Camp, Banning's Landing, Cabrillo Aquarium, and the Maritime Museum. Overall, the proposed Project would enhance recreational opportunities of the open waters of

the harbor by providing increased total open water space as a result of the North Harbor, Downtown Harbor, and 7th Street Harbor water cuts. The total open waters of the harbor would increase by approximately 6.8 acres. The marina slips removed as part of the proposed Project would be replaced in full by the separately approved Cabrillo Way Marina Project, which is under construction. Furthermore, transient slips would be provided in Ports O'Call for personal watercraft, and the new harbor space created would add space for visiting vessels and personal watercraft to visit and dock.

However, operation of the proposed Project and the alternatives would require a 100-yard (300-foot) security zone around cruise ships while in transit or while a cruise ship is docking or departing. This 100-yard (300-foot) security zone could cause delays and increase the frequency of delays to recreational vessels also in transit. Additionally, the operation of the proposed Project would reduce the width of the access point to the existing recreational marinas during specific times of the day, month, and year and would be especially evident with Alternatives 1, 3, and 4, which increase Inner Harbor cruise ship activity and would result in more frequent and potentially longer waits when cruise ships are entering and existing the Main Channel. Additionally, Alternative 4 does not include the North Harbor (5.0 acres), which is intended to provide recreational boating opportunities.

The analysis of the potential for direct, indirect, and cumulative impacts to recreation (including water-related recreation) by the proposed Project and alternatives is provided in Section 3.10, "Recreation" and Section 4.2.10, "Cumulative Analysis, Recreation" of the *EIS/EIR for the San Pedro Waterfront Project* (ICF Jones & Stokes, September 2008 [Draft] and September 2009 [Final]).

Aesthetics

Under existing conditions, visual resources are mainly of a working port and viewsheds are highly industrial. The proposed Project and all alternatives would include project features that could obstruct a segment of Harbor Boulevard, which has been locally designated a scenic highway by the City of Los Angeles. The segment of Harbor Boulevard that runs along the proposed Project provides motorists and adjacent residents with views of the historic Vincent Thomas Bridge, which has been named by the City of Los Angeles as its official welcoming monument and as the gateway to the Port. The proposed parking structures at the existing Inner Harbor cruise ship terminal would block views to the Vincent Thomas Bridge for all alternatives from a locally designated scenic highway. Although the parking structure view obstruction would be reduced

under Alternative 3, all alternatives include parking structures that could obstruct views of Vincent Thomas Bridge. However, the parking structure constructed under Alternative 5 would represent the No Federal Action condition, and therefore, there would be no aesthetic impact under NEPA for this alternative. Additionally, for the proposed Project and Alternatives 1 through 3, cruise ships berthing in the Outer Harbor would be within the view of Lookout Point Park. Alternative 4 would not include Outer Harbor berth upgrades and would, therefore, not affect this view. Because the project area is a working port and an industrialized area, most of the visual effects from the proposed Project and all of the alternatives are not significant; however, the adverse effect on the views of Vincent Thomas Bridge from a segment of Harbor Boulevard (obstructed by parking structure) would be significant and unavoidable.

During construction activities there would be temporary aesthetic impacts including presence of construction equipment both on uplands (for the proposed Project and all alternatives) and in-water (for the proposed Project and Alternatives 1 through 3). Additionally, in-water activities such as dredging, pile driving, rock and bulkhead placement that would occur under the proposed Project and alternatives 1 through 4 (although under Alternative 4, no dredging or rock placement in the Outer Harbor is proposed), would all disturb bottom sediments and cause turbidity, which would be visible on the water surface. These effects would be short-term and limited to areas in the immediate vicinity of the in-water activities and, therefore, are not significant.

The analysis of the potential for direct, indirect, and cumulative impacts to aesthetics by the proposed Project and alternatives is provided in Section 3.1, “Aesthetics” and Section 4.2.1, “Cumulative Analysis, Aesthetics and Visual Resources” of the *EIS/EIR for the San Pedro Waterfront Project* (ICF Jones & Stokes, September 2008 [Draft] and September 2009 [Final]).

Parks, National and Historical Monuments, National Seashores, Wilderness Areas, Research Sites, and Similar Preserves

Not applicable. The project area is within an industrialized port.

Subpart G: Evaluation and Testing

Chemical, Biological, and Physical Evaluation and Testing

In all, the proposed Project and Alternatives 1 through 3 would generate approximately 566,400 cubic yards of material excavated and dredged in uplands to create the harbor cuts. Alternative 4 would generate approximately 124,400 cubic yards of material excavated in uplands because there would be no North Harbor cut. The proposed Project and Alternative 2 include dredging at both Outer Berths (49-50 and 45-47) totaling approximately 3,330 cubic yards; and Alternatives 1 and 3 would dredge approximately 1,230 cubic yards of sediment for the berth upgrades at Berths 45-47 only. Alternative 4 would not involve dredging, as there are no Outer Harbor Berths. Alternative 5 would not result in any dredging because it is the No Federal Action Alternative.

Testing of sediment at the Downtown and 7th Street Harbor cuts has determined that all of the 124,400 cubic yards of material generated is suitable for beneficial reuse, assuming there is a feasible location at the time of project construction (Weston 2009). All material occurring above +5.43 MLLW (27,100 cubic yards) was found to be suitable for beneficial reuse, but not suitable for ocean disposal. All material occurring below +5.43 MLLW, which is tidally wetted sediment, would be dredged to -27 MLLW or -23 MLLW (includes 2 feet of overdredge), respectively, as part of creating these harbor cuts. Including 2 feet of overdredge, approximately 68,200 cubic yards of sediment will be dredged from the Downtown Harbor cut and approximately 29,100 cubic yards of sediment will be dredged from the 7th Street Harbor cut. Based on an initial set of chemistry, the Downtown Harbor and 7th Street Harbor cut areas were divided into two separate areas for analysis. Two areas (one from Downtown Harbor cut [DT D-H] and one from 7th Street Harbor cut [SS C-E]) were evaluated for ocean disposal and beneficial uses.

- Area DT D-H demonstrated significant toxicity to the amphipod *Eohaustorius estuaries* and, therefore, did not meet the LPC for ocean disposal. TCLP analysis indicated material at Area DT D-H was suitable for upland placement, thus making it potentially suitable for reuse at an approved Port construction site.

- Area SS C-E did not demonstrate toxicity during SPP or SP toxicity testing. BP testing at Area SS C-E indicated that all contaminant concentrations in tissues were below published relevant effect levels. Sediment from SS C-E was determined to be suitable for ocean disposal

and, therefore, suitable for other beneficial reuse alternatives. In addition, this sediment was predominantly coarse-grained (90 to 94 percent), indicating the material may be suitable for beach replenishment.

- Based on elevated chemistry (concentrations of mercury and PAHs above the ER-M), two areas (one from Downtown Harbor cut [DT A-C] and one from 7th Street Harbor cut [SS A-B]) were evaluated for upland placement and beneficial uses. TCLP analysis indicated material was suitable for upland placement, thus making it potentially suitable for reuse at an approved Port construction site.

For the proposed Project and Alternative 2, there could be an addition of up to 442,000 cubic yards of excavated upland material (from the North Harbor cut) and 3,330 cubic yards of dredged material (from Outer Harbor Berths 45-47 and 49-50) that would require reuse or disposal. Under Alternatives 1 and 3 there would be less dredged material requiring reuse or disposal (1,230 cubic yards), but the North Harbor cut would occur; therefore, Alternatives 1 and 3 would also add 442,000 cubic yards of material for which reuse or disposal would be necessary pending sediment testing results. Although it is likely that all material above and below the +5.43 MLLW from the North Harbor cut would be suitable for beneficial reuse as is the case with the Downtown and 7th Street Harbor cuts, under the proposed Project and Alternatives 1 through 3 there would be a larger quantity for which a section 103 permit would potentially be necessary (for whatever material qualifies for ocean disposal and cannot be beneficially reused) when compared to Alternative 4. Under all alternatives, excavated or dredged material would be tested and material unsuitable for ocean disposal would be disposed of at an approved upland site or, if available, placed in a CDF. Material determined suitable for unconfined ocean disposal would occur at LA-2 or LA-3. The effects of material disposal at the LA-2 and LA-3 sites on oceanography and water quality have previously been assessed in environmental documents approving the use of those sites (USEPA and USACE, 2005. For both sites, effects on oceanography and water quality were determined to be less than significant. Water currents would disperse the sediments, avoiding permanent impacts on oceanography, and waterquality impacts would predominantly consist of turbidity effects lasting a few hours.

Subpart H: Actions Taken to Minimize Adverse Effects

Actions taken to minimize adverse effects to the aquatic ecosystem are discussed throughout the above analysis. However, a summary of all actions that the LAHD intends to take to minimize adverse effects to the aquatic environment are provided below.

- LAHD will secure an individual NPDES permit for construction storm water discharges or will be covered under the General Construction Activity Storm Water Permit for the onshore portions of the proposed Project. In either case, a stormwater pollution prevention plan (SWPPP) must be prepared. The associated SWPPP will contain the following measures:
    - Equipment will be inspected regularly (daily) during construction, and any leaks found would be repaired immediately.
    - Refueling of vehicles and equipment will be in a designated, contained area.
    - Drip pans will be used under stationary equipment (e.g., diesel fuel generators), during refueling, and when equipment is maintained.
    - Drip pans that are in use will be covered during rainfall to prevent washout of pollutants.
    - Appropriate containment structures will be built and maintained to prevent offsite transport of pollutants from spills and construction debris.
- Monitoring will verify that the stormwater BMPs are implemented and kept in good working order.
- Other standard operating procedures and BMPs for Port construction projects will be followed, such as: basic site materials and methods (02050); earthworks (02300); excavating, stockpiling, and disposing of chemically impacted soils (02111); temporary sediment basin (ESC 56); material delivery and storage (CA010); material use (CA011); spill prevention and control (CA012); solid waste management (CA020); contaminated soil management (CA022); concrete waste management (CA023); sanitary-septic waste management (CA024); and employee-subcontractor training (CA040).
- Any onshore contaminated upland soils will be characterized and remediated in accordance with LAHD, LARWQCB, Department of Toxic Substances Control (DTSC), and Los Angeles County Fire Department protocol and cleanup standards.
- LAHD will obtain and implement the appropriate stormwater discharge permits for operations.
- LAHD will perform dredging and any associated ocean disposal, filling, and wharf construction activities in waters of Los Angeles Harbor in accordance

with provisions of a CWA section 404, RHA section 10, and MPRSA section 103 permit from the USACE.

- LAHD will secure a section 401 Water Quality Certification or Waste Discharge Requirements (WDRs) from the LARWQCB for construction, dredging, and filling activities, and will comply with conditions of that certification or WDRs.

- As appropriate (Downtown Harbor and 7th Street Harbor soils and sediments have already been tested), sediments from the proposed dredging units will be tested using standard USEPA/USACE protocols prior to dredging to determine the suitability of the material for beneficial reuse and disposal as proposed.

- LAHD will secure approvals in accordance with section 103 of the MPRSA, for ocean disposal of suitable (non toxic) dredge material at a USEPA-approved disposal site (LA-2 or LA-3).

- A Debris Management Plan and Spill Prevention, Control, and Countermeasure (SPCC) Plan will be prepared and implemented prior to the start of demolition, dredging, and construction activities associated with the proposed Project.

- The Water Quality Certification will define a "mixing zone" around the dredging and construction operations. The mixing zone will be equivalent to a zone of dilution and, per the Basin Plan (LARWQCB 1994) "allowable zones of dilution within which high concentrations may be tolerated may be defined for each discharge in specific Waste Discharge Requirements."

- During dredge and fill operations, an integrated multi-parameter monitoring program will be implemented by LAHD's Environmental Management Division in conjunction with both USACE and LARWQCB permit requirements, wherein dredging performance is measured in situ. The objective of the monitoring program will be adaptive management of the dredging operation, whereby potential exceedances of water quality objectives can be measured or predicted, and dredging operations subsequently modified. If exceedances are observed, LAHD's Environmental Management Division will immediately meet with the construction manager to discuss modifications of dredging operations to reduce turbidity to acceptable levels. This would include alteration of dredging methods, and/or implementation of additional BMPs such as a silt curtain. The USACE has the authority to require that dredging be halted pending development of an appropriate response to minimize water quality impacts.

- Each tenant operating cruise ships in the proposed Project area will conform to applicable requirements of the Non-Point Source (NPS) Pollution Control Program. The tenant will design all terminal facilities whose operations could result in the accidental release of toxic or hazardous substances (including sewage and liquid waste facilities, and solid and hazardous waste disposal facilities) in accordance with the state NPS Pollution Control Program administered by the SWRCB. As a performance standard, the measures will be selected and implemented using the best available technology (BAT) that is economically achievable such that, at a minimum, relevant water quality criteria as outlined by the California Toxics Rule and Basin Plan are maintained, or in cases where ambient water quality exceeds these criteria, maintained at or below ambient levels. The applicable measures include the following:

    - **Solid Waste Control.** Properly dispose of solid wastes to limit entry of these wastes to surface waters.

    - **Liquid Material Control.** Provide and maintain the appropriate storage, transfer, containment, and disposal facilities for liquid materials.

    - **Petroleum Control.** Reduce the amount of fuel and oil that leaks from container and support vessels.

- Each tenant that engages in fueling of vessels will develop an approved source control program (SCP) with the intent of preventing and remediating accidental fuel releases. Prior to construction, the tenant will develop an approved SCP in accordance with LAHD guidelines established in the General Marine Oil Terminal Lease Renewal Program. The SCP will address immediate leak detection, tank inspection, and tank repair.

- As a condition of the lease, each tenant that engages in fueling of vessels will be required to submit to LAHD an annual compliance/performance audit in conformance with LAHD's standard compliance plan audit procedures. This audit will identify compliance with regulations and BMPs recommended and implemented to ensure minimizing spills that might affect water quality, or soil and groundwater.

The following mitigation measures are to be implemented as part of the proposed Project and can also be found in Section 3.3 Biological Resources Section of the *San Pedro Waterfront EIS/EIR* (September 2008 [Draft]; September 2009 [Final]). It should be noted that MM BIO-4 and MM BIO-5 are related to the expansion and enhancement of the Salinas de San Pedro salt marsh area and are intended to minimize impacts associated with that mitigation rather than proposed Project impacts.

MM BIO-1. Monitor and manage turbidity.

Although in-water activities and Promenade construction adjacent to and along Cabrillo Beach will not occur during the California least tern nesting season (April through August), construction activities in this vicinity will be monitored for visible turbidity in shallow water adjacent to the San Pedro de Salinas Salt Marsh to prevent adverse impacts to eelgrass growth and survival and California least tern foraging habitat. This requirement will be monitored by a qualified biologist and will be based on visually observed differences between ambient surface water conditions and any dredging turbidity plume. The biologist will report to the LAHD construction manager and environmental manager, the USACE Regulatory Division, and CDFG/USFWS any turbidity from project construction activities that enters the shallow-water area outside of the salt marsh. Dredging activities will be modified in consultation with CDFG/USFWS. Corrective measures could include using a different dredge bucket to reduce water entrainment, installation of a floating silt curtain to contain turbid water, or other measures.

MM BIO-2. Conduct nesting bird surveys.

This measure applies if construction is to occur between February 15 and September 1. Prior to ground-disturbing activities, a qualified biologist will conduct surveys for the presence of black-crowned night herons, blue herons, and other nesting birds within Berth 78–Ports O'Call or other appropriate and known locations within the study area that contain potential nesting bird habitat. Surveys will be conducted 24 hours prior to the clearing, removal, or grubbing of any vegetation or ground disturbance. If active nests of species protected under the Migratory Bird Treaty Act (MBTA) and/or similar provisions of the CDFG Code (i.e., native birds including but not limited to the black-crowned night heron) are located, then a barrier installed at a 50- to 100-foot radius from the nest(s) will be established and the tree/location containing the nest will be marked and will remain in place and undisturbed until a qualified biologist performs a survey to determine that the young have fledged or the nest is no longer active.

MM BIO-3. Avoid marine mammals.

Although it is expected that marine mammals will voluntarily move away from the area at the commencement of the vibratory or "soft start" of pile driving activities, as a precautionary measure, pile driving activities occurring within the Outer Harbor will include establishment of a safety zone, and the area surrounding the operations will be monitored by a qualified marine biologist for pinnipeds. As the disturbance threshold level sound is expected to extend at least 1,000 feet from the steel pile driving operations, a safety zone will be established around the steel pile driving site and monitored for pinnipeds within a 1,200-foot-radius

safety zone around the pile. As the steel pile driving site will move with each new pile, the 1,200-foot safety zone will move accordingly. Observers on shore or by boat will survey the safety zone to ensure that no marine mammals are seen within the zone before pile driving of a steel pile segment begins. If marine mammals are found within the safety zone, pile driving of the segment will be delayed until they move out of the area. If a marine mammal is seen above water and then dives below, the contractor will wait at least 15 minutes and, if no marine mammals are seen, it may be assumed that the animal has moved beyond the safety zone. This 15-minute criterion is based on a study indicating that pinnipeds dive for a mean time of 0.50 minutes to 3.33 minutes; the 15-minute delay will allow a more than sufficient period of observation to be reasonably sure the animal has left the project vicinity.

If pinnipeds enter the safety zone after pile driving of a segment has begun, pile driving will continue. The biologist will monitor and record the species and number of individuals observed, and make note of their behavior patterns. If the animal appears distressed, and if it is operationally safe to do so, pile driving will cease until the animal leaves the area. Pile driving cannot be terminated safely and without severe operational difficulties until reaching a designated depth. Therefore, if it is deemed operationally unsafe by the project engineer to discontinue pile driving activities, and a pinniped is observed in the safety zone, pile driving activities will continue until the critical depth is reached (at which time pile driving will cease) or until the pinniped leaves the safety zone. Prior to the initiation of each new pile driving episode, the area will again be thoroughly surveyed by the biologist.

MM BIO-4. Enhance and expand Salinas de San Pedro Salt Marsh.

Enhance and expand Salinas de San Pedro Salt Marsh. To mitigate impacts associated with shading of the 0.175-acre mudflat habitat at Berth 78–Ports O' Call, shading created by the installation of the promenade at the inlet to the Salinas de San Pedro Salt Marsh, 0.07-acre impact to eelgrass, and 0.04-acre impact to mudflat habitat from placement of the rock groin[3], LAHD will expand the mudflat and salt marsh habitat and reestablish eelgrass within Salinas de San Pedro Salt Marsh in accordance with the Southern California Eelgrass Mitigation Policy. It is anticipated that construction activities in this portion of the project area will begin shortly after the least tern nesting season concludes at the end of August. A pre-construction eelgrass survey would be conducted following the least tern nesting season, which concludes at the end of August (likely in September or October), prior to commencement of construction activities in the

3 The 0.28-acre impact at the Salinas de San Pedro Salt Marsh (0.07 acre eelgrass and 0.04 acre of existing mudflat permanently covered, the remainder 0.17 acre covering unvegetated soft-bottom area) is a result of proposed mitigation and is intended to enhance a marginally functioning salt marsh and would result is a net increase in mudflat and salt marsh area. It is not part of the proposed Project or any of the alternatives.

vicinity of Cabrillo Beach and the salt marsh habitat. Surveys for eelgrass would be conducted during eelgrass growing season (March-October) and results would be valid for 60 days, unless completed in September or October, then results are valid until resumption of next growing season. It is anticipated that the mudflat area within the salt marsh will be increased approximately 0.56 acre converting only upland areas[4] to do so and that eelgrass habitat will be re-established within the salt marsh with no net loss. These improvements will occur by recontouring the side slopes to increase mudflat area, removing the rocksill within the inlets, removing nonnative vegetation, removing the rock-sloped island within the marsh, lowering the elevation of the salt marsh, and constructing a rock groin at the marsh inlet to block littoral sediment from entering the marsh. Figure 3.3-5 illustrates the proposed improvements to the salt marsh. These improvements will occur by recontouring the side slopes to increase

MM BIO-5. Prepare a habitat mitigation and monitoring plan.

A habitat mitigation and monitoring plan (HMMP) will be developed in coordination with NMFS and other regulatory agencies to detail the Salinas de San Pedro Salt Marsh expansion and enhancements and will include the following performance measures: 1) eelgrass, pickleweed, cord grass, and other native species present will be salvaged prior to construction and placed in a nursery for replanting post-restoration; 2) salvaged plants will be replanted at appropriate tidal elevations; 3) sediments removed from the salt marsh will be disposed of at LAHD's upland disposal site at Anchorage Road (see Section 3.14, "Water Quality, Sediments, and Oceanography"); 4) turbidity will be monitored in accordance with Mitigation Measure MM BIO-1 so that nearby eelgrass and mudflat habitat is protected during restoration activities; 5) an eelgrass survey shall be conducted 30 days following construction; and 6) at the completion of expansion and enhancement activities, the salt marsh and associated mudflat will be monitored by a qualified restoration ecologist at Years 1, 2, 3, 5, 7, 8 and 10 to ensure performance standards are met and that restored areas, including eelgrass and a minimum of 0.22-acre of created mudflat, are self-sustaining by Year 5[5].

MM BIO-6. Dispose sediment.

Prior to dredging, sediments will be tested for contaminants and will only be disposed of at marine disposal sites if they meet the sediment quality and quantity criteria for disposal. Depending on the test results, sediments will be disposed of at a pre-approved ocean disposal site (LA-2, LA-3), a contained

4 The upland area that would be converted is of marginal quality and is dominated by non-native plant species.
5 The HMMP will comply with the *USACE/USEPA Compensatory Mitigation Rule for Losses of Aquatic Resources* and will include performance standards, long-term site protection and adaptive management.

disposal facility in the harbor, or an approved upland location such as the Port's Anchorage Road Soil Storage Site. Disposal in-harbor will only occur if an acceptable disposal site is identified and permitted by the USACE (under section 404 of the Federal CWA). At this time, no in-harbor disposal is foreseeable for the San Pedro Waterfront dredged sediments.

The proposed Project will create approximately 6.8 acres of new open water habitat. Submerged rock fill placed at elevations of approximately -10 to -57 feet MLLW associated with construction of the Outer Harbor berths would result in conversion of 2.43 acres of soft-bottom habitat to hard substrate, which studies have shown are as biologically productive as soft-bottom habitat in a port setting. Additionally, the 0.57 acre of new rock placed over existing rock at Berths 49-50 would result in a temporal effect to organisms using that area, but it would be recolonized within 1 to 3 years. Enhancement and expansion of the Salinas de San Pedro Slat Marsh would provide a more productive habitat with higher values to the aquatic ecosystem. The Port intends to maintain this area as a high-functioning aquatic ecosystem as part of their overall Port management activities. Overall, there would be a gain of open water marine habitat and a net gain in both area and functions and value of the Salinas de San Pedro Salt Marsh.

Chapter 5
Alternatives Considered

LAHD defines a reasonable range of alternatives in light of its legal mandates under the Port of Los Angeles Tidelands Trust (Los Angeles City Charter, Article VI, Sec. 601), the California Coastal Act (PRC Div 20 S30700 et seq.), and LAHD's leasing policy (LAHD 2006). The Port is one of only five locations in the state identified in the California Coastal Act of 1976, as amended, for the purposes of international maritime commerce (PRC Div 20 S30700 and S30701). These mandates identify the Port and its facilities as a primary economic/coastal resource of the state and an essential element of the national maritime industry for promotion of commerce, navigation, fisheries, and operations of a harbor. Furthermore, activities should be water dependent and give highest priority to navigation, shipping, and necessary support and access facilities to accommodate the demands of foreign and domestic waterborne commerce.

The USACE considers the applicant's goals and objectives in identifying the overall project purpose, which establishes the range of alternatives to be developed and evaluated pursuant to the CWA Section 404(b)(1) Guidelines. The first step is the development and consideration of alternative methods that meet the overall project purpose:

The overall project purpose, which includes two water-dependent elements, is to:

1. *Implement modifications to the existing San Pedro Waterfront along the west side of the harbor's Main Channel to improve its accessibility and use without impeding the public's right to free navigation; these modifications would include increasing the open water area to provide a variety of waterfront uses such as berthing for visiting tall ships and other vessels, such as tugboats and other recreational, commercial, and Port-related uses.*

2. *Use and increase the value of deep-water berths to accommodate existing and projected growth in the cruise ship industry in the Port of Los Angeles.*

Initial Alternatives

As discussed in Section 2.4.1.2.6 of the EIS/EIR (September 2008 [Draft]; September 2009 [Final]), a number of locations for cruise ship berths were identified during plan development, through comments received during EIS/EIR public scoping, and in meetings with project stakeholders. These locations were identified to accommodate anticipated increases in cruise business and to accommodate the larger cruise ships that would be serving the Port. Locations were screened based on a combination of operational/navigational and economic factors, possible environmental considerations, and whether the location might impede meeting project objectives. Of the seven alternative locations/configurations identified, four locations were carried forward for

consideration and are analyzed in this document and three ultimately were eliminated. The three eliminated were Cruise Ship Berthing Alternatives:

- Cruise Ship Berth at Berths 66–67 (South of Warehouse No. 1),
- Alternative Cruise Ship Berth at Berths 69–72 (Adjacent to Warehouse No. 1), and
- Alternative Cruise Ship Berth at Berths 75–79 (Ports O'Call)

As part of the section 404(b)(1) analysis of alternatives, one other scenario that varies from the proposed Project was considered. LAHD analyzed the proposed Project with the wharf at Berths 49-50 being accomplished by excavating the adjacent upland area instead of adding additional rock to the sub-surface slope (from approximately -10 MLLW to -57 MLLW) to effectively push the lower portion of the slope seaward. Although this methodology would avoid the need for placement of 2.15 acres of rock in waters of the U.S. and dredging approximately 2,100 cubic yards of material from the Outer Harbor at Berths 49-50, it would be extremely cost prohibitive. The LAHD estimated costs associated with excavating and removing the material from the upland area would total $34,203,000. This would be approximately 10 times more expensive than the $3,732,000 cost of the Berths 49-50 upgrades under the proposed project and Alternative 2 (which includes the same wharf upgrades at Berths 49-50). A 10-fold difference in cost is not considered practicable in light of the overall project purpose; particularly given that the fill discharges would not result in any loss of waters of the U.S. at Berths 49-50.

As discussed in Section 2.5.2 of the Draft and Final EIS/EIR (ICF Jones & Stokes, 2008, 2009), the Cruise Ship Berthing Alternatives were eliminated based on increased cost, navigation issues/risk, environmental considerations, and access issues. These alternatives were suggested to avoid the need for one or both of the Outer Harbor cruise ship berths at Berths 45–47 and Berths 49–50 identified in the proposed Project. As the analysis shows, although large cruise ships could be berthed at these alternative locations, there would be greater navigation risk compared to the Outer Harbor locations. Because the existing cruise terminal has navigational issues, alternatives that replicate existing conditions or increase navigational risk were eliminated; alternatives that improved upon navigational issues were retained.

These berths are proposed to accommodate anticipated growth in cruise passengers and would be designed to accommodate the Freedom Class vessel size that would handle a portion of this business. As discussed in Section 2.5.2.1 of the EIS/EIR (ICF Jones & Stokes, 2008, 2009), the existing Inner Harbor cruise berths can currently accommodate one Freedom Class or Voyager Class vessel at Berths 90–92, and two Princess Class vessels at Berths 93 and 87, but not without challenges to navigation as the size of container ships transiting and berthing along the Main Channel increases the potential for accidents.

Alternatives Selected for Further Screening

Six alternatives—including the proposed Project and the No-Federal-Action Alternative, and four alternative development scenarios—were considered during preparation this draft section 404(b)(1) alternatives analysis.[6] Each of the four alternative development scenarios is potentially practicable in light of the overall project purpose and has been carried forward for detailed analysis.

- Alternative 1—Alternative Development Scenario 1,
- Alternative 2—Alternative Development Scenario 2,
- Alternative 3—Alternative Development Scenario 3 (Reduced Project),
- Alternative 4—Alternative Development Scenario 4, and
- Alternative 5—No-Federal-Action Alternative.

This analysis of alternatives below focuses on the differences in the in-water/over-water activities and effects on the aquatic environment. It should be noted that there are differences in upland development features across the alternatives. Alternative 5 (No-Federal Action Alternative) includes upland features that are considered part of the NEPA baseline for the comparison of alternatives. A complete discussion of the differences in upland features for all of the alternatives is located in Chapter 6 "Comparison of the Alternatives Project Description" in the Draft and Final EIS/EIR (ICF Jones & Stokes, 2008, 2009)

The new terminals and berth construction at the Outer Harbor would not occur but for the USACE approval of in-water and over-water construction activities pursuant to section 404 of the CWA, section 10 of the RHA, and section 103 of the MPRSA (for this reason, no cruise ship terminals are planned for the Outer Harbor under Alternative 5 – No Federal Action Alternative). Therefore, air quality effects associated with Outer Harbor terminal operations under the proposed Project and the alternatives are disclosed herein.

Alternatives Selected for Inclusion in this Analysis

A brief overview of each alternative and its development features has been provided herein. A comparison of alternatives to the No Federal Action conditions in the aquatic environment at the project site follows this brief overview.

6 The Draft EIS/EIR for the San Pedro Waterfront Project includes a CEQA required analysis of the *No Project Alternative*, which is not included in this analysis because it has no waterfront improvements and would clearly not meet the basic or overall project purpose.

Alternative 1—Alternative Development Scenario 1

Alternative 1 proposes only one Freedom Class or equivalent Outer Harbor. Alternative 1 would utilize the existing wharf at Berths 45-47 for this purpose. Submerged rock fill discharges into waters of the U.S. associated with Alternative 1 would total 0.85 acre. This Alternative does not include a 200-foot-long wharf extension to 1,250 linear feet at Berths 49-50 to accommodate Freedom Class size vessels. Because there would only be wharf improvements at one location, Alternative 1 includes construction of only one new 100,000-square-foot terminal building in the Outer Harbor. Alternative 1 would also have two Inner Harbor berths (Berth 93 and Berths 91-92) and would demolish the existing terminal at Berth 91 and construct a new 200,000-square-foot terminal in its place and two new three-level parking structures. Alternative 1 would include three harbor cuts (North, Downtown, and 7th Street) resulting in approximately 6.8 acres of new open water.

Alternative 2—Alternative Development Scenario 2

Under Alternative 2, there would be two Outer Harbor Freedom Class or equivalent berths, at Berths 45-47 (submerged rock fill discharged into 0.85 acre of waters of the U.S.) and Berths 49-50 (wharf extension to 1,250 linear feet, submerged rock fill discharged into 2.15 acres waters of the U.S. There would also be two new 100,000-square-foot terminals adjacent to the Outer Harbor berths. There would be two new three-level parking structures at the Inner Harbor cruise ship facility. Under Alternative 2, the continuous Waterfront Promenade would avoid the shoreline in the vicinity of the Cabrillo Beach youth camp and the Salinas de San Pedro Salt Marsh. Alternative 2 sites the Promenade along the east side of Shoshonean Road, thereby avoiding this reach of the shoreline. Alternative 2 would include three harbor cuts (North, Downtown, 7th Street) resulting in approximately 6.8 acres of new open water.

Alternative 3—Alternative Development Scenario 3 (Reduced Project)

Alternative 3 represents the Reduced Project Alternative. Under Alternative 3, only one new Freedom Class or equivalent cruise berth would be located in the Outer Harbor, at Berths 45–47, and would result in 0.85 acre of submerged rock fill into waters of the U.S. Two Inner Harbor berths would remain in use (i.e., Berths 91-92, 1,250 linear feet; and Berth 93, 1,000 linear feet), and two new 3-level parking structures would be constructed for the Inner Harbor berths. There would be no loss of open water as a result of Alternative 3. Additionally, because

there would only be wharf improvements at one location, only one 100,000-square-foot terminal would be constructed in the Outer Harbor. Alternative 3 would include three harbor cuts (North, Downtown, and 7th Street) resulting in approximately 6.8 acres of new open water.

Alternative 4—Alternative Development Scenario 4

Under Alternative 4, there would be no improvements at, or directly adjacent to, any of the Outer Harbor berths, including the associated dredging and submerged rock fill discharges and cruise ship terminal construction (i.e., the cruise ship terminals would depend on the berth improvements). Alternative 4 would keep the three existing cruise ship berths in the Inner Harbor and the existing cruise ship terminal. The existing terminal at Berth 91 would be demolished, and a new 200,000-square-foot terminal to serve Berths 91 and 87 would be developed, and one new four-level parking structures would be built. Berths 87–92 could accommodate one Freedom Class vessel (1,250-foot-long berth) or one Voyager Class vessel (1,150-foot-long berth), along with one Princess Class vessel simultaneously, but Berth 93 could only accommodate vessels less than 1,000 feet in length. Having these three berths at the Inner Harbor would preclude the 5-acre North Harbor cut, so only 1.82 acres of new open water would result.

Alternative 5—No Federal Action Alternative

The No-Federal-Action Alternative eliminates all of the project elements that would require a Federal permit or other substantial federal interest such as property or funding. The Federal action associated with the proposed Project, which would be subject to USACE regulatory requirements, consists of all harbor cuts and dredging activities; removal of existing and construction of new bulkheads, wharves, pilings, piers, rock slope protection, floating docks, and promenades that cover waters of the U.S.; and ocean disposal of dredged material. Landside construction activities within 100 feet of the shoreline necessary to complete the in-water and over-water activities, as well as the Outer Harbor Cruise Terminals and associated parking, which directly depend on authorization of in-water and over-water activities at the Outer Harbor, would also be within the USACE's regulatory purview (i.e., not part of the No Federal Action Alternative).

The three existing cruise berths in the Inner Harbor at the existing cruise ship terminal would remain. None of the wharf work under the proposed Project or the other alternatives would occur for Alternative 5. The existing cruise ship terminal at Berth 91 would be demolished, and a new 200,000-square-foot

terminal would be developed to serve Berths 91 and 87 under this alternative. To continue to serve the Inner Harbor Cruise Ship Terminals and Catalina Express Terminal, one 3-level parking structure would be constructed over 4.3 acres in the same location as the northernmost parking structure under the proposed Project. Alternative 5 does not include new cruise ship berths or upgrading the existing berths (45-47 or 49-50) in the Outer Harbor; nor does it include the construction and operation of Outer Harbor cruise ship terminals, which would depend on these berth upgrades. Therefore, Alternative 5 is a reduction of two berths and their associated terminals in the Outer Harbor compared to the proposed Project. Under this alternative, the existing supertanker berth at 45–47 could continue to be used on occasion by visiting cruise ships and other large vessels, as occurs under existing conditions. All of the other upland construction and operations (such as road improvements and commercial redevelopment and development) would occur under this alternative.

Environmental Effects of the Alternatives

Under NEPA baseline conditions, there would be no in-water or over-water construction activities requiring a permit from USACE or involving another Federal interest (i.e., equivalent to Alternative 5 – No Federal Action Alternative). Effects to the aquatic environment under each of the alternatives with in-water/over-water construction activities are similar, but some minor differences are described. In each alternative, the analysis describes those actions that differ from NEPA baseline conditions (i.e. no in-water/over-water construction activities: rock placement, dredging, pile driving, and bulkhead placement). A summary of environmental effects is contained in Table 5-1 below.

Table 5-1. Summary of Environmental Effects for Alternatives

Environmental Resource Area	*Proposed Project*	*Alt. 1*	*Alt. 2*	*Alt. 3*	*Alt. 4*	*Alt. 5 No Federal Action*
Impacts to Physical and Chemical Aquatic Ecosystem	E	E	E	E	L[1]	N
Impacts to Biological Characteristics	E	L	L	L	L[1]	N
Special Aquatic Sites	E	E	L	E	E	N
Human Use Characteristics	E	E	E	L[2]	L[3]	N
Water-Related Recreation	E	L[4]	E	L[4]	L[4, 5]	N
Evaluation and Testing	E	E	E	E	L	N

Notes:

E = Equivalent to proposed Project
L = Less than proposed Project
N = No NEPA impact (and less than proposed Project)

1. Impacts to the aquatic environment are not significant under any alternative; however because Alt. 4 does not include the Outer Harbor berths or the N. Harbor or Outer Harbor, proposed in-water work, submerged rock fill/dredging and potential ocean disposal are all less under Alt. 4.

2. Because the parking structure height is reduced under these alternatives, the aesthetic impact is less than the proposed Project.

3. Air Quality (health risk) effects are significantly reduced under Alternative 4.

4. Although operational impacts to water-related recreation are not significant under any alternative, those which include one or no Outer Harbor Berths are expected to have even less effects to water-related recreation.

5. Because Alternative 4 does not include the North Harbor Cut, water-related recreation availability post project construction would be less under this alternative.

Alternative 1—Alternative Development Scenario 1:

This alternative includes dredging approximately 1,230 cubic yards and submerged rock fill discharge into 0.85 acres of waters of the U.S. in the vicinity of Berths 45-47. No in-water or over-water construction would occur at Berths 49-50. The area at Berths 45-47 where the rock would be placed is a rock-reinforced slope in an industrialized portion of the Port that is already degraded. Additionally, as discussed earlier, port studies suggest that conversion of soft-bottom habitat to hard substrate provides comparable habitat value in terms of

biological productivity in a port setting. Under this alternative, a total of 1,418 piles would be driven and there would be 314,700 square feet of over-water structures. Alternative 1 would result in temporary noise effects to marine mammals and EFH for FMP fish species. Additionally, there would be short-term turbidity and water quality effects from rock placement, dredging, and pile driving activities associated with the Berths 45-47 upgrades and promenade construction.

The proposed three-level parking structures at the existing Inner Harbor cruise ship terminal would block views from a locally designated scenic highway to the Vincent Thomas Bridge.

Other than Outer Harbor Berths 49-50 construction activities, all in-water and over-water construction activities associated with the proposed Project and Alternatives 2 and 3 would occur under Alternative 1. This includes the waterside work to add mooring and breasting dolphins. It also includes the construction upgrades to Berths 45–47, which would involve demolition of approximately 1,900 square feet of existing floating docks. New construction would include installation of approximately 288 piles and construction of an approximately 40,100-square-foot marine structure with approximately 2,200 square feet of new floating docks. Alternative 1 also would include the Promenade, which would entail construction of approximately 58,900 square feet of new wharf structures and approximately 14,300 square feet of floating docks, and would require the installation of approximately 419 piles to support the new Promenade and docks. Prior to construction of the new Promenade, approximately 36,400 square feet of existing wharf decks and approximately 53,500 square feet of existing floating docks would be demolished. As with the proposed Project, Alternative 1 also includes creation of 6.8 acres of new open water from all three harbor cuts (North Harbor, 7th Street Harbor, and Downtown Harbor), and overall, there would be a gain in open water marine habitat in the Inner Harbor under Alternative 1. Additional details on number of piles, square feet of over-water structures, cubic yards of excavated material, and a comparison of all the alternatives are provided in Table 5-2 below. Table 5-2 does not include Alternative 5 (No Federal Action), as it does not propose any in-water or over-water work or structures.

Although Alternative 1 includes submerged rock fill discharges into 0.85 acre of waters of the U.S., dredging approximately 1,230 cubic yards, and placement of 1,418 piles, effects to the aquatic environment from these activities would be temporary, localized, and relatively minor to the Outer Harbor berth area. Unlike the proposed Project and Alternative 2, Alternative 1 does not propose any submerged rock fill or other in-water or over-water construction activities at Berths 49-50. However, this portion of the Outer Harbor is already covered by an

existing wharf with rock-reinforced slope, and, therefore, has less relative value than open water areas not covered by a structure. Other effects to the aquatic environment (water quality, turbidity, and noise) would be slightly less under Alternative 1 due to there being fewer piles and other in-water and over-water construction activities when compared with the proposed Project. In any case, these impacts are considered short-term, localized, and minor, in light of the port environment.

Alternative 1 increases the use and value of deep water berths for cruise ship growth as expressed in the overall project purpose, but includes only one Outer Harbor berth. Although impacts to the aquatic environment are somewhat less under Alternative 1 when compared to the proposed Project and Alternative 2, the areas affected are in an industrialized portion of the Port and their relative value is reduced; and there would be no loss of waters of the U.S for any of these alternatives. While Alternative 1 would be practicable to construct in terms of cost, logistics, and technology, and would be slightly less damaging environmentally than the proposed Project (no Berths 49-50 construction), Alternative 1 would not achieve the overall project purpose because it would not increase the use and value of deep water berths sufficiently to accommodate existing and projected increases in the cruise ship industry in the Port. A recent study (Menlo, 2009) indicates that despite the recent global economic recession, four cruise ship berths are needed in the Port.

Table 5-2 – Comparison of In-Water Work for Proposed Project and Alternatives 1-4

Activity	*Location*	*Extent of Activity*				
		Proposed	***Alt 1***	***Alt 2***	***Alt 3***	***Alt 4***
Excavation/ Dredging in uplands (cubic yards)	North Harbor	442,000	442,000	442,000	442,000	0
	Downtown Harbor	88,300	88,300	88,300	88,300	88,300
	7th Street Harbor	36,100	36,100	36,100	36,100	36,100
	Total	**566,400**	**566,400**	**566,400**	**566,400**	**566,400**
Excavated material disposal	Approved material at LA-2 or LA-3 (***offshore disposal; if available, beneficial reuse of qualifying material (to date Downtown and 7th St. Harbor cuts have been tested and of the 163,000 cubic yards generated, 97,300 qualify for reuse***); upland or contaminated material at an approved upland site	**566,400**	**566,400**	**566,400**	**566,400**	**88,300**

Activity	Location	Extent of Activity				
		Proposed	Alt 1	Alt 2	Alt 3	Alt 4
Bulkhead removal (linear feet)	North Harbor	700	700	700	700	0
	7th Street Harbor	140	140	140	140	140
	Promenade, Berth 78	150	150	150	150	150
	Total	**990**	**990**	**990**	**990**	**290**
Over-water structure removal (square feet)	North Harbor	34,800	34,800	34,800	34,800	0
	Downtown Harbor	1,600	1,600	1,600	1,600	1,600
	7th Street Harbor	2,400	2,400	2,400	2,400	2,400
	7th Street Pier	5,400	5,400	5,400	5,400	5,400
	Ports O' Call Promenade	89,900	89,900	89,900	89,900	89,900
	Cruise Ship Berths 45–47	1,900	1,900	1,900	1,900	0
	Total	**136,000**	**136,000**	**136,000**	**136,000**	**99,300**
Piling placement (no. of piles)	North Harbor	140	140	140	140	0
	Downtown Harbor	35	35	35	35	35
	7th Street Harbor	26	26	26	26	26
	Berth 240 Boat Fueling Facility	46	46	46	46	46
	7th Street Pier	52	52	52	52	52
	Ports O' Call Promenade	451	451	451	451	451
	City Dock #1 Promenade	224	224	224	224	224
	Cruise Ship Berths 45–47	288	288	288	288	0
		220	0	220	0	0
	Cruise Ship Berths 49–50	46	46	46	46	46
	Catalina Express	18	18	0	18	18
	Boy Scout Camp Promenade	92	92	86	92	92
	Salt Marsh Promenade	**1,638**	**1,418**	**1,614**	**1,418**	**990**
	Total					
Rock slope protection in existing waters of the U.S. (square feet)	Berths 45-47	36,800	36,800	36,800	36,800	0
	Berths 49-50	93,750	0	93,750	0	0
	Total	**130,550**	**36,800**	**130,550**	**36,800**	**0**

Activity	Location	Extent of Activity				
		Proposed	Alt 1	Alt 2	Alt 3	Alt 4
Rock slope protection in existing waters of the U.S. (cubic yards)	Berths 45-47	6,550	6,550	6,550	6,500	0
	Berths 49-50	17,400	0	17,400	0	0
	Total	**23,950**	**6,550**	**23,950**	**6,550**	**0**
Loss of open water	Berths 45-47	0	0	0	0	0
	Berths 49-50	0	0	0	0	0
	Total	0	0	**0**	**0**	**0**
Dredging in waters of the U.S. (cubic yards)	Berths 45-47	1,230	1,230	1,230	1,230	0
	Berths 49-50	2,100	0	2,100	0	0
	Total	**3,330**	**1,230**	**3,330**	**1,230**	**0**
Bulkhead installation (all sheet pile; linear feet)	North Harbor	1,600	1,600	1,600	1,600	0
	Downtown Harbor	770	770	770	770	770
	7th Street Harbor	430	430	430	430	430
	Ports O' Call Promenade	150	150	150	150	150
	Total	**2,950**	**2,950**	**2,950**	**2,950**	**1,350**
Over-water structure installation (square feet)	North Harbor (floating / pier)	25,200	25,200	25,200	25,200	0
	Downtown Harbor (floating / pier)	34,900	34,900	34,900	34,900	34,900
	7th Street Harbor (floating)	9,500	9,500	9,500	9,500	9,500
	Berth 240 Boat Fueling Facility (floating)	6,400	6,400	6,400	6,400	6,400
	7th Street Pier (pier)	5,800	5,800	5,800	5,800	5,800
	Ports O' Call Promenade (floating / pier)	83,700	83,700	83,700	83,700	83,700
	City Dock #1 Promenade (pier)	66,600	66,600	66,600	66,600	66,600
	Cruise Ship Berths 45–47 (floating / pier)	42.300	42.300	42.300	42.300	0
	Cruise Ship Berths 49–50 (pier)	51,900	0	51,900	0	0

Activity	Location	Extent of Activity				
		Proposed	Alt 1	Alt 2	Alt 3	Alt 4
	Catalina Express (floating)	8.800	8.800	8.800	8.800	8.800
	Boy Scout Camp Promenade (pier)	4,500	4,500	0	4,500	4,500
	Salt Marsh Promenade (pier)	27,000	27,000	25,200	27,000	27,000
	Total	**366,600**	**314,700**	**360,300**	**314,700**	**247,200**
Rock slope protection installation (below high tide line; square feet)	North Harbor	45,000	45,000	45,000	45,000	0
	Downtown Harbor	17,000	17,000	17,000	17,000	17,000
	7th Street Harbor	8,000	8,000	8,000	8,000	8,000
	Total	**70,000**	**70,000**	**70,000**	**70,000**	**70,000**

Alternative 2—Alternative Development Scenario 2

Under this alternative, submerged rock fill discharges into waters of the U.S. total 3.0 acres (0.85-acre at Berths 45-47 and 2.15 acres at Berths 49-50). Total dredging for both Outer Harbor Berths would be approximately 3,330 cubic yards (2,100 cubic yards at Berths 49-5- and 1,230 cubic yards at Berths 45-47). The area at Berths 45-47 and 49-50 where fill would be placed is at depths of -10 to -57 MLLW and is already affected by rock-reinforced slopes in an industrialized portion of the Port, and port studies suggest that conversion of soft-bottom habitat to hard substrate provides comparable habitat value in terms of biological productivity in a port setting. Under this alternative, as with the proposed Project, all three harbor cuts (North, Downtown, 7th Street) would be made, resulting in 6.8 acres of new open water creation, and overall, there would be a gain in open water marine habitat in the Inner Harbor.

Under Alternative 2, a small portion of the proposed Promenade would be constructed east of Shoshonean Road, thereby avoiding potential shading and pile placement along this stretch of the waterfront. Under Alternative 2, the proposed parking structures at the Inner Harbor Berth 91 would be three-levels and would affect the view of the Vincent Thomas Bridge.

Alternative 2 would require driving 1,730 piles (20 fewer than the proposed Project) and would result in 360,300 square feet of over-water structures (6,300 less square feet than the proposed Project). Alternative 2 would result in temporary noise effects to marine mammals and EFH for FMP fish species.

Additionally, there would be short-term turbidity and water quality effects from rock placement, dredging, and pile driving associated with Outer Harbor wharf construction and promenade construction. Alternative 2 proposes approximately 20 fewer pilings and 0.10 acre less Promenade area over water than the proposed Project, reducing the amount of potential attachment surface for marine species. The potential slight noise reduction and reduced attachment for marine species (i.e., due to fewer piles) would not be expected to have a discernible effect on biological communities compared to the proposed Project.

Although there would be no development of the salt marsh Promenade under Alternative 2, the proposed Project would locate the Promenade over unvegetated areas and bare sand; so differences in effect on biological communities would be expected to be minor.

The reduction in temporary effects to the aquatic environment (turbidity, water quality, and noise) due to the reduced number of piles and other in-water construction activities for Alternative 2 compared with the proposed Project is negligible. The reduced effects to the shoreline in the vicinity of Inner Cabrillo Beach and the Salinas De San Pedro Salt Marsh area as a result of placing the Promenade east of Shoshonean Road would be a minor reduction in effects, as the area where the Promenade would be placed is mainly unvegetated, bare sand. Consistent with the overall project purpose, Alternative 2 would increase the use and value of deep-water berths to accommodate the existing and projected increases in the cruise ship industry in the Port. Moreover, it would increase waterfront access and use to a similar level as the proposed Project, although it would route the promenade around Cabrillo Beach Youth Camp and the Salinas de San Pedro Salt Marsh. Therefore, Alternative 2 is practicable in light of the overall project purpose and would have similar environmental effects as the proposed Project.

Alternative 3—Alternative Development Scenario 3 (Reduced Project)

Under Alternative 3, the reduced project, there would be only one Outer Harbor berth at Berths 45-47. Activities would include dredging approximately 1,230 cubic yards and submerged rock fill discharges into 0.85 acre of waters of the U.S. This specific area occurs in an industrialized port setting that is already affected by a rock-reinforced slope at a depth of -35 to -57 MLLW. Port studies suggest that conversion of soft-bottom habitat to hard substrate provides comparable habitat value in terms of biological productivity in a port setting.

Alternative 3 includes the Promenade, which would entail construction of approximately 58,900 square feet of new wharf structures and approximately

14,300 square feet of floating docks, and would require the installation of approximately 419 piles to support the new Promenade and docks. Prior to constructing the new Promenade, approximately 36,400 square feet of existing wharf decks, and approximately 53,500 square feet of existing floating docks, would be demolished. As with the proposed Project, Alternative 3 includes creation of 6.8 acres of new open water from all three harbor cuts (North Harbor, 7th Street Harbor, and Downtown Harbor), and overall, there would be a gain in open water marine habitat created in the Inner Harbor. Additional details on number of piles, square feet of over-water structures, cubic yards of excavated material, and a comparison of all the alternatives is provided in Table 5-2. Table 5-2 does not include Alternative 5 because it does not include any in-water or over-water work. Alternative 3 in-water and over-water construction activities would result in temporary noise effects to marine mammals and EFH for FMP fish species. Additionally, there would be short-term turbidity and water quality effects from rock placement, dredging, and pile-driving activities associated with constructing upgrades to Berths 45-47 and constructing the Promenade.

The parking structures proposed under Alternative 3 at the Inner Harbor would be three-levels and would block views from a locally designated scenic highway to the Vincent Thomas Bridge.

Although Alternative 3 does not include submerged rock fill into 2.15 acres of waters of the U.S. at Berths 49-50, the area where the rock would be placed is similar to the area at Berths 45-47 (already reinforced slope; industrialized, degraded portion of the Port) and effects at Berths 49-50 would be temporary, localized, and relatively minor. Other temporary effects to the aquatic environment (water quality, turbidity, and noise) would be slightly less due to the reduction in piles and other in-water and over-water construction activities compared with the proposed Project. In any case, these impacts are considered temporary, localized, and minor, in light of the port environment.

Alternative 3 increases the use and value of deep-water berths for cruise ship growth as expressed in the overall project purpose, but includes only one Outer Harbor berth. Although impacts to the aquatic environment are reduced under Alternative 3 (no impacts at Berths 49-50) compared to the proposed Project, the areas that would be affected are in an industrialized portion of the Port and their relative value is reduced. While this alternative would be practicable to construct in terms of cost, logistics, and technology and would be slightly less environmentally damaging than those with two Outer Harbor berths (proposed Project and Alternative 2), it would not achieve the overall project purpose (i.e., it would not fully accommodate existing and projected growth in the cruise ship industry). A recent study (Menlo, 2009) indicates that despite the recent global economic recession, four cruise ship berths are needed in the Port.

Alternative 4—Alternative Development Scenario 4

Alternative 4 does not include any upgrades to Outer Harbor berths or construction of cruise ship terminals. Therefore, Alternative 4 would not require any dredging (or disposal of dredged material) or submerged rock fill discharges into waters of the U.S. at the Outer Harbor berths. Alternative 4 in-water and over-water construction activities from pile placement for the promenade would result in temporary noise effects to marine mammals and EFH for FMP fish species. Alternative 4 would require 990 piles be driven and constructed over-water structures would total 247,200 square feet. Short-term turbidity and water quality effects from pile driving would occur, but rock placement and bulkhead construction for the harbor cuts would occur mainly in uplands or behind existing bulkheads thereby reducing potential effects to water quality. Under Alternative 4, there would be only two harbor cuts (Downtown Harbor, 7th Street Harbor) resulting in approximately 1.8 acres of new open water, and overall, there would be a gain in open water marine habitat created in the Inner Harbor. Additionally, there would be two new four-level parking structures constructed at the Inner Harbor, which would affect views to the Saint Vincent Thomas Bridge.

Compared to the proposed Project and Alternatives 1 through 3, Alternative 4 provides the least area of new open water created, as it does not include construction of the North Harbor (5.0 acres). Under Alternative 4, the existing Berths 87–92 could accommodate one Freedom Class vessel (1,250-foot-long berth) or one Voyager Class vessel (1,150-foot-long berth), along with one Princess Class vessel simultaneously; however, Berth 93 could only accommodate vessels less than 1,000 feet in length. In order to utilize this area as described, no North Harbor cut could be made, which also reduces the quantity of material excavated in uplands (only 163,000 cubic yards). Because there are no Outer Harbor berths associated with Alternative 4, it would provide 34 percent lower throughput of passengers compared to the proposed Project.

Compared to the proposed Project and Alternatives 1 through 3, Alternative 4 would result in a reduction of temporary effects to the aquatic environment because there would be no in-water work or submerged rock discharges at Berths 45-47 and 49-50. Compared to the proposed Project, it would also result in fewer piles and other in-water and over-water construction, so there would be fewer water quality, turbidity, and noise impacts. However, these impacts are considered temporary, localized, and minor in light of the port environment. Additionally, compared to the proposed Project and Alternatives 1 through 3, Alternative 4 would greatly reduce the volume of dredged material and material excavated in uplands that could be disposed of offshore, at an in-harbor CDF, and/or an appropriate upland site such as Anchorage Road Soil Storage Site. However, Alternative 4 would not achieve the overall project purpose because it

would not sufficiently increase the use and value of deep-water berths to accommodate existing and projected growth in the cruise ship industry in the Port. A recent study (Menlo, 2009) indicates that despite the recent global economic recession, four cruise ship berths are needed in the Port.

Although Alternative 4 would greatly reduce the amount of excavated material, Alternative 4 would provide substantially less new open water compared to what has been proposed (i.e., 1.82 acres versus 6.82 acres) to support recreational and commercial uses, as well as other expanded and enhanced opportunities for the public access to the waterfront and free navigation. While Alternative 4 is practicable to construct in terms of cost, logistics, and technology and would result in the somewhat less environmental damage compared to the proposed Project and Alternatives 1 through 3, it would not achieve the overall project purpose. Specifically, it would not sufficiently increase use and value of deep-water berths to accommodate existing and projected increases in the cruise ship industry in the Port (i.e., it would not provide enough cruise ship berths and would provide far less passenger throughput), and it would provide much less additional open water area (1.82 acres for Alternative 4 versus 6.82 acres for the proposed Project and Alternatives 1 through 3) to increase use and access of the waterfront and free navigation.

Alternative 5—No Federal Action Alternative

As discussed earlier, the No-Federal-Action Alternative eliminates all of the Project elements that would require a federal permit or other substantial federal interest such as property or funding. The Federal action associated with the proposed Project includes all activities for which the CWA section 404, RHA section 10, and MPRSA section 103 authorization would be needed, including all harbor cuts and dredging activities; removal of existing and construction of new bulkheads, wharves, pilings, piers, rock slope protection, floating docks, and promenades that cover waters of the U.S.; and ocean disposal of dredged material. Landside construction activities within 100 feet of the shoreline necessary to complete the in-water or over-water activities, as well as the Outer Harbor Cruise Terminals and associated parking, which directly depend on authorization of in-water/over-water activities in the Outer Harbor, would not be constructed under this alternative. Therefore, there would be no short-term noise effects to marine mammals or fish species with designated EFH in the Harbor. There would be no temporary turbidity and water quality impacts associated with the in-water or over-water construction activities, and no ocean disposal would be required.

The three existing cruise berths in the Inner Harbor at the existing terminal would remain and continue to operate. None of the wharf work proposed under the proposed Project or Alternatives 1 through 3 would occur for Alternative 5. The existing terminal at Berth 91 would be demolished, and a new 200,000-square-foot terminal would be developed to serve Berths 91 and 87. Alternative 5 does not include new cruise ship berths or constructing upgrades to the existing berths in the Outer Harbor; nor does it include the construction and operation of the Outer Harbor cruise ship terminals, which would depend on upgrading those berths. To continue to serve the Inner Harbor Cruise Ship Terminals and Catalina Express Terminal, one 3-level parking structure would be constructed over 4.3 acres in the same location as the northernmost parking structure under the proposed Project. Because of the smaller parking structure footprint, impacts to the view of Vincent Thomas Bridge from a locally designated scenic roadway would be similar, but somewhat less than the proposed Project.

Because Alternative 5 would not involve any in-water or over-water activities, it would be the least environmentally damaging alternative in terms of aquatic ecosystem impacts. However, Alternative 5 would not meet the overall project purpose because it would not increase the use and value of deep-water berths to accommodate existing and projected growth in the cruise ship industry in the Port (a recent study [Menlo, 2009] indicates that despite the recent global economic recession, four cruise ship berths are needed in the Port), nor would it increase new open water to support recreational and commercial uses, as well as other expanded and enhanced opportunities for the public access to the waterfront.

Conclusion

Based on the foregoing draft alternatives analysis, preliminary determination is that the proposed Project and Alternative 2 are the only alternatives that meet the overall project purpose of sufficiently increasing use and value of deep-water berths to accommodate existing and projected cruise industry growth in the Port (i.e., to support more larger, Freedom class size vessels and provide 4 cruise ship berths, which the 2009 Menlo study determined are needed going forward despite the recent global economic recession). Moreover, preliminary determinations are that Alternatives 1 and 3, which include upgrading one Outer Harbor cruise ship berth (at 45-47) and continuing to use two Inner Harbor cruise ships berths would not sufficiently increase use and value of deep-water berths to accommodate anticipated cruise ship industry growth in the Port (i.e., need four cruise ship berths: three 1,250-foot-long berths and a 1,000-foot-long berth). Similarly, Alternative 4 would result in slightly less temporary effects to the aquatic environment (no in-water or over-water activities at the Outer Harbor berths) and fewer air quality effects than the proposed Project and Alternatives 1

through 3, but it would not achieve the overall project purpose because it would not increase use and value of deep water berths to accommodate existing and projected cruise industry growth in the Port (i.e., to support more larger, Freedom class size vessels and provide 4 cruise ship berths), nor would it create much additional open water (i.e., 1.82 acres for Alternative 4 versus 6.82 acres for the proposed Project and Alternatives 1 through 3) to support recreational and commercial uses, as well as other expanded and enhanced opportunities for the public access to the waterfront and free navigation. While preliminary analysis indicates that Alternative 5 (No Federal Action Alternative) would be the least environmentally damaging in terms of aquatic ecosystem impacts, it would not meet the overall project purpose because it would not accommodate anticipated cruise industry growth (no additional berths) nor would it create additional open water to support recreational and commercial uses, as well as other expanded and enhanced opportunities for the public access to the waterfront.

Preliminary analysis indicates that consistent with the overall project purpose, the proposed Project and Alternative 2 would construct sufficient wharf and terminal upgrades to increase use and value of deep-water berths to accommodate existing and projected cruise ship industry growth in the Port. Also, both would create 6.8 acres of new open water along the Main Channel available for recreational and commercial uses, as well as other expanded and enhanced opportunities for the public access to the waterfront, which were identified as major goals and objectives of the Project during the EIS/EIR process. Because impacts to the aquatic environment (including dredging and submerged rock fill to further protect/stabilize the already developed Outer Harbor berths) are essentially identical under the proposed Project and Alternative 2 (with the exception of the avoidance of the salt marsh area by the promenade under the latter), both the proposed Project and Alternative 2, based on preliminary analysis, appear to meet the CWA Section 404(b)(1) Guidelines as representing the least environmentally damaging practicable alternative.

Chapter 6
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