Port of
LONG BEACH
The Green Port

Port Master Plan Update

Draft Program Environmental Impact Report
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List of Acronyms, Abbreviations, and Symbols

Acronym	Term
°F	degrees Fahrenheit
µg/L	micrograms per liter
$\mu g/m^3$	micrograms per cubic meter
A.D.	Anno Domini
AB	Assembly Bill
ACGs	allisions, collisions, and groundings
ACM	asbestos containing materials
AMECS	Advanced Maritime Emission Control System
AOR	area of responsibility
AQMP	Air Quality Management Plan
ARPA	Archaeological Resources Protection Act of 1979
ASCE	American Society of Civil Engineers
B.P.	before present
BACT	best available control technology
BCC	Bird of Conservation Concern
bgs	below ground surface
BHC	Board of Harbor Commissioners
BLM	Bureau of Land Management
BMPs	best management practices
BNSF	Burlington Northern Santa Fe
CAA	Clean Air Act
CAAP	Clean Air Action Plan
CAAQS	California Ambient Air Quality Standards
CAD	Confined Aquatic Disposal
CAFE	Corporate Average Fuel Economy
CAL FIRE	California Department of Forestry and Fire Protection
CalARP	California Accidental Release Program
CalEPA	California Environmental Protection Agency
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CBC	California Building Code
CBP	U.S. Customs and Border Protection
CCA	California Coastal Act of 1976
CCC	California Coastal Commission
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CDP	Coastal Development Permit
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CESA	California Endangered Species Act
CFMP	California Freight Mobility Plan of 2014
CFR	Code of Federal Regulations
CGP	Construction General Permit
CH_4	methane
CHE	cargo handling equipment
City	City of Long Beach
CLE	Contingency Level Earthquake
CMA	Critical Movement Analysis
CMP	Los Angeles County Congestion Management Program
CNEL	community noise equivalent level
CO	carbon monoxide

Acronym	Term
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
COTP	Captain of the Port
CRHR	California Register of Historical Resources
CRP	Climate Adaptation and Coastal Resiliency Plan
CSFAP	California Sustainable Freight Action Plan
CSLC	California State Lands Commission
CSTF	Contaminated Sediment Task Force
C-TPAT	Customs-Trade Partnership Against Terrorism
CTR	California Toxics Rule
CUPA	Certified Unified Program Agencies
CWA	Clean Water Act
cy	cubic yards
CZMA	Coastal Zone Management Act of 1972
dB	decibel
dBA	A-weighted sound level
DDT	dichlorodiphenyltrichloroethane
DHS	U.S. Department of Homeland Security
DO	dissolved oxygen
DOGGR	Division of Oil, Gas, and Geothermal Resources
DPM	diesel particulate matter
DTSC	Department of Toxic Substances Control
ECA	Emission Control Area
EEZ	Exclusive Economic Zone
EFH-HAPC	Essential Fish Habitat-Habitat Areas of Particular Concern
EIR	Environmental Impact Report
EO	Executive Order
EPCA	Energy Policy and Conservation Act
EPCRA	Emergency Planning and Community Right-to-Know Act
ESA	Endangered Species Act of 1973
EWMP	Enhanced Watershed Management Program
FEIR	Final Environmental Impact Report
FEIS	Final Environmental Impact Statement
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FMP	Fishery Management Plan
FTA	Federal Transit Administration
g	0.1 percent of Earth's gravitational force
GHG	greenhouse gas
GVWR	gross vehicle weight rating
GWP	global warming potential
Harbor District	Long Beach Harbor District
Harbor Safety Committee	Port of Long Beach/Port of Los Angeles Harbor Safety Committee
HDP	Harbor Development Permit
HFC	hydrofluorocarbon
HHSQO	Human Health Sediment Quality Objective
HIV/AIDS	human immunodeficiency virus/acquired immunodeficiency syndrome
HMI	hazardous materials inventory
hp	horsepower
HRA	health risk assessment
HSP	Harbor Safety Plan
I	Interstate
ICTF	Intermodal Container Transfer Facility
ICU	Intersection Capacity Utilization

Acronym	Term
IGP	Industrial General Permit
ILUT	Integrated Land Use Tool
IMO	International Maritime Organization
IP	Port Industrial
IPI	interior point intermodal
ISPS	International Ship and Port Facility Security
JCCC	Joint Command and Control Center
kV	kilovolt
kW	kilowatts
LACM	Natural History Museum of Los Angeles County
LACSD	Los Angeles County Sanitation District
LAHD	Los Angeles Harbor Department
LARWQCB	Los Angeles Regional Water Quality Control Board
LAX	Los Angeles International Airport
lb/day	pounds per day
LBCT	Long Beach Container Terminal
LBER	Long Beach Energy Resources Department
LBFD	City of Long Beach Fire Department
LBMC	City of Long Beach Municipal Code
LBPD	City of Long Beach Police Department
LBRHL	City of Long Beach Register of Historic Landmarks
LBWD	City of Long Beach Water Department
L_{dn}	day-night average sound level
LED	light-emitting diode
LEED	Leadership in Energy and Environmental Design
L_{eq}	equivalent sound level
LID	Low Impact Development
LLW	lower low water
LNG	liquefied natural gas
LOS	level of service
Marine Exchange	Marine Exchange of Southern California
MARPOL	International Convention for the Prevention of Pollution from Ships
MATES	Multiple Air Toxics Exposure Study
MBTA	Migratory Bird Treaty Act
Metro	Los Angeles County Metropolitan Transportation Authority
mg/L	milligrams per liter
mgd	million gallons per day
MLD	Most Likely Descendants
MLLW	mean lower low water
MMPA	Marine Mammal Protection Act
MMT	million metric tons
MND	Mitigated Negative Declaration
MOA	Memorandum of Agreement
MOTEMS	Marine Oil Terminal Engineering and Maintenance Standards
MOU	Memorandum of Understanding
MPRSA	Marine Protection, Research, and Sanctuaries Act
MRZ	Mineral Resource Zone
MS4	Municipal Separate Storm Sewer System
MSA	Magnuson-Stevens Fishery Conservation and Management Act
MSL	mean sea level
MSRC	Marine Spill Response Corporation
MT	metric tons
MTSA	Maritime Transportation Security Act
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards

Acronym	Term
NAHC	Native American Heritage Commission
NEPA	National Environmental Policy Act
NFPA	National Fire Protection Association
ng/L	nanograms per liter
NHPA	National Historic Preservation Act
NHTSA	National Highway Traffic Safety Administration
NISZ	Newport-Inglewood Structural Zone
nm	nautical miles
NMFS	National Marine Fisheries Service
NO_2	nitrogen dioxide
NOAA	National Oceanic and Atmospheric Administration
NOP	Notice of Preparation
NO_x	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NRHP	National Register of Historic Places
NTWC	National Tsunami Warning Center
O_3	ozone
OGV	ocean-going vessel
OHP	Office of Historic Preservation
OHSPER	Outer Harbor Sediment Placement Ecosystem Restoration
OLE	Operational Level Earthquake
OMMP	Operations Management and Monitoring Plan
OPC	California Ocean Protection Council
OPR	Office of Planning and Research
OSCP	Oil Spill Contingency Plan
OSHA	Occupational Safety and Health Administration
OSPR	Office of Spill Prevention and Response
OSRO	Oil Spill Response Organization
PAHs	polycyclic aromatic hydrocarbons
PCBs	polychlorinated biphenyls
PEIR	Program Environmental Impact Report
PERP	Portable Equipment Registration Program
pH	hydrogen ion concentration
PM	particulate matter
PM_{10}	particulate matter less than 10 microns in diameter
$PM_{2.5}$	particulate matter less than 2.5 microns in diameter
PMP	Port Master Plan
POLB	Port of Long Beach
Port	Port of Long Beach
PORTS	Physical Oceanographic Real-Time System
PortTAM	Port Travel Analysis Model
ppb	parts per billion
ppm	parts per million
PPV	peak particle velocity
PRC	Public Resource Code
RCP	Representative Concentration Pathways
RCRA	Resource Conservation and Recovery Act
reefers	refrigerated containers
RIMS	Response Information Management System
RMP	Risk Management Plan
RMS	root mean square
Ro/Ro	roll on/roll off
RPS	Renewables Portfolio Standard
RTP	Regional Transportation Plan

Acronym	**Term**
RWQCB	Regional Water Quality Control Board
SB	Senate Bill
SCAB	South Coast Air Basin
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCE	Southern California Edison
SCS	Sustainable Communities Strategy
SEMS	Standardized Emergency Management System
SERRF	Southeast Resource Recovery Facility
SF_6	sulfur hexafluoride
SIP	State Implementation Plan
SJVAPCD	San Joaquin Valley Air Pollution Control District
SLR	sea level rise
SO_2	sulfur dioxide
SoCalGas	Southern California Gas Company
SO_x	sulfur oxides
SPBS	San Pedro Bay Standards
SPCC	Spill Prevention, Control, and Countermeasure
SQO	Sediment Quality Objective
SR	State Route
SSC	species of special concern
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	California State Water Resources Control Board
TAC	toxic air contaminant
TEU	twenty-foot equivalent unit
TMDL	Total Maximum Daily Load
TMP	traffic management plan
TRU	transport refrigeration unit
TSS	Traffic Separation Scheme
TWIC	Transportation Worker Identification Credential
U.S.	United States
U.S.C.	United States Code
UFP	ultrafine particles
ULCS	ultra large container ships
UPRR	Union Pacific Railroad
USACE	U.S. Army Corps of Engineers
USCG	U.S. Coast Guard
USDOT	U.S. Department of Transportation
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
V/C	volume-to-capacity
VdB	amplitude of ground vibrations
VGP	Vessel General Permit
VMT	vehicle miles traveled
VOCs	volatile organic compounds
VSR	Vessel Speed Reduction
VTS	Vessel Traffic Service
WASSS	Western Anchorage Sediment Storage Site
WDR	waste discharge requirement
WMP	Watershed Management Program
WRAP	Water Resources Action Plan

EXECUTIVE SUMMARY

The City of Long Beach (City), acting by and through the Board of Harbor Commissioners (BHC) for the Port of Long Beach (POLB or Port), has prepared this Draft Program Environmental Impact Report (PEIR) to identify and evaluate the potential environmental impacts associated with implementation of the proposed Port Master Plan (PMP) Update (hereinafter Proposed Plan). The Port has prepared the Proposed Plan as a comprehensive land use plan to guide the development of the Port to accommodate changes in the shipping industry and meet projected demand for cargo.

This PEIR has been prepared in accordance with the requirements of the California Environmental Quality Act (CEQA) (Public Resources Code Section 21000 et seq.), CEQA Guidelines (14 California Code of Regulations Section 15000 et seq.), and POLB Procedures for Implementation of the CEQA (Resolution No. HD-1973). According to CEQA Guidelines Section 15121(a) (California Code of Regulations Title 14, Division 6, Chapter 3), the purpose of an Environmental Impact Report (EIR) is to serve as an informational document that:

> *…will inform public agency decision-makers and the public generally of the significant environmental effect of a project, identify possible ways to minimize the significant effects, and describe reasonable alternatives to the project.*

As required by CEQA, this PEIR assesses the potentially significant environmental effects that could result from implementation of the Proposed Plan as well as the potentially significant cumulative impacts of the Proposed Plan, identifies feasible means of avoiding or lessening significant adverse impacts, and evaluates a reasonable range of alternatives to the Proposed Plan, including a No Plan Alternative. The PEIR generally analyzes potential environmental impacts from a Port-wide, programmatic perspective, although one specific future project, the Outer Harbor Sediment Placement Ecosystem Restoration (OHSPER) Site, for which adequate information is available, is analyzed at the project level. For this project, permitting could be based on this PEIR. However, for the remainder of projects in the Proposed Plan project-specific environmental analyses will be undertaken when the anticipated projects are initiated and carried forward.

This Draft PEIR is being provided to the public for review, comment, and participation in the planning process. After public review and comment, a Final PEIR will be prepared, including responses to comments on the Draft PEIR received from agencies, organizations, and individuals. The BHC will consider the information contained in the Draft and Final PEIR in making a decision on whether to certify the PEIR and proceed with approving the Proposed Plan or an alternative.

ES.1 PROPOSED ACTION

The Proposed Action is implementation of the Proposed Plan and operation of the OHSPER site.

ES.2 PLAN PURPOSE, NEED, AND OBJECTIVES

ES.2.1 Purpose

Although there have been numerous amendments to the Port's PMP, the current PMP was last comprehensively updated and certified in 1990. In the ensuing 30 years, the Harbor District has undergone a number of major physical changes; more importantly, the maritime industry that the Port serves has changed dramatically, the Port's role as a steward of other public resources (e.g., recreation and wildlife) has expanded beyond the scope envisioned by the 1990 PMP, and strategic challenges such as climate change and sustainability have come to the forefront.

Accordingly, the 1990 PMP as amended no longer adequately reflects its current planning priorities and does not provide a sound basis for addressing the challenges and opportunities of the future.

ES.2.2 Need

Since the 1990 PMP, the global shipping industry has undergone significant changes aided by technological advances. In addition, cargo volumes at the Port have risen dramatically from 1.5 million TEUs in 1990 to 8.1 million TEUs in 2018. (TEU refers to Twenty-foot Equivalent Unit, which is a measure of containerized cargo volume roughly equivalent to the smallest-size shipping container.) A sustained increase in cargo activity and execution of large capital projects, including the final phases of the Middle Harbor Terminal Redevelopment Program, have prompted the need for a comprehensive update to the 1990 PMP. This PMP Update provides a long-term plan for the development of Port facilities to accommodate forecasted cargo activity while supporting the Port's strategic priorities that include environmental stewardship, protecting the health of adjacent communities, and providing opportunities for jobs.

The strategic direction of the Port is based on the Port of Long Beach Strategic Plan (POLB 2019a), which envisions the Port as a facilitator of international trade with a commitment to operational excellence, environmental stewardship, safety, security, and community partnership.

Beginning with this update, the PMP will be updated regularly and amended as the port industry responds to forecasts of cargo demand, economic trends of global trade, increasing sizes of container vessels, changing cargo handling technologies, and environmental sustainability goals and requirements.

ES.2.3 Objectives

For purposes of the CEQA analysis, the key objectives of the Proposed Plan include the following:

1. Accommodate future cargo demand and changing industry practices and trends to the maximum extent practicable;
2. Optimize use of existing and future Port land through efficient and sustainable reconfiguration and redevelopment;
3. Maximize terminal operational efficiencies and on-dock rail systems within the Port;
4. Develop the Port in a sustainable manner and minimize adverse environmental impacts, consistent with the California Coastal Act of 1976 (CCA) and applicable federal, state, and local regulations; and
5. Enhance public access and recreational opportunities in designated areas within the Harbor District.

Additional objectives of the Proposed Plan include maintaining permitting flexibility to support future Green Port development and promoting coastal dependent development to ensure the Port remains a primary economic resource of the national maritime industry.

ES.3 CEQA BASELINE

CEQA Guidelines Section 15125(a) states that the existing physical environmental conditions at the time of the Notice of Preparation (NOP) will normally constitute the baseline for determining whether impacts are significant. The NOP for the Proposed Plan was published in August 2018.

The CEQA impact analysis in this PEIR compares conditions in August 2018 (the CEQA Baseline) to projected impacts from the Proposed Plan and alternatives through the year 2040 (i.e., the Proposed Plan planning horizon) for all resources except air quality. Baseline conditions for air quality are based on the Port-wide air emissions estimated for calendar year 2017, representing the most recent port-wide air emission data available. It should be noted that the CEQA Baseline differs from the No Plan Alternative in that the No Plan Alternative includes projects that are likely to occur over time, including those that were previously approved and permitted at the time of the NOP but had not yet commenced construction.

ES.4 DESCRIPTION OF THE PROPOSED PLAN AND ALTERNATIVES

ES.4.1 Regional Context

The Port of Long Beach is located on the shoreline of San Pedro Bay in southeastern Los Angeles County, adjacent to the Port of Los Angeles. The Port is served by the Long Beach Freeway (I-710), which connects it to downtown Los Angeles, and by the Terminal Island Freeway (State Route 47) connecting the Port with the Intermodal Container Transfer Facility in Carson. The Alameda Corridor, a fully grade-separated rail line, runs between the two San Pedro Bay Ports and downtown Los Angeles, connecting the ports with the nationwide rail network.

The Port consists of approximately 3,500 acres of land and 4,600 acres of water. It includes berths for oceangoing vessels on 10 piers designated by letters (A through G, J, S, and T). Pier H, located in Queensway Bay, supports recreational and visitor-serving activities within the Harbor District and is administered through lease agreements with the City of Long Beach, outside of the purview of the BHC.

ES.4.2 Proposed Plan

The Proposed Plan addresses all elements required under CCA Chapter 8, Article 3 (Section 30711), including permitted land and water uses, design and location of land use areas, estimate of development effects on environmental resources, and anticipated projects listed as appealable. The Proposed Plan includes a number of changes from the 1990 PMP as amended related to the overall goals and policies, the number and configuration of planning districts, land and water use designations for the planning districts, and anticipated projects. These changes reflect the changing nature of maritime commerce and related goods movement industries, developments that have changed the Port's physical configuration, and a POLB focus on incorporating the Green Port Policy into the Proposed Plan.

This PEIR focuses on land use changes that would result in changes and/or intensification of activities with the potential for adverse impacts on the physical environment, as well as anticipated projects.

ES.4.2.1 Development Goals

The Proposed Plan addresses the Port's long-range planning goals related to future development. The goals balance the Port's role as an essential element of the national maritime industry with its responsibilities to protect coastal resources and maximize public access and recreational opportunities, while also maintaining consistency with policies and applicable regulations. In addition, the goals are intended to prioritize Primary Port and Port-related uses within existing industrialized areas while promoting compatibility with other uses within the Harbor District. The Proposed Plan includes the following planning goals:

- Goal 1: Accommodate Forecasted Demand for Diverse Cargoes;
- Goal 2: Develop Modern Facilities with Efficient Operations;
- Goal 3: Integrate Green Port Policy and Land Use Planning; and
- Goal 4: Protect and Enhance the Coast for the Benefit of All Port Users and Communities.

ES.4.2.2 Planning Districts

The Proposed Plan proposes to reduce the number of planning districts from 10 to 7, and modify the boundaries of some individual planning districts, based on current and projected land uses. The proposed planning districts are: 1) North; 2) Northeast; 3) Northwest; 4) West Basin; 5) Southeast; 6) Anchorage and Open Water; and 7) Queensway Bay (Figure ES-1).

ES.4.2.3 Land and Water Use Designations

The Proposed Plan would modify the 1990 PMP as amended land and water use designations and definitions. The Port would be responsible for determining the primary land use category for all projects. Any substantial deviations from an allowable land use would require an amendment to the Proposed Plan. After an amendment is approved and certified by the California Coastal Commission, the Proposed Plan would be updated and supersede the previous version of the plan.

ES.4.2.4 Proposed Plan Projects Analyzed in the PEIR

The PEIR analyzes reasonably foreseeable projects within the Port's jurisdiction that have not already been permitted and evaluated in another CEQA document (Table ES-1). A program-level analysis is presented for projects that are conceptual or do not have sufficient details available at this time. A project-level analysis is presented for the OHSPER site, which has sufficient details available, and can be permitted once the PEIR is certified. Projects analyzed at the program level will need additional environmental analysis in the future. All of the projects described below are in various planning stages and may be initiated by 2040. Construction of the Proposed Plan projects are not anticipated to occur simultaneously due to operational, capital planning, and budgetary constraints; permitting restrictions; and environmental credit requirements associated with fill.

TABLE ES-1. PROPOSED PLAN PROJECTS

Planning District	Project
2 – Northeast	Fourth Track at Ocean Boulevard[1]
	Pier B Street Support Yard
	Pier D Street Realignment
3 – Northwest	Pier S Mixed Use Development
	Pier S Shoreline Enhancement
4 – West Basin	Pier T Improvements
	Pier W Terminal Development
5 – Southeast	Administrative Building Site Support Yard (Expansion)
	Protective Boat Basin (Berth F202)
	Pier J Terminal Redevelopment
6 – Anchorage and Open Water	OHSPER
7 – Queensway Bay	Ocean Boulevard Bicycle Gap Closure

Key: OHSPER = Outer Harbor Sediment Placement Ecosystem Restoration
Note:
[1]This project is located in Planning Districts 2 and 5.

Figure ES-1. Proposed Plan Planning Districts

Administrative Building Site Support Yard (Expansion)

This project would expand the existing 7-acre temporary chassis support yard, currently serving the Middle Harbor Terminal and located in the footprint of the former Port Administrative Building parking lot, by approximately 13 acres. The existing support yard would expand into the footprint of the former Port Administrative Building, which would be demolished under the Administration Building and Maintenance Facility project, which is a separate Port project, and used as a support yard (chassis, empties, or peel-off) for nearby terminals. This project could involve demolition or construction of infrastructure (e.g., buildings or trailers, utility infrastructure, gates, or other support structures) within the expanded yard.

Protective Boat Basin (Berth F202)

This project would construct a small boat basin, protected by a breakwater, along the Main Channel to shelter Joint Command and Control Center small craft. The project would involve relocation and extension of the existing Jacobsen Pilots dock; construction of a new multi-use dock with nine boat slips to provide berthing spaces for the POLB Security Division, Long Beach Police Department, and other visiting Governmental Security Agency boats; and dredging and construction of a fixed breakwater and dike (approximately 12,000 square feet or 0.3 acre of fill) to provide the necessary wave protection to the proposed docks. An additional third dock for overflow/haul-out staging of the user vessels described above would be constructed to the north. The project would also include removal of the docks at Pier F. Furthermore, this project would include the construction of other support infrastructure and utilities.

Fourth Track at Ocean Boulevard

This project would construct a fourth track with a modified switch layout connection at Ocean Boulevard and Harbor Scenic Drive, linking the four tracks north and south of the Ocean Boulevard overhead. Currently, there are four tracks north and south of Ocean Boulevard; however, at Ocean Boulevard these tracks narrow down to three. This project would relocate an existing roadway (i.e., Harbor Scenic Drive southbound) and main line track and add a new track to make a continuous four track rail corridor to increase efficiency of the rail line, provide operational flexibility, and improve the connection to the Middle Harbor and Pier B railyards (POLB 2018b).

Ocean Boulevard Bicycle Gap Closure

This project would provide a Class I bike path (approximately 0.5 mile) connecting the eastern terminus of the Mark Bixby Bicycle Path on the new Gerald Desmond Bridge to the City's bicycle network east of Los Angeles River. The approximate project limit is between Pico Avenue and Golden Shore along Ocean Boulevard across the Los Angeles River.

Outer Harbor Sediment Placement Ecosystem Restoration

The Western Anchorage Sediment Storage Site[1] (WASSS) would be re-named the OHSPER site. The OHSPER site would operate substantially similar to the currently permitted WASSS, but would serve as an approved Confined Aquatic Disposal (CAD) location for maintenance dredging and capital development projects that generate contaminated sediments and sediments suitable

[1] The Western Anchorage Sediment Storage Site was named as such because it covers all or part of three "anchorages" (i.e., B5, B9, and B10), which are designated areas for ships to anchor while waiting for berth space or loading materials.

for ocean disposal. A CAD is a disposal method that involves placement of contaminated dredged material from the aquatic environment at an appropriate open-water placement site, in this case an existing depression in the harbor bottom to hold layers of deposited material, which is then capped (i.e., buried) with a layer of clean sediment. This contains and isolates the contaminated material from the aquatic environment. The available capacity to accommodate sediment at the project site is estimated to be 1.6 million cubic yards for the North Lobe and 1.7 million cubic yards for the South Lobe.

Pier B Street Support Yard

An approximately 13-acre site at 1550 Pier B Street is currently used as a temporary chassis support facility for the distribution, storage, and maintenance of chassis serving the Middle Harbor Terminal. This temporary use was analyzed under the Pacific Crane Maintenance Company Chassis Support Facility Mitigated Negative Declaration, as adopted in 2015. At the time of the previous CEQA review, this site was envisioned as being operated on a short-term basis, a 7-year lease, until a permanent site within the Middle Harbor Terminal could be utilized for a chassis support facility. In the future, the anticipated use of the site would be as a support yard (chassis, empties, or peel-off) for nearby terminals.

Pier D Street Realignment

The project would realign Pier D Street, between the Middle Harbor out gate and Pico Avenue.

Pier J Terminal Redevelopment

This project would redevelop the Pier J Terminal and include dredging and filling the 44-acre south slip and 22-acre triangle, cutting a 9-acre notch, and constructing a wharf extension (9-acre extension fill). The redeveloped terminal would consist of an approximately 212-acre container yard, 52-acre intermodal yard, and approximately 23 acres for a reconstructed 4,000-linear foot wharf. This project would also reconfigure the existing rail line and yard. The intermodal yard would include three working tracks. In addition, approximately 14 acres at the tip of Pier F would be cut off to create additional water area and widen the entrance to the Southeast Basin. Existing infrastructure (buildings, wharves, utilities) and operations (e.g., break bulk terminals) within the Pier F cut area would be demolished and relocated to Pier S or other areas in the Harbor District.

Pier S Mixed Use Development

Approximately 125 acres of Pier S would be developed for non-container uses such as container/chassis storage, peel-off yards, bulk and break bulk terminals, liquefied natural gas bunkering facility, auto storage, or other terminal support uses. This project could include construction of administration buildings, rail improvements, wharf construction, and other operational support infrastructure.

Pier S Shoreline Enhancement

The Port's Climate Adaptation and Coastal Resiliency Plan identified Pier S as a vulnerable area for flooding due to climate change. The shoreline of Piers S and T also functions as a pathway for floodwaters to reach adjacent low-lying areas that contain critical assets. This project would retrofit or replace the existing seawall and rock dike at Pier S as a coastal resiliency measure to strengthen the shoreline against sea level rise and protect vulnerable Port assets on Pier S along the Cerritos Channel. This project is in the early stages of planning and development.

Pier T Improvements

This project would extend an existing berth eastward in the area of T-130, dredge and redevelop the berth at Pier T Echo in the area of T-126/128 (5-acre extension fill), and expand the intermodal yard with approximately 65 acres of fill to provide additional storage tracks and arrival/departure tracks.

Pier W Terminal Development

This project would construct a new container terminal on approximately 100 acres of fill. Pier W would provide one berth and backland to support cargo handling operations. The project would involve extensive construction, including placement of fill; dredging to provide a deep-water berth and approach channel; and construction of rock dikes, a wharf, paved container yard, utilities, buildings, and a gate complex.

ES.4.3 Alternatives

This PEIR evaluates three development alternatives to the Proposed Plan, which are derived from land use scenarios developed and analyzed in a land use study that informed the Proposed Plan process. Those land use scenarios evaluated various levels of future development within the Harbor District and assessed the ability of each scenario to meet the Proposed Plan objectives and maintain consistency with the Port's legal mandates under the CCA. The three development alternatives evaluated in this PEIR are Alternative 1 (No Plan Alternative); Alternative 2 (No Terminal Development); and Alternative 3 (Reduced Terminal Development).

ES.4.3.1 Alternative 1: No Plan Alternative

Consistent with CEQA Guidelines Section 15126.6(e)(3)(A), this alternative considers what would reasonably be expected to occur if the Port did not update the PMP. Under this alternative, the Port would continue to operate under the 1990 PMP as amended, including the continued use of the WASSS as currently permitted for placement and reuse of clean sediments. Alternative 1 includes projects that are consistent with the 1990 PMP as amended over time (see Table ES-2), may or may not have been evaluated in a final CEQA document, and could be implemented without approval of the Proposed Plan.

TABLE ES-2. ALTERNATIVE 1 (NO PLAN ALTERNATIVE) PROJECTS

Planning District	Project
2 – Northeast	Fourth Track at Ocean Boulevard[1]
	Pier B Street Support Yard
	Pier D Street Realignment
3 – Northwest	Pier S Mixed Use Development
	Pier S Shoreline Enhancement
4 – West Basin	Pier T Echo Support Yard
5 – Southeast	Administrative Building Site Support Yard (Expansion)
7 – Queensway Bay	Ocean Boulevard Bicycle Gap Closure

Note:
[1]This project is located in Planning Districts 2 and 5.

Pier T Echo Support Yard

This project would construct a 17-acre support yard (chassis, empties, or peel-off) that would serve the Pier T container terminal. This site is currently vacant, but is sometimes used as a temporary construction staging site or storage site for the Pier T container terminal. The project would require minor construction activity, including demolition and/or construction of infrastructure (e.g., paving, lighting, and buildings). Compared to the Pier T Improvements project that would occur under the Proposed Plan, the Pier T Echo Support Yard does not involve any dredge, fill, or redevelopment of the Pier T terminal. It would instead construct a support yard (chassis, empties, or peel-off) on Pier T Echo, adjacent to the Pier T container terminal, which could be used to serve the Pier T container terminal.

ES.4.3.2 Alternative 2: No Terminal Development

Alternative 2 includes all projects listed under the No Plan Alternative and two other projects that would need certification under the Proposed Plan, including the Protective Boat Basin (Berth F202) and OHSPER projects (Table ES-3). This alternative differs from the Proposed Plan in that it does not include terminal development projects at Pier T, Pier W, or Pier J.

TABLE ES-3. ALTERNATIVE 2 (NO TERMINAL DEVELOPMENT) PROJECTS

Planning District	Project
2 – Northeast	Fourth Track at Ocean Boulevard[1]
	Pier B Street Support Yard
	Pier D Street Realignment
3 – Northwest	Pier S Mixed Use Development
	Pier S Shoreline Enhancement
4 – West Basin	Pier T Echo Support Yard
5 – Southeast	Administrative Building Site Support Yard (Expansion)
	Protective Boat Basin (Berth F202)[2]
6 – Anchorage and Open Water	OHSPER[2]
7 – Queensway Bay	Ocean Boulevard Bicycle Gap Closure

Key: OHSPER = Outer Harbor Sediment Placement Ecosystem Restoration
Notes:
[1] This project is located in Planning Districts 2 and 5.
[2] These projects are not consistent with the 1990 Port Master Plan as amended and have not undergone final project-level California Environmental Quality Act review.

ES.4.3.3 Alternative 3: Reduced Terminal Development

Alternative 3 includes all projects listed under Alternative 2 and replaces the Pier T Echo Support Yard with the Pier T Improvements project and adds the Pier J Reduced Development project described below (Table ES-4). The Pier T Improvements and Pier J Reduced Development projects would provide the Port with additional container handling capacity, consistent with the Proposed Plan objectives of accommodating future cargo demands. This alternative differs from the Proposed Plan in that it would involve a reduction in new container terminal development (i.e., Pier J Reduced Development project and no Pier W Terminal Development project).

Pier J Reduced Development

This project would redevelop the Pier J Terminal and include dredging and filling the 22-acre triangle, cutting a 9-acre notch, and extending the north wharf to the east. The redeveloped terminal would consist of an approximately 168-acre container yard. This project would also relocate the existing rail line and yard to Pier J South. Compared to the Pier J Terminal Development project that would occur under the Proposed Plan, the Pier J Reduced Development project would not include dredging and filling the 44-acre Pier J South Slip, cutting off the tip of Pier F, or constructing an extension of the north wharf westward (9-acre extension fill).

TABLE ES-4. ALTERNATIVE 3 (REDUCED TERMINAL DEVELOPMENT) PROJECTS

Planning District	Project
2 – Northeast	Fourth Track at Ocean Boulevard[1]
	Pier B Street Support Yard
	Pier D Street Realignment
3 – Northwest	Pier S Mixed Use Development
	Pier S Shoreline Enhancement
4 – West Basin	Pier T Improvements
5 – Southeast	Administrative Building Site Support Yard (Expansion)
	Protective Boat Basin (Berth F202)[2]
	Pier J Reduced Development[2]
6 – Anchorage and Open Water	OHSPER[2]
7 – Queensway Bay	Ocean Boulevard Bicycle Gap Closure

Key: OHSPER = Outer Harbor Sediment Placement Ecosystem Restoration
Note:
[1] This project is located in Planning Districts 2 and 5.
[2] These projects are not consistent with the 1990 PMP as amended and have not undergone final project-level CEQA review.

ES.4.4 Comparison of the Proposed Plan and Alternatives

The components included in the Proposed Plan and alternatives are summarized in Table ES-5.

TABLE ES-5. COMPARISON OF PROPOSED PLAN AND ALTERNATIVES

	Proposed Plan	Alternative 1 (No Plan Alternative)	Alternative 2 (No Terminal Development)	Alternative 3 (Reduced Terminal Development)
Port Container Capacity[1] (million TEU/year)	16.9	14.0	14.0	15.3
New Fill Acreage	245.3	0	0.3	92.3
Port Master Plan Updates				
Changes to Land and Water Use and Planning Districts	X		X	X

TABLE ES-5. COMPARISON OF PROPOSED PLAN AND ALTERNATIVES

	Proposed Plan	Alternative 1 (No Plan Alternative)	Alternative 2 (No Terminal Development)	Alternative 3 (Reduced Terminal Development)
Port Master Plan Projects				
Fourth Track at Ocean Boulevard	X	X	X	X
Pier B Street Support Yard	X	X	X	X
Pier D Street Realignment	X	X	X	X
Pier S Mixed Use Development	X	X	X	X
Pier S Shoreline Enhancement	X	X	X	X
Administrative Building Site Support Yard (Expansion)	X	X	X	X
Ocean Boulevard Bicycle Gap Closure	X	X	X	X
OHSPER	X		X	X
Protective Boat Basin (Berth F202)	X		X	X
Pier T Echo Support Yard		X	X	
Pier T Improvements	X			X
Pier J Reduced Development				X
Pier J Terminal Redevelopment	X			
Pier W Terminal Development	X			

Key: OHSPER = Outer Harbor Sediment Placement Ecosystem Restoration; TEU = twenty-foot equivalent unit
[1] Integrated Land Use Tool output

1 ## ES.5 ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

The potential impacts and proposed mitigation measures associated with the construction and operation of the Proposed Plan projects (not including the OHSPER project) and land use changes are summarized in Table ES-6 and discussed further by environmental resource area.

Specific projects included under the Proposed Plan, other than the OHSPER project, will be evaluated in future project-specific analyses, in accordance with CEQA.

TABLE ES-6. SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED PLAN				
Potential Impact	**Significance Before Mitigation**	**Mitigation**	**Significance After Mitigation**	**Cumulative Significance**
Aesthetics/Visual Resources (Section 3.1)				
AES-1: Have a substantial adverse effect on a scenic vista.	Less than significant.	None necessary.	Less than significant.	No significant cumulative impact.
AES-2: Substantially damage scenic resources including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway.	Less than significant.	None necessary.	Less than significant.	
AES-3: Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area.	Less than significant.	None necessary.	Less than significant.	
AES-4: Conflict with applicable zoning and other regulations governing scenic quality.	Less than significant.	None necessary.	Less than significant.	
Air Quality and Health Risk (Section 3.2)				
AQ-1: Construction or operational emissions exceed any of the SCAQMD daily thresholds of significance.	Potentially significant.	**Mitigation Measure AQ-1:** All on-road heavy-duty trucks used to transport materials to and from the construction site shall meet USEPA 2010 on-road heavy-duty diesel engine emission standards. **Mitigation Measure AQ-2:** All land-based, diesel-fueled off-road construction equipment 25 hp or greater shall meet USEPA/California Air Resources Board Tier 4 off-road engine emission standards. **Mitigation Measure AQ-3:** Off-road diesel-powered construction equipment shall comply with the following: • Maintain all construction equipment according to manufacturer's specifications.	Significant and unavoidable.	Significant and unavoidable.

TABLE ES-6. SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED PLAN				
Potential Impact	**Significance Before Mitigation**	**Mitigation**	**Significance After Mitigation**	**Cumulative Significance**
AQ-1, continued		• Construction equipment shall not idle for more than 5 minutes when not in use. **Mitigation Measure AQ-4:** Construction site watering, which would be required by SCAQMD Rule 403, shall be increased such that the watering interval is no greater than 2.1 hours. **Mitigation Measure AQ-5:** Contractors shall perform the following: • Apply approved nontoxic chemical soil stabilizers according to manufacturers' specifications to all inactive construction areas or replace groundcover in disturbed areas. • Provide temporary wind fencing around sites being graded or cleared. • Cover truck loads that haul dirt, sand, or gravel or maintain at least 2 feet of freeboard in accordance with Section 23114 of the California Vehicle Code. • Install wheel washers where vehicles enter and exit unpaved roads onto paved roads, or wash off tires of vehicles and any equipment leaving the construction site. • Suspend all soil disturbance activities when winds exceed 25 miles per hour or when visible dust plumes emanate from the site and stabilize all disturbed areas. **Mitigation Measure AQ-6:** The construction contractor shall ensure that all tugboats used in construction meet the USEPA Tier 3 marine engine standards, if feasible. In addition, the construction contractor shall require all construction tugboats that home fleet in the		

TABLE ES-6. SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED PLAN				
Potential Impact	**Significance Before Mitigation**	**Mitigation**	**Significance After Mitigation**	**Cumulative Significance**
AQ-1, continued		San Pedro Bay Ports to 1) to shut down their main engines and 2) refrain from using auxiliary engines while at dock and instead use electrical shore power, if feasible. **Mitigation Measure AQ-7:** All applicable source-specific strategies identified in the 2010 CAAP Update shall be incorporated into project operations, unless they are superseded by regulation or by more effective emission-reduction strategies as required in **Mitigation Measure AQ-8**. **Mitigation Measure AQ-8:** All applicable commercially-available clean engine equipment technologies and fuels strategies shall be incorporated into project operations to meet the goals identified in the 2017 CAAP Update. **Mitigation Measure AQ-9:** Every 5 years following a project approval date, the project proponent shall conduct a review of new air quality technological advancements. The applicability of a technology shall be based on operational, technical, and financial feasibility to the project. If a technology is determined to be feasible in terms of financial, technical, and operational feasibility, the project proponent shall implement such technology. **Mitigation Measure AQ-10:** To mitigate air quality impacts of the Proposed Plan, the Community Grants Program will be implemented and funded to partially address the cumulative air quality impacts of individual projects under the Proposed Plan. To		

TABLE ES-6. SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED PLAN

Potential Impact	Significance Before Mitigation	Mitigation	Significance After Mitigation	Cumulative Significance
AQ-1, continued		determine a project's contribution to the Port of Long Beach Community Grants Program, the methodology described in the latest Port of Long Beach Community Grants Program and Investment Plan shall be used.		
AQ-2: Construction or operations result in off-site ambient air pollutant concentrations that exceed any of the SCAQMD thresholds of significance.	Potentially significant.	**Mitigation Measures AQ-1 through AQ-9.**	Significant and unavoidable.	
AQ-3: Operational emissions create an objectionable odor at the nearest sensitive receptor pursuant to SCAQMD Rule 402.	Less than significant.	None necessary.	Less than significant.	
AQ-4: Construction and operation emissions expose the public to significant levels of toxic air contaminants.	Potentially significant.	**Mitigation Measures AQ-1 through AQ-3 and AQ-6 through AQ-9**.	Significant and unavoidable.	
AQ-5: Operations conflict with or obstruct implementation of an applicable AQMP or not conform to the most recently adopted State Implementation Plan.	Less than significant.	None necessary.	Less than significant.	
Biota and Habitats (Section 3.3)				
BIO-1: Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.	Potentially significant.	**Mitigation Measure BIO-1:** Where appropriate, construction/demolition activities would be scheduled during season(s) when these activities would be least likely to affect protected avian species that would occur within the project area. If active nests for avian species are found, a suitable no-disturbance buffer will be established and avoided. If ground disturbance is scheduled to occur	Less than significant.	No significant cumulative impact.

TABLE ES-6. SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED PLAN				
Potential Impact	**Significance Before Mitigation**	**Mitigation**	**Significance After Mitigation**	**Cumulative Significance**
BIO-1, continued		within a nest buffer area, the project operator will avoid the area by delaying ground disturbance until a qualified wildlife biologist has determined that the birds have fledged and are no longer reliant upon the nest or parental care for survival. **Mitigation Measure BIO-2:** To minimize noise impacts from pile driving, the following are types of mitigation that may be required on a project-specific basis: • Vibratory Hammer: During construction, a vibratory pile driver would be used whenever possible to drive steel piles, if used. Concrete piles would be driven with an impact hammer only. • Deployment of bubble curtains, cofferdams, isolation casings, cushion block, or other noise attenuation device(s) during impact driving of steel piles to reduce underwater noise levels. • Soft Starts for Pile Driving: During impact hammer pile driving operations for steel piles, the contractor shall conduct an initial set of strikes from the impact hammer at reduced energy, followed by a 30-second waiting period, then two subsequent sets, to allow marine species the opportunity to leave the area prior to the hammer operating at full capacity.		

TABLE ES-6. SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED PLAN				
Potential Impact	**Significance Before Mitigation**	**Mitigation**	**Significance After Mitigation**	**Cumulative Significance**
BIO-2: Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.	Potentially significant.	**Mitigation Measures BIO-1 and BIO-2.**	Less than significant.	
BIO-3: Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.	Less than significant.	None necessary.	Less than significant.	
BIO-4: Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites.	Potentially significant.	**Mitigation Measures BIO-1 and BIO-2.**	Less than significant.	
BIO-5: Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.	Less than significant.	None necessary.	Less than significant.	
BIO-6: Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan.	Less than significant.	None necessary.	Less than significant.	

TABLE ES-6. SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED PLAN				
Potential Impact	**Significance Before Mitigation**	**Mitigation**	**Significance After Mitigation**	**Cumulative Significance**
Historical and Tribal Cultural Resources (Section 3.4)				
CR-1: Cause a substantial adverse change in the significance of a historical resource pursuant to 14 CCR Section 15064.5.	Potentially significant.	**Mitigation Measure CR-1:** If an assessment prepared as part of the environmental review for a project determines that a historical resource would be impacted, to ensure continuing conformance with the Secretary of the Interior's Standards for the Treatment of Historic Properties and/or avoidance of a material impairment of the historical resources the area of direct and indirect impact, the project proponent shall determine the need to implement measures that could include, but would not be limited to, one or more of the following to further avoid, minimize, or substantially reduce the identified impacts: • Prior to construction and construction monitoring activities, a preservation architect or architectural historian qualified under the Secretary of the Interior's Professional Qualifications Standards in historic architecture and/or architectural history shall participate in plan review and approval. • Complete photographic documentation of the historical resource prior to implementation of the project in accordance with the standards and guidelines for Historical American Buildings Survey, Historic American Engineering Record, and Historic American Landscapes Survey documentation, as outlined in the latest guidelines set by the Heritage	Less than significant.	Significant and unavoidable.

TABLE ES-6. SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED PLAN				
Potential Impact	**Significance Before Mitigation**	**Mitigation**	**Significance After Mitigation**	**Cumulative Significance**
CR-1, continued		Documentation Programs instituted by the National Park Service.		
CR-2: Cause a substantial adverse change in the significance of an archaeological resource pursuant to 14 CCR Section 15064.5.	Potentially significant.	**Mitigation Measure CR-2:** In the event potentially significant archaeological resources are encountered during earthmoving activities, the construction contractor shall cease such activity within 50 feet of the affected area until the discovery is evaluated by a qualified archaeologist in accordance with the provisions of CEQA Section 15064.5 (c)(f). If the archaeological resources are found to be significant, they shall be avoided or mitigated consistent with Office of Historic Preservation Guidelines. The POLB shall determine the need to implement measures that might include, but are not limited to, one or more of the following to further avoid, minimize, or substantially reduce the identified impacts: 1) subsurface testing prior to resuming construction; 2) recovery of archaeological or tribal cultural resources, based on a data recovery treatment plan prepared and approved by the agency before recovery excavations begin; and/or 3) post-construction documentation. For prehistoric archaeological resources, tribes requesting notification will be consulted in accordance with Assembly Bill 52 and CEQA.	Less than significant.	
CR-3: Disturb any human remains, including those interred outside of dedicated cemeteries.	Potentially significant.	**Mitigation Measure CR-3:** If human remains are discovered, the Los Angeles County Coroner shall be notified immediately and there shall be no further disturbance to the site where the remains were found. An environmentally sensitive area shall	Less than significant.	

TABLE ES-6. SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED PLAN				
Potential Impact	**Significance Before Mitigation**	**Mitigation**	**Significance After Mitigation**	**Cumulative Significance**
CR-3, continued		be defined 50 feet surrounding the discovery where no ground disturbance or construction would occur. If the remains are determined by the coroner to be Native American, the coroner would be responsible for contacting the Native American Heritage Commission within 24 hours. The Native American Heritage Commission, pursuant to Section 5097.98, shall immediately notify those persons believed to be the most likely descendent so they can inspect the burial site and make recommendations for treatment or disposal. If the human remains are to be removed, relocated, or reburied, an agreement document including a treatment plan shall be developed in consultation with the most likely descendent.		
CR-4: Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074.	Potentially significant.	**Mitigation Measure CR-4:** In the event potentially significant tribal cultural resources are encountered during earthmoving activities, the construction contractor shall cease such activity within 50 feet of the affected area until the discovery can be evaluated by a qualified archaeologist, tribal representative, or other specialist as needed in accordance with the provisions of CEQA Section 15064.5 (c)(f). If the resources are found to be significant, they shall be avoided or mitigated consistent with Office of Historic Preservation Guidelines, as described further under **Mitigation Measure CR-2**.	Less than significant.	

TABLE ES-6. SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED PLAN				
Potential Impact	**Significance Before Mitigation**	**Mitigation**	**Significance After Mitigation**	**Cumulative Significance**
Geology, Soils, and Seismic Conditions (Section 3.5)				
GEO-1: Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving the following: • Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map; • Strong seismic ground shaking; • Landslides, lateral spreading, subsidence, liquefaction, or collapse; and/or • Tsunamis or seiches.	Less than significant.	None necessary.	Less than significant.	Significant and unavoidable.
GEO-2: Result in substantial soil erosion or the loss of topsoil.	Less than significant.	None necessary.	Less than significant.	
GEO-3: Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property.	Less than significant.	None necessary.	Less than significant.	
GEO-4: Directly or indirectly destroy a unique geologic feature or result in the permanent loss of, or loss of access to, a paleontological resource of regional or statewide significance.	Potentially significant.	**Mitigation Measure GEO-1:** In the event that any paleontological resource is encountered during construction activities, construction work in the immediate area shall be temporarily halted until the significance of the find can be assessed by a qualified paleontologist. Additional monitoring recommendations may be made at that time. If the resource is found to be significant, the paleontologist shall prepare and complete a standard Paleontological Resources Mitigation Program for the salvage and curation of identified resources.	Less than significant.	

TABLE ES-6. SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED PLAN				
Potential Impact	**Significance Before Mitigation**	**Mitigation**	**Significance After Mitigation**	**Cumulative Significance**
GEO-5: Known mineral (petroleum or natural gas) resources would be rendered inaccessible.	Less than significant.	None necessary.	Less than significant.	
Hazards and Hazardous Materials (Section 3.6)				
HAZ-1: Create a significant adverse effect on the public or environment through the routine transport, storage, use, or disposal of hazardous materials.	Less than significant.	None necessary.	Less than significant.	No significant cumulative impact.
HAZ-2: Create a significant adverse effect on the public or environment through reasonably foreseeable upset or accident conditions involving the release of hazardous materials into the environment.	Potentially significant.	**Mitigation Measure HAZ-1:** For projects involving hazardous liquid bulk facilities with in-water operations, project proponents shall prepare a report evaluating the technical, operational, and economic (including cost) feasibility of any potential new or emerging spill prevention or response technologies. If it is determined that the technology is feasible in terms of cost, technical and operational feasibility, the technology shall be implemented as soon as practicable.	Less than significant.	
HAZ-3: Produce an adverse effect on the public or environment as a result of being located on a site that is known to contain hazardous materials or create a significant hazard to people or the environment because of the presence of soil or groundwater contamination.	Less than significant.	None necessary.	Less than significant.	
HAZ-4: Impair implementation, physically interfere with, or result in an inconsistency with an adopted emergency response or evacuation plan.	Less than significant.	None necessary.	Less than significant.	

TABLE ES-6. SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED PLAN				
Potential Impact	**Significance Before Mitigation**	**Mitigation**	**Significance After Mitigation**	**Cumulative Significance**
HAZ-5: Not comply with state guidelines associated with abandoned oil wells.	Less than significant.	None necessary.	Less than significant.	
HAZ-6: Handle hazardous materials, substances, or wastes within 0.25 mile of an existing or planned school.	Less than significant.	None necessary.	Less than significant.	
HAZ-7: Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires.	Less than significant.	None necessary.	Less than significant.	
HAZ-8: Result in a safety hazard or excessive noise for people residing or working in a project area located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport.	Less than significant.	None necessary.	Less than significant.	
HAZ-9: Result in an inconsistency with the Port of Long Beach Risk Management Plan.	Less than significant.	None necessary.	Less than significant.	
Hydrology and Water Quality (Section 3.7)				
WQ-1: Violate any water quality regulatory standards or waste discharge requirements or otherwise substantially degrade surface water or groundwater quality.	Less than significant.	None necessary.	Less than significant.	No significant cumulative impact.

TABLE ES-6. SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED PLAN				
Potential Impact	**Significance Before Mitigation**	**Mitigation**	**Significance After Mitigation**	**Cumulative Significance**
WQ-2: Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.	Less than significant.	None necessary.	Less than significant.	
WQ-3: Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces in a manner that would: • Result in substantial erosion or siltation on or off site; • Substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or off site; • Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial sources of polluted runoff; or • Impede or redirect flood flows.	Less than significant.	None necessary.	Less than significant.	
WQ-4: In flood hazard, tsunami, or seiche zones, risk releases of pollutants due to project inundation.	Less than significant.	None necessary.	Less than significant.	
WQ-5: Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.	Less than significant.	None necessary.	Less than significant.	

TABLE ES-6. SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED PLAN				
Potential Impact	**Significance Before Mitigation**	**Mitigation**	**Significance After Mitigation**	**Cumulative Significance**
WQ-6: Substantially alter water circulation or currents or result in the long-term detrimental alteration of harbor circulation that would cause reduced water quality.	Less than significant.	None necessary.	Less than significant.	
Land Use (Section 3.8)				
LU-1: Conflict with any applicable land use plan, policy, or regulation of any agency with jurisdiction over the Proposed Plan adopted for the purpose of avoiding or mitigating an environmental effect.	Less than significant.	None necessary.	Less than significant.	No significant cumulative impact.
LU-2: Introduce uses or activities incompatible with existing and future land uses.	Less than significant.	None necessary.	Less than significant.	
LU-3: Physically divide an established community.	Less than significant.	None necessary.	Less than significant.	
Noise (Section 3.9)				
NOI-1: Result in a substantial temporary or permanent increase (3 dBA or more in L_{eq}) in ambient noise levels at the property line of a noise-sensitive receptor.	Potentially significant	**Mitigation Measure NOI-1a:** Placement of temporary noise barriers between noise-generating construction activities (e.g., concrete demolition) and noise-sensitive locations. Temporary barriers would be designed with the goal of reducing noise levels to below significance thresholds where such reductions are practicable using commercially available products. **Mitigation Measure NOI-1b:** Scheduling limits on noise-generating activities. Noise-generating activities shall be limited to the hours of 7:00 a.m. to 7:00 p.m. on weekdays, between 9:00 a.m. and 6:00 p.m. on Saturdays, and prohibited anytime on Sundays and holidays as prescribed by	Significant and unavoidable. Because project-specific details and project-tailored mitigation measures are not known at this time, it is not possible to determine if mitigation measures would reduce noise levels to less	Significant and unavoidable.

TABLE ES-6. SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED PLAN				
Potential Impact	**Significance Before Mitigation**	**Mitigation**	**Significance After Mitigation**	**Cumulative Significance**
NOI-1, continued		Section 8.80.202 of the LBMC. **Mitigation Measure NOI-1c:** All construction equipment powered by internal combustion engines would be properly muffled and maintained. Quiet construction equipment would be used during Proposed Plan project construction to the extent feasible. **Mitigation Measure NOI-1d:** The idling of internal combustion engines near noise-sensitive areas would be prohibited during Proposed Plan project construction. **Mitigation Measure NOI-1e:** All stationary noise-generating construction equipment, such as air compressors and portable power generators, would be located as far as practical from existing noise-sensitive land uses. **Mitigation Measure NOI-1f:** The project proponent would notify all property managers adjacent to the Proposed Plan project site in advance of the construction schedule.	than significant levels at sensitive noise receptors.	
NOI-2: Exceed Land Use Noise District noise levels allowed by the LBMC.	Potentially significant.	**Mitigation Measures NOI-1a, NOI-1c, NOI-1d, and NOI-1e.**	Significant and unavoidable.	
NOI-3: Result in exposure of persons to or generation of ground-borne vibration in excess of the standards established by the LBMC.	Construction: Less than significant. Operations: Related impacts are potentially significant due to the lack of project-specific details related to potential sources of vibration.	The need for and design of project-tailored mitigation measures would be developed as part of the project-specific operational noise and vibration assessments.	Significant and unavoidable. Because project-specific details and project-tailored mitigation measures are not known at this time, it is not possible to	

TABLE ES-6. SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED PLAN				
Potential Impact	**Significance Before Mitigation**	**Mitigation**	**Significance After Mitigation**	**Cumulative Significance**
NOI-3, continued			determine the extent to which mitigation measures would reduce ground-borne vibration.	
NOI-4: Result in a substantially increased number of vibration events that exceed the standards established by the LBMC.	Construction: Less than significant. Operations: Potentially significant due to the lack of project-specific details related to sources of vibration.	The need for and design of project-tailored mitigation measures would be developed as part of the project-specific operational noise and vibration assessments.	Significant and unavoidable. Because project-specific details and project-tailored mitigation measures are not known at this time, it is not possible to determine the extent to which mitigation measures would reduce the number of vibration events.	
Population and Housing (Section 3.10)				
POP-1: Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure).	Less than significant.	None necessary.	Less than significant.	No significant cumulative impact.

TABLE ES-6. SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED PLAN				
Potential Impact	**Significance Before Mitigation**	**Mitigation**	**Significance After Mitigation**	**Cumulative Significance**
POP-2: Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere.	Less than significant.	None necessary.	Less than significant.	
Public Services and Safety (Section 3.11)				
PSS-1: Require the addition, expansion, modification, or relocation of an existing government facility to maintain acceptable service ratios, response times, or other performance objectives, the construction or operation of which could cause significant environmental impacts.	Less than significant.	None necessary.	Less than significant.	No significant cumulative impact.
PSS-2: Result in substantial adverse physical impacts on existing school or park facilities or create a need for new or physically altered school or park facilities, the construction or operation of which could cause significant environmental impacts, to maintain acceptable service ratios or other performance objectives.	Less than significant.	None necessary.	Less than significant.	
Recreation (Section 3.12)				
REC-1: Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.	Less than significant.	None necessary.	Less than significant.	No significant cumulative impact.

TABLE ES-6. SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED PLAN				
Potential Impact	**Significance Before Mitigation**	**Mitigation**	**Significance After Mitigation**	**Cumulative Significance**
REC-2: Require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment.	Less than significant.	None necessary.	Less than significant.	
Ground Transportation (Section 3.13)				
TRANS-1: Increase an intersection's V/C ratio or delay value in accordance with the guidelines for traffic impact thresholds of significance for intersections (signalized and unsignalized) of the affected jurisdictions in the area of influence.	Potentially significant.	**Mitigation Measure TRANS-1:** If a project-level traffic analysis shows a significant impact, traffic improvements in accordance with CEQA guidelines will be required and implemented to minimize impacts. Types of improvements may include, but are not limited to, the following: additional lanes, signalization, signal phasing and timing improvements, restriping, and other measures in accordance with relevant policies and procedures. The specific improvements to be implemented shall be based on operational and technical feasibility, on a project-by-project basis.	Significant and unavoidable. The extent of necessary improvements and their timing is uncertain as project-specific details and project-tailored mitigation measures are not known at this time.	Significant and unavoidable.
TRANS-2: Cause an increase of 0.02 or more in the V/C ratio with a resulting LOS E or F at an analyzed intersection or freeway segment.	Less than significant.	None necessary.	Less than significant.	
TRANS-3: Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities or otherwise decrease the performance or safety of such facilities.	Less than significant.	None necessary.	Less than significant.	
TRANS-4: Result in inadequate emergency access.	Less than significant.	None necessary.	Less than significant.	

TABLE ES-6. SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED PLAN				
Potential Impact	**Significance Before Mitigation**	**Mitigation**	**Significance After Mitigation**	**Cumulative Significance**
Vessel Transportation (Section 3.14)				
VT-1: Result in a change in vessel traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks.	Less than significant.	None necessary.	Less than significant.	No significant cumulative impact.
Utilities, Service Systems, and Energy Conservation (Section 3.15)				
UTIL-1: Require or result in the construction or expansion of water, wastewater, storm drains, natural gas, electrical utility lines or facilities, or oil lines that could cause significant environmental effects.	Less than significant.	None necessary.	Less than significant.	No significant cumulative impact.
UTIL-2: Exhaust or exceed existing water supply, wastewater treatment, electrical power, or landfill capacities.	Less than significant.	None necessary.	Less than significant.	
UTIL-3: Result in potentially significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation.	Less than significant.	None necessary.	Less than significant.	
UTIL-4: Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.	Less than significant.	None necessary.	Less than significant.	
Global Climate Change (Section 3.16)				
GCC-1: Cause GHG emissions to exceed the SCAQMD interim significant emissions threshold for industrial projects of 10,000 MT CO_2e per year.	Potentially significant.	**Mitigation Measures AQ-1 through AQ-3 and AQ-6 through AQ-9.** **Mitigation Measure GCC-1:** All lighting within new buildings and outdoor areas shall be LED lighting or a technology with similar energy-	Significant and unavoidable because it is uncertain to what degree	Significant and unavoidable.

GCC-1, continued		saving capabilities. **Mitigation Measure GCC-2:** Water conservation features shall be implemented, including drought-tolerant plant materials. Xeriscape landscaping shall incorporate the use of water conservation features including, but not limited to, drought-tolerant plants; hardscape; permeable material such as concrete, asphalt, and pavers; recycled material such as concrete, gravel, granite, and shredded redwood; and drip irrigation systems and timers. **Mitigation Measure GCC-3:** Trees shall be planted on-site/within the facility and shall be selected, as appropriate, from lists contained in the City of Long Beach Public Works' Approved Tree List, which identifies trees to be planted in public rights-of-way; the Port of Long Beach Sustainable Landscape Palette, which identified native and drought-tolerant species; and the Port of Long Beach's latest Community Mitigation Grants Program Approved Tree List, which prioritizes trees based on their crown diameter and ability to capture CO_2 from the atmosphere. **Mitigation Measure GCC-4:** For projects for which the Port is the proponent, the Port shall plant new shade trees on Port-controlled lands adjacent to the roads that lead into the facility, to the extent practicable, consistent with safety and other land use considerations. **Mitigation Measure GCC-5:** Construction and facility employees shall be encouraged to carpool or to use public transportation. Employers shall provide incentives to promote the measure, such as preferential parking for carpoolers or vanpool subsidies, and they shall provide information to employees regarding the benefits of alternative transportation methods.	individual projects under the Proposed Plan would be able to implement the proposed mitigation measures.	

TABLE ES-6. SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED PLAN				
Potential Impact	**Significance Before Mitigation**	**Mitigation**	**Significance After Mitigation**	**Cumulative Significance**
GCC-1, continued		**Mitigation Measure GCC-6:** The Community Grants Program will be implemented and funded to partially address the cumulative GHG impacts of individual projects under the Proposed Plan. To determine a project's contribution to the Community Grants Program, the methodology described in the latest Port of Long Beach Community Grants Program and Investment Plan shall be used. **Mitigation Measure GCC-7:** Indirect GHG emissions shall be minimized through measures that reduce or avoid electricity consumption during operations. Measures may include, but are not limited to, the use of low-energy demand lightings (e.g., fluorescent or LED), use of energy-efficient floodlights, third-party energy audits, and installation of innovative power-saving technologies where feasible, such as power factor correction systems and lighting power regulators. Such systems help to maximize usable electric current and eliminate wasted electricity, thereby lowering overall electricity use.		
GCC-2: Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs.	Potentially significant.	**Mitigation Measures GCC-1, GCC-3, and GCC-4.**	Less than significant.	
GCC-3: Expose people and structures to a significant risk of loss, injury, or death involving flooding as a result of sea level rise.	Less than significant.	None necessary.	Less than significant.	
Key: AQMP = Air Quality Management Plan; CAAP = Clean Air Action Plan; CCR = California Code of Regulations; CEQA = California Environmental Quality Act; CO_2 = carbon dioxide; CO_2e = carbon dioxide equivalent; dBA = A-weighted decibels; GHG = greenhouse gas; hp = horsepower; LBMC = Long Beach Municipal Code; LED = light-emitting diode; LOS = level of service; MT = metric ton; POLB or Port = Port of Long Beach; SCAQMD = South Coast Air Quality Management District; U.S. = United States; USEPA = U.S. Environmental Protection Agency; V/C = volume-to-capacity				

ES.5.1 Aesthetics/Visual Resources

Impacts from construction and operation of the Proposed Plan projects and land use changes on aesthetics/visual resources were evaluated by determining whether and to what extent the projects would have a substantial adverse effect on a scenic vista (Impact AES-1); damage scenic resources (Impact AES-2); create a new source of substantial light or glare that would adversely affect day or nighttime views in the area (Impact AES-3); and/or conflict with applicable zoning and other regulations governing scenic quality (Impact AES-4).

Construction associated with the Proposed Plan projects and land use changes could be visible from nearby viewpoints. However, construction at a particular project site would be temporary and visually compatible with existing industrial activity. Therefore, project construction would not result in substantial changes in the visual quality of the project sites or surrounding areas. Similarly, construction associated with the Proposed Plan projects and land use changes would not damage scenic resources within a designated scenic route or highway. The majority of construction activities associated with the Proposed Plan projects would occur during daylight hours and not require additional lighting sources. However, construction activities occurring during winter months could require the use of additional night lighting or equipment headlights to illuminate work areas. In general, construction equipment would not have reflective surfaces capable of increasing sunlight glare. The intermittent use of limited lighting sources during construction activities within an existing highly illuminated Port complex would not create new sources of substantial light or glare that would adversely affect day or nighttime views in the Harbor District. The Proposed Plan would not conflict with applicable zoning and other regulations governing scenic quality.

In general, changes to the existing visual setting associated with operation of the Proposed Plan projects and land use changes would be perceived as an intensification consistent with existing industrial Port activity. Existing Port infrastructure would still be visible in the background, such that proposed container terminal support structures would not contrast with the intensive industrial visual character at the site. Therefore, proposed development and redevelopment of terminals would be a visually compatible intensification of the Port's existing industrial character. Operations associated with the Proposed Plan projects and land use changes would not damage scenic resources within a designated scenic route or highway. Additional lighting infrastructure or modifications to existing lighting would also be required to support operations and maintenance activities associated with several projects. Consequently, the number of lighting fixtures within the Harbor District would be increased as a result of the need for illumination of proposed structures and exterior areas and for nighttime maintenance or operations associated with these Proposed Plan projects. Although the number of lighting fixtures would be increased within the Harbor District, replacing older, traditional lighting fixtures with improved controlled fixtures (e.g., low-energy fixtures regulated by timers and light spillover reduction features) would likely diminish the overall level of night glare affecting the surrounding environment off site. New buildings would adhere to LEED design standards that encourage the use of solar energy (e.g., photovoltaic cells), which would collect solar energy rather than reflect it, so their surfaces would not create additional daytime on-site glare. Therefore, any increase in potential daytime or nighttime glare resulting from increased massing of terminal structures and containers within the Harbor District would not be substantial. The Proposed Plan project operations would not conflict with applicable zoning and other regulations governing scenic quality.

Consequently, Proposed Plan project construction and operation and land use changes would not cause any significant environmental effect. As impacts on aesthetics/visual resources would be less than significant, no mitigation is required.

ES.5.2 Air Quality and Health Risk

Impacts from construction and operation of the Proposed Plan projects and land use changes on air quality and health risks were evaluated by determining whether and to what extent the projects would result in emissions that would exceed any of the SCAQMD daily thresholds of significance (Impact AQ-1); result in off-site ambient air pollutant concentrations that exceed any of the SCAQMD thresholds of significance (Impact AQ-2); create an objectionable odor (Impact AQ-3); expose the public to significant levels of toxic air contaminants (Impact AQ-4); and/or conflict with or obstruct implementation of applicable air quality plans (Impact AQ-5).

Construction and operation of the Proposed Plan projects and land use changes would result in multiple significant and unavoidable impacts on air quality and human health. These impacts are as follows: 1) with mitigation incorporated, construction emissions from the projects would be significant for volatile organic compound (VOC), carbon monoxide (CO), nitrogen oxides (NO_x), particulate matter less than 10 microns in diameter (PM_{10}), and particulate matter less than 2.5 microns in diameter ($PM_{2.5}$); 2) maximum ambient pollutant concentrations associated with construction of the projects would be significant for nitrogen dioxide (NO_2), PM_{10}, and $PM_{2.5}$; 3) with mitigation incorporated, emissions would potentially remain above the SCAQMD daily emission thresholds for VOC, CO, PM_{10}, and $PM_{2.5}$; 4) with mitigation incorporated, operations would produce significant local 1-hour and annual NO_2 and 24-hour PM_{10} and $PM_{2.5}$ concentrations that would potentially remain above the SCAQMD ambient concentration threshold; 5) construction and operations would potentially contribute to regional adverse health effects associated with exposure to ozone, PM_{10}, and $PM_{2.5}$ in the South Coast Air Basin; 6) construction and operation would potentially contribute to local adverse health effects in the Port vicinity associated with exposure to NO_2, PM_{10}, and $PM_{2.5}$; and 7) with mitigation incorporated, operations would result in diesel particulate matter emissions that potentially would represent a significant contribution to regional cancer risks.

A number of mitigation measures (**Mitigation Measures AQ-1 through AQ-9**) would be implemented to reduce potential air quality impacts. However, even with mitigation, construction activities under the Proposed Plan would generate NO_x emissions that exceed the SCAQMD daily emission threshold. Many of the construction activities (such as wharf construction) also would exceed the thresholds for VOC, CO, and $PM_{2.5}$. Further, mitigated ambient pollutant impacts from the larger construction activities under the Proposed Plan would have the potential to exceed the SCAQMD concentration thresholds for 1-hour and annual NO_2 and 24-hour PM_{10}. Moreover, concurrent construction projects in close proximity to each other could result in overlapping impacts and could lead to higher concentrations at some locations and possible exceedances of the $PM_{2.5}$ threshold. **Mitigation Measure AQ-10** would mitigate cumulative air quality impacts associated with the Proposed Plan by implementing and funding the Port's Community Grants Program. The Community Grants Program provides additional funding for community-based air quality/health risk and greenhouse gas (GHG) emissions reductions.

It is uncertain to what degree individual projects under the Proposed Plan would implement the proposed mitigation measures. For example, implementation of source-specific strategies identified in the 2017 Clean Air Action Plan (CAAP) Update (**Mitigation Measure AQ-8**) would depend on future advancements in technology, regulatory development, and economic incentives. Full implementation of zero-emission drayage trucks and cargo handling equipment proposed in the 2017 CAAP Update could substantially reduce the annual unmitigated emissions estimated for the Proposed Plan in year 2040. However, based on the magnitude of the unmitigated emissions and the uncertainly of the level of future mitigation, the analysis concludes that mitigated emissions would potentially remain above the SCAQMD daily emission thresholds for VOC, CO, PM_{10}, and $PM_{2.5}$. Therefore, mitigated operations from the Proposed Plan would produce significant levels of VOC, CO, PM_{10}, and $PM_{2.5}$ emissions.

With full implementation of the proposed mitigation measures, the localized health risks could likely be less than significant for all health effects categories and potentially lower than 2017 Baseline levels. However, since it is uncertain how individual projects would implement the proposed mitigation measures in the future, the localized health risks associated with construction and operation of the Proposed Plan would be significant for individual cancer risk, cancer burden, and chronic and acute noncancer health effects.

ES.5.3 Biota and Habitats

Impacts from construction and operation of the Proposed Plan projects and land use changes on biological resources were evaluated by determining whether and to what extent the projects would: have a substantial adverse effect on any candidate, sensitive, or special status species (Impact BIO-1), riparian habitat or other sensitive natural community (Impact BIO-2) or state or federally protected wetlands (Impact BIO-3); interfere with the movement of any fish or wildlife species (Impact BIO-4); conflict with any local policies or ordinances protecting biological resources (Impact BIO-5); and/or the provisions of a local, regional, or state habitat conservation plan (Impact BIO-6).

Several species identified as a candidate, sensitive, or special status species are known to occur within the Harbor District. Construction and operational activities could result in noise, habitat modification, and temporary changes to water quality that could cause direct adverse effects, such as physical damage to an individual, loss of foraging habitat, or harassment to the extent that it abandons part of its normal range or otherwise substantially changes its behavior. Construction also could cause indirect effects such as changes that occur with decreased suitability of foraging habitat, or physical disturbance that results in avoidance behavior. Implementing standard construction best management practices (BMPs) for upland and in-water projects and a Spill Prevention, Control, and Countermeasures Plan, along with compliance with permit conditions would reduce the potential for direct impacts on sensitive species and/or indirect impacts on their habitat, but these measures would not eliminate the potential for significant impacts. However, implementation of **Mitigation Measures BIO-1 and BIO-2,** would reduce impacts to less than significant.

While there is very limited riparian and eelgrass habitat within the Harbor District, Essential Fish Habitat and habitat for fish species managed under the Magnuson-Stevens Fishery Conservation and Management Act occur within the Harbor District and potentially could be affected by construction activities associated with the Proposed Plan projects. In particular, impacts on existing biological resources could also occur through the introduction of invasive species in both terrestrial and aquatic habitats. Implementation of an invasive species/weed management plan and pre-construction surveys would be covered as part of permit-specified requirements under Clean Water Act (CWA) Section 404 and minimize the potential for the introduction and spread of invasive species, and would not conflict with any local policies or ordinances protecting biological resources.

None of the Proposed Plan projects would install physical barriers that would permanently interfere with wildlife movement. However, project construction could result in temporary noise and habitat modifications, which could affect the movement of native resident or migratory fish or bird species or impede the use of native nursery sites. However, these conditions would be temporary and localized, and impacts would be less than significant.

Construction and operation of the Proposed Plan projects and land use changes would not affect protected wetlands because none occur in the vicinity of the project sites. Additionally, the projects would not conflict with local policies or ordinances protecting biological resources or with habitat conservation plans because none apply to the Proposed Plan.

ES.5.4 Historical and Tribal Cultural Resources

Impacts from construction and operation of the Proposed Plan projects and land use changes on cultural resources were evaluated by determining whether and to what extent the projects would: cause an adverse change in the significance of a historical resource or an archaeological resource (Impacts CR-1 and CR-2); disturb any human remains (Impact CR-3); and/or cause a substantial adverse change in the significance of a tribal cultural resource (Impact CR-4).

Portions of the Harbor District contain potentially significant historical resources. Construction and/or development associated with some of the proposed plan projects could disturb, damage, or demolish such historical resources. Impacts might include demolition, or material alteration, of known historic structures; structural reuse requiring rehabilitation, restoration, reconstruction, and/or additions; or new construction or in-fill that has the potential to change the local landscape, by modifying the setting resulting in an impact on nearby significant cultural resources. Potential development impacts might also be associated with changes made to previously unevaluated historical resources. For projects involving restoration, preservation, or conservation of a historical resource that are conducted in a manner consistent with the Secretary of the Interior's standards for the treatment of historic properties, with implementation of **Mitigation Measure CR-1**, impacts on the historical resource would be less than significant.

No known archaeological resources have been identified within the Harbor District. Furthermore, much of the Port has been extensively disturbed during the 20th century by filling, cutting, and grading associated with the development and maintenance of the Port. However, unknown and unrecorded archaeological resources, including shipwrecks, could be located within or adjacent to Harbor District. Any construction/development activities associated with the Proposed Plan projects and land use changes that would entail ground disturbance could disturb, damage, or degrade intact archaeological resources and result in potentially significant impacts. With implementation of **Mitigation Measure CR-2**, this impact would be less than significant.

No known human remains have been identified within the Harbor District. However, unknown and unrecorded human remains could be located within or adjacent to the Harbor District. Buried resources, including human remains, could be inadvertently unearthed during ground-disturbing activities associated with the Proposed Plan projects and land use changes, resulting in a potentially significant impact. With implementation of **Mitigation Measure CR-3**, this impact would be less than significant.

No known tribal cultural resources have been identified within the Harbor District. On May 2, 2019, in accordance with both Assembly Bill (AB) 52 and Senate Bill (SB) 18, the Port sent letters via regular mail and email to the five tribes that were identified on the Native American Heritage Commission's Los Angeles County tribal consultation list notifying them of the decision to undertake a project and the opportunity for consultation under AB 52 and SB 18 (Appendix F, Historic Resources Data). These five tribes included the Gabrielino Band of Mission Indians-Kizh Nation; Gabrielino/Tongva San Gabriel Band of Mission Indians; Gabrielino-Tongva Tribe; Gabrielino Tongva Indians of California Tribal Council; and the Gabrielino/Tongva Nation. No requests for consultation under AB 52 or SB 18 have been received as of August 2, 2019. However, unknown and unrecorded tribal cultural resources could be located within or adjacent to the Harbor District. Buried resources, including tribal cultural resources, could be inadvertently unearthed during ground-disturbing activities associated with construction of Proposed Plan projects and land use changes, resulting in a potentially significant impact. With implementation of **Mitigation Measure CR-4**, this impact would be less than significant.

ES.5.5 Geology, Soils, and Seismic Conditions

Impacts from construction and operation of the Proposed Plan projects and land use changes on geology, soils, and seismic conditions were evaluated by determining whether and to what extent the projects would: risk loss, injury, or death due to an earthquake fault, seismic ground shaking, landslides, lateral spreading, subsidence, liquefaction, collapse, tsunamis or seiches (Impact GEO-1); result in substantial soil erosion or the loss of topsoil (Impact GEO-2); be located on expansive soil with risks to life or property (Impact GEO-3); destroy a unique geologic feature and/or result in the permanent loss of, or loss of access to, a paleontological resource of regional or statewide significance (Impact GEO-4) or interfere with access to a known mineral resources (Impact GEO-5).

No active faults are located beneath the Harbor District that might result in ground rupture and attendant damage to structures. However, seismic activity along numerous regional faults could produce seismic ground shaking, liquefaction, differential settlement, or other seismically induced ground failure that would expose people and structures to greater than normal risk. Construction in accordance with the City's Building Code requirements and state-mandated Marine Oil Terminal Engineering and Maintenance Standards would limit the probability of occurrence and the consequences from severe seismically induced ground movement during operations. The Harbor District is a relatively flat, paved, hydraulically filled peninsula, and is not subject to landslides or mudflows. Construction and operation of waterfront projects would not exacerbate risks of coastal flooding due to tsunamis and seiches.

Construction activities associated with the Proposed Plan projects and land use changes would result in a temporary increase in the potential for wind and water erosion of exposed soils and associated siltation of the adjoining channels. Runoff of soil would be controlled by use of BMPs, as required by either the General Construction Activity Stormwater Permit or a site specific Stormwater Pollution Prevention Plan.

Portions of the Harbor District are underlain by the Wilmington Oil Field, and oil and gas production operations are ongoing. Project construction could interfere with or prevent future oil and gas production operations; however, any Port construction would be required to ensure that oil and gas production can continue with minimal impacts. Other than petroleum, the Harbor District does not contain mineral resources that would become inaccessible due to construction or operation of Proposed Plan projects.

Some geological strata beneath the Harbor District from which vertebrate or significant specimens of other fossil types have been recovered are considered to have a high potential for paleontological resources. Project-related construction activities that include ground disturbance greater than 5 feet below ground surface within high resource sensitivity areas of the Port has the potential to impact significant subsurface paleontological resources. From a programmatic perspective, this impact would be significant, but it could be reduced to less than significant with implementation of **Mitigation Measure GEO-1**.

ES.5.6 Hazards and Hazardous Materials

Impacts from construction and operation of the Proposed Plan projects and land use changes on hazards and hazardous materials were evaluated by determining whether and to what extent the projects would: create a significant adverse effect on the public or environment through the routine transport, storage, use, or disposal of hazardous materials (Impact HAZ-1) or through reasonably foreseeable upset or accident conditions involving the release of hazardous materials into the environment (Impact HAZ-2); produce an adverse effect on the public or environment as a result of being located on a site that is known to contain hazardous materials or because of the presence of soil or groundwater contamination (Impact HAZ-3); interfere with an emergency response or evacuation plan (Impact HAZ-4); not comply with State guidelines associated with abandoned oil wells (Impact HAZ-5); handle hazardous materials, substances, or wastes within 0.25 mile of an existing or planned school (Impact HAZ-6); expose people or structures to risk of loss, injury or death involving wildland fires (Impact HAZ-7); result in a safety hazard or excessive noise for people residing or working in an area within an airport land use plan two miles of a public airport or public use airport (Impact HAZ-8); and/or result in an inconsistency with the POLB Risk Management Plan (RMP) (Impact HAZ-9).

Construction of the Proposed Plan projects and land use changes would be conducted in accordance with California Building Codes, City Development Services Department codes and guidelines, and Harbor Department specifications, including spill prevention and control; solid and hazardous waste management; and contaminated soil management. Adherence to applicable federal, state, and local regulations would ensure proper use and storage of hazardous materials and petroleum products, and proper removal of asbestos containing materials, lead-based paint, and polychlorinated biphenyls. Construction activities would not result in an accidental release of hazardous materials from onshore facilities or vessels. Only one of the Proposed Plan projects (Ocean Boulevard Bicycle Gap Closure) would be within 0.25 mile of a school, and construction and operation of this project would not use or handle hazardous materials.

As a standard procedure for activities occurring on Port property, a construction contractor would coordinate with Port police and the United States Coast Guard (USCG) who are responsible for the emergency response and evacuation planning, and all plans would be reviewed by the POLB to ensure adequate access is maintained throughout construction/demolition. Construction and demolition activities would be subject to emergency response and evacuation systems already implemented by the POLB. Traffic control equipment would be in place to direct local traffic around the work area. As such, emergency access to these sites would not be adversely impacted during construction.

Because portions of the Harbor District have been used historically for oil and gas production, construction of one or more of the Proposed Plan projects may encounter oil field infrastructure or abandoned oil wells. Project construction would not result in noncompliance with state guidelines associated with abandoned oil wells; however, improperly abandoned oil wells could result in gas migration to the surface, creating a health hazard. Implementation of California Division of Oil and Gas and Geothermal Resources measures would reduce adverse health and safety impacts on construction and operational personnel.

Operation of the Proposed Plan projects and land use changes would not increase the probability and/or severity of consequences to people or property as a result of accidental release of a petroleum product or hazardous substance. These risks would be reduced to less than significant with implementation of **Mitigation Measure HAZ-1**. Seepage of methane gas into structures from leaking abandoned wells can present a health, fire, and explosive hazard. Procedures are in place as per the City of Long Beach permitting requirements for methane testing and mitigation. Therefore, the potential for risk to the public from methane seepage would be less than significant.

The POLB is located in an industrial area with no designated wildland areas. The closest California Department of Forestry and Fire Protection designated high fire hazard area is located 17 miles to the north of the POLB (CAL FIRE 2019). Therefore, the risk of wildland fires in the area is low, and construction and operation of the Proposed Plan projects would not increase the risk.

The POLB is not located within an airport land use plan or within 2 miles of an airport. The Long Beach Airport, the closest airport, is located 3.2 miles to the north-east of the POLB, and the Long Beach Airport Area of Influence is outside of the POLB. Therefore, construction impacts on safety or excessive noise for persons near an airport associated with the Proposed Plan project would not result in a safety hazard or excessive noise for people residing or working in an area within an airport land use plan.

The Port RMP provides guidance on the operational use and storage of bulk liquid hazardous materials. Other hazardous materials would be regulated by the Clean Air Act (CAA) RMP requirements and implemented by the individual port tenants. Any operational activities associated with the Proposed Plan projects that would involve quantities of bulk liquid hazardous materials would be required to conduct an analysis per the Port RMP requirements to ensure that releases of hazardous materials would not cause impacts on nearby receptors.

ES.5.7 Hydrology and Water Quality

Impacts from construction and operation of the Proposed Plan projects and land use changes on hydrology and water quality were evaluated by determining the potential for the projects to result in a violation of regulatory standards or guidelines (Impact WQ-1); decrease groundwater supplies or interfere substantially with groundwater recharge (Impact WQ-2); substantially alter the existing drainage pattern of the site or area (Impact WQ-3); result in releases of pollutants due to project inundation (Impact WQ-4); conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan (Impact WQ-5); and/or substantially alter water circulation or currents, that would cause reduced water quality (Impact WQ-6).

Construction of the Proposed Plan projects and land use changes would not involve any direct or intentional discharges of wastes to harbor waters. All in-water work would be conducted in accordance with project-specific permits that include measures to minimize impacts on water quality and monitoring to verify the performance of those measures. Similarly, operation of the Proposed Plan projects and land use changes would not involve any unregulated discharges of wastes to the harbor or to upland areas with the potential to degrade surface water or groundwater. Runoff from general construction activities would have short-term, localized impacts on water quality. Potential releases of pollutants from a large accidental spill to marine waters and sediments would be minimized through existing regulatory controls and is unlikely to occur. The Proposed Plan projects and land use changes would not result in a violation of regulatory standards or guidelines.

Most of the Proposed Plan projects would likely involve construction activities that could encounter shallow groundwater, requiring dewatering. The impact of construction activities associated with the Proposed Plan projects and land use changes on groundwater supplies would be less than significant because the volume of groundwater extracted with dewatering would be negligible. Similarly, construction activities would not affect the rate of groundwater recharge because the construction areas associated with the Proposed Plan projects are small in comparison to the size of the groundwater basin; therefore, the potential contribution to groundwater supply is negligible. The groundwater beneath the Harbor District is not potable due to seawater intrusion. Construction activities associated with the Proposed Plan projects and land use changes would not affect the supply of potable water or adversely affect beneficial uses of groundwater.

Construction and operation of the Proposed Plan projects and land use changes would not result in increased flooding. Although portions of the project site are located within a 100-year flood zone, the proposed project would not increase the potential for flooding on site. Construction activities would not accelerate natural processes of wind and water erosion resulting in soil runoff or deposition that could not be contained or controlled on site through implementation of permit-specified BMPs to control runoff, as previously described. Therefore, impacts would be less than significant, and mitigation would not be required.

Portions of the Harbor District are within the 100-year flood zone, and other portions are subject to wave run-up from a tsunami under certain unlikely conditions. The POLB RMP includes risk management policies, criteria methodology, and implementation guidelines addressing the transfer, handling, storage, and transport of hazardous liquid bulk cargoes that are designed to reduce the potential for accidental releases or spills that might be associated with floods or wave run-up.

Construction of the Proposed Plan projects and land use changes would comply with POLB guidance related to surface water and groundwater quality and would not conflict with a water quality control plan or groundwater management plan

Some of the Proposed Plan projects would result in cut and fill, with 245.3 acres of new fill. The POLB is authorized by the State Tidelands Grant to create new lands to foster the orderly and necessary development of the Port. The permanent loss of aquatic habitat and function associated with net fill placement requires compensation through the creation or restoration of equivalent habitat. Placement of fill and construction of a breakwater would eliminate or alter circulation within the immediate vicinity of the project, but would not restrict tidal or wind driven surface flows along the main channels, which are the primary mechanisms for water circulation within the harbor. Consequently, it is unlikely that any of these projects, individually or in combination, would have a substantial effect on harbor circulation to an extent that would cause stagnation and degradation of water quality conditions within the San Pedro Bay Harbor Complex.

Therefore, impacts on hydrology and water quality from construction and operation of the Proposed Plan projects would be less than significant, and mitigation would not be required.

ES.5.8 Land Use

Impacts on land use were evaluated by determining the potential for the Proposed Plan projects and land use changes to conflict with applicable land use plans (Impact LU-1); result in land uses that are incompatible with existing or adjacent land uses (Impact LU-2); and/or physically divide an established community (Impact LU-3).

Proposed operation of the Proposed Plan projects would be dedicated to maritime-related uses and would be consistent with the overall policies stipulated in the Coastal Zone Management Act, CCA, and Tidelands Trust Act. These policies encourage existing ports to modernize and construct as necessary to minimize and/or eliminate the need for the creation of new ports and locate coastal dependent industrial facilities within existing sites whenever possible. Proposed

Plan project construction activities would be implemented to support Port-related industrial uses consistent with the City's General Plan goals for Land Use District Twelve, which includes the Harbor District. Therefore, the Proposed Plan would not conflict with applicable land use plans, policies, and regulations adopted for the purpose of avoiding or mitigating an environmental effect.

Construction activities associated with the Proposed Plan projects and land use changes would be consistent with Port-related industrial land use designations associated with the Proposed Plan. Construction of the Proposed Plan projects would develop and convert approximately 245.3 acres of open-water area to container terminals and backlands (i.e., container storage area) and maritime support facilities, which would be consistent with the existing and proposed land use designations for Planning Districts 4 and 5. Therefore, the Proposed Plan would not conflict with existing and future land uses.

All Proposed Plan projects would be constructed within the Harbor District; construction and/or modification of existing infrastructure within the City of Long Beach and Community of Wilmington would not be required. Therefore, the Proposed Plan would not physically divide an established community.

Therefore, impacts from construction and operation of the Proposed Plan projects and land use changes would be less than significant, and mitigation would not be required.

ES.5.9 Noise

Impacts from construction and operation of the Proposed Plan projects and land use changes on noise were evaluated by determining whether and to what extent the projects would increase ambient noise levels by 3 A-weighted decibels (dBA) or more at the property line of a noise-sensitive receptor (Impact NOI-1); exceed maximum noise levels allowed by the City (Impact NOI-2); produce ground vibration levels (Impact NOI-3); and/or substantially increase the number of vibration events (Impact NOI-4) that exceed the acceptability limits.

Construction activities associated with the Proposed Plan projects and land use changes would generate temporary and intermittent noise at and near the project sites. Composite noise levels within 630 feet of a construction site could be greater than 3 dBA above baseline conditions; which would be noticeable to sensitive receivers and potentially exceed maximum noise levels allowed by the City. Therefore, noise impacts from project construction would be significant. In-water construction elements that require pile driving could also generate noise levels that are more than 3 dBA above baseline conditions and impact sensitive receptors, such as live-aboards in adjacent marinas. These impacts would be addressed by implementing **Mitigation Measures NOI-1a through NOI-1f**. However, these measures would not reduce residual construction impacts to less than significant levels in all cases. While noise attenuation measures, such as use of noise barriers and construction procedures, may be applicable and are likely to reduce sound levels from construction, functional constraints and uncertainties as to the effectiveness of available measures or the availability of equipment with lower noise emissions may limit the effectiveness of mitigation. In addition, even with noise attenuation devices, the noise of pile driving would exceed significance threshold levels. Because project-specific details and project-tailored mitigation measures are not known at this time, it is not possible to determine if mitigation measures would reduce noise levels to less than significant levels at sensitive noise receptors

Only pile driving occurring within 640 feet of the Harbor District boundary would result in vibrations exceeding the Long Beach Municipal Code threshold outside of the Harbor District boundary. As all Proposed Plan projects likely requiring pile driving are located more than 640 feet from the

Harbor District boundary, construction-related vibration would be within the acceptability limits. However, Proposed Plan project operations may result in novel or new ground vibration sources at the POLB. Depending on the location and type of operational vibration sources, ground vibrations perceptible at or beyond the Harbor District boundary may occur. Project-specific operational noise and vibration assessments would be conducted when project details are finalized to determine significance of impacts. Therefore, construction-related impacts from vibration would be less than significant, whereas operations-related impacts are potentially significant due to the lack of project-specific details related to potential sources of vibration.

ES.5.10 Population and Housing

Impacts from construction and operation of the Proposed Plan projects and land use changes on population and housing resources were evaluated by determining whether and to what extent the projects would induce substantial unplanned population growth in an area (Impact POP-1); and/or displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere (Impact POP-2).

While construction of the Proposed Plan projects and land use changes could result in additional employment opportunities, it is anticipated these jobs would likely be filled by the local labor force and would not result in substantial direct or indirect change in population growth to the area. Therefore, project construction would not displace existing residents or necessitate construction or new or replacement housing.

Similarly, operation of the Proposed Plan projects could generate new jobs, but they would likely be filled from the local work force. Therefore, project operations would not result in substantial direct or indirect change in population growth to the area, displace existing residents or necessitate construction or new or replacement housing. Consequently, Proposed Plan project construction and operation and land use changes would not cause any significant environmental effect. As impacts on population and housing would be less than significant, no mitigation is required.

ES.5.11 Public Services and Safety

Impacts from construction and operation of the Proposed Plan projects and land use changes on public services and safety were evaluated by determining whether and to what extent the projects would require the addition, expansion, modification, or relocation of an existing public facility to maintain acceptable service ratios, response times, or other performance objectives, the construction or operation of which could cause significant environmental impacts (Impact PSS-1); and/or result in substantial adverse physical impacts on existing school or park facilities, or create a need for new or physically altered school or park facilities, the construction or operation of which could cause significant environmental impacts, to maintain acceptable service ratios or other performance objectives (Impact PSS-2).

Construction and operational activities associated with the Proposed Plan projects and land use changes could place additional demands on public services, including fire, police, and security. However, the existing public service facilities and personnel serving the POLB adequately support current and anticipated future construction needs that are required of a functioning and operational Port. For reasons related to Port budgetary constraints, limited staffing resources, obtaining environmental credits and permitting, and avoidance of disruptions to normal Port operations, construction activities associated with the Proposed Plan projects would be phased. Project phasing would minimize potentials for temporary surges in demands for public services. Implementation of applicable local, state, and federal regulations, and coordination between the

Port and local agencies (Long Beach Police Department, Long Beach Fire Department, Port Security, Harbor Patrol, and USCG, as appropriate), related to public safety during construction activities would also reduce the potential for adverse construction-related impacts on public services and safety. Consequently, construction activities would not require physical alterations to an existing public facility, which could otherwise cause significant impacts. Most project-related construction and operational activities would occur in areas already designated as industrial and commercial and would not impact schools or park facilities. All applicable federal, state, and local safety regulations would be implemented during construction to ensure adequate protection services and minimize adverse physical impacts on park facilities. Construction of new park facilities would not be required and service ratios or other performance measures would not be impacted.

Consequently, Proposed Plan project construction and operation and land use changes would not cause any significant environmental effect. As impacts on public services and safety would be less than significant, no mitigation is required.

ES.5.12 Recreation

Impacts from construction and operation of the Proposed Plan projects and land use changes on recreational resources were evaluated by determining whether and to what extent the projects would increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated (Impact REC-1); and/or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment (Impact REC-2).

Construction activities associated with the Proposed Plan projects and land use changes would not result in substantial in-migration or relocation of construction employees or result directly in population growth, which otherwise could place additional demand on recreational facilities. Vessel traffic associated with construction activities would not interfere with or restrict access to recreational waterway users. Additionally, land-based construction activities would not restrict access to any designated recreational areas and, thus, would not cause excess demand on surrounding public recreational areas beyond current capacity that would require additional recreational development. Thus, construction activities associated with the Proposed Plan projects would not require construction or expansion of recreational facilities.

Operation of the Proposed Plan projects would be consistent with the CCA’s goal to enhance public access and recreation along the coast and would result in additional open space that would reduce pressure on existing recreational resources and benefit recreational users from additional open space, increased public access, and a reduction in risk from improved safety and security measures. All federal, state, and local safety and health regulations would be implemented, and thus operation of the Proposed Plan projects would not have an adverse physical effect on recreational resources.

Consequently, Proposed Plan project construction and operation and land use changes would not cause any significant environmental effect. As impacts on recreational resources would be less than significant, no mitigation is required.

ES.5.13 Ground Transportation

Impacts from construction and operation of the Proposed Plan projects and land use changes on ground transportation were evaluated by determining whether and to what extent the projects would increase an intersection's volume-to-capacity (V/C) ratio or delay value (Impact TRANS-1); cause an increase of 0.02 or more in the V/C ratio with a resulting level of service (LOS) E or F at an analyzed intersection or freeway segment (Impact TRANS-2); conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities (Impact TRANS-3); and/or result in inadequate emergency access (Impact TRANS-4).

The Proposed Plan includes several projects and land use changes that would likely result in construction-related worker trips and truck trips for hauling materials to and from the construction sites, which would result in a temporary increase in traffic, mostly during off-peak traffic hours. A traffic management plan containing traffic control measures conforming to the requirements and guidance of the City and other responsible agencies would be required at the time construction permits are obtained. Construction activities would not result in increased traffic levels that exceeded intersection or freeway segment operating conditions, conflicted with local policies or plans, or interfered with emergency access.

Operating conditions at two intersections—Henry Ford Avenue and Anaheim Street and Harbor Plaza and Pier G Avenue—would exceed the V/C ratio thresholds and represent a significant impact. Improvements to reduce these impacts would require traffic improvements such as, but not limited to, additional lanes, signalization, signal phasing and timing improvements, restriping, and other measures in accordance with relevant policies and procedures. The specific improvement(s) to be implemented shall be based on operational and technical feasibility and will be evaluated on a project-by-project basis (**Mitigation Measure TRANS-1)**. Since this document presents a program-level analysis, future project-specific analyses will evaluate the significance of impacts at affected locations. If and/or when deemed necessary, measures identified under **Mitigation Measure TRANS-1** would be required to reduce project impacts to a less than significant level. Therefore, traffic impacts at the affected locations would remain significant and unavoidable. Proposed Plan projects would not degrade operating conditions on local freeway segments, conflict with local policies or plans, or interfere with emergency access.

ES.5.14 Vessel Transportation

Impacts from construction and operation of the Proposed Plan projects and land use changes on vessel transportation were evaluated by determining whether and to what extent the projects would result in a change in vessel traffic patterns, including an increase in traffic volumes or a change in location that results in substantial incremental change in risks to vessel safety (Impact VT-1).

All vessel traffic involved with these projects would be subject to the standard existing safety precautions governing POLB navigation and approved tug pilots. All vessel activity would be monitored by the USCG Captain of the Port (COTP) and the Marine Exchange via the Vessel Traffic Service (VTS) to ensure the total number of vessels transiting the Port does not exceed capacities or impact traffic. Therefore, the short-term presence of these vessels for construction activities would be accommodated in the Harbor District vessel transportation and safety systems. Therefore, the vessels and barges associated with the Proposed Plan projects would not result in a substantial change in vessel traffic patterns or traffic volumes that could cause significant environmental effects.

*O*peration of a new terminals and berths for one or more of the Proposed Plan projects would change vessel traffic, vessel patterns, and vessel locations within portions of the Port. These operational changes would be governed by the Harbor District navigation and safety systems, consistent with Proposed Plan goals and plans. All vessel traffic including vessel arrivals and departures associated with the new terminals and berths would be subject to the standard existing safety precautions governing Harbor District navigation, and pilotage and vessel activities would be monitored by the COTP and the Marine Exchange via the VTS, consistent with current operations. Therefore, operations would not result in significant environmental effects.

Consequently, Proposed Plan project construction and operation and land use changes would not cause any significant environmental effect. As impacts on vessel transportation would be less than significant, no mitigation is required.

ES.5.15 Utilities, Service Systems, and Energy Conservation

Impacts from construction and operation of the Proposed Plan projects and land use changes on utilities, service systems, and energy conservation were evaluated by determining whether and to what extent the projects would require or result in the construction or expansion of utilities (e.g., water, wastewater, storm drains) which could cause significant environmental effects (Impact UTIL-1); exhaust or exceed existing water supply, wastewater treatment, electrical power, or landfill capacities (Impact UTIL-1); result in potentially significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation (Impact UTIL-3); and/or conflict with or obstruct a state or local plan for renewable energy or energy efficiency (Impact UTIL-4).

Construction activities associated with most of the Proposed Plan projects and land use changes would require demolition of existing and/or construction of new utility infrastructure. Demolition/relocation and construction of new underground utility mains and lines could require temporary interruptions of service as new lines are put into service and old ones are removed/abandoned in-place. These interruptions would be scheduled to minimize inconvenience to adjacent tenants and phased to avoid interfering with Port operations. New utility infrastructure would be designed and constructed in accordance with utility provider requirements, current design standards, and City code requirements. Demolition and/or relocation of oil pipelines and wells would be coordinated with the owners of the oil pipelines/wells. Proposed Plan projects and land use changes would comply with applicable regulatory requirements and the City's Construction and Demolition Recycling Program, which require compliance with waste reduction measures throughout construction activities.

Energy expenditures during construction activities would be short term, occurring periodically during the construction phases of the Proposed Plan projects and land use changes. Construction activities would be planned and sequenced to maximize the efficiency of construction, and would be conducted in accordance with the Port's Green Port Policy and Energy Initiative Roadmap that require implementation of energy conservation techniques and technologies. Therefore, construction activities would not cause significant environmental effects.

Operation of Proposed Plan projects would generate increased demands on electricity; however, electrical power demands are not anticipated to exhaust or exceed existing supplies and would not be substantial relative to the regional electrical supply. Operational energy consumption by these projects would increase substantially, but it would also support a substantially greater level of Port operations. These projects would generally utilize modern technologies and equipment, which would offset increases in energy consumption due to greater efficiency of new technologies. In addition, new equipment would be required to meet California energy efficiency standards, including Title 24 and City building code requirements. Operational activities would be conducted in accordance with the Port's Green Port Policy and Energy Initiative Roadmap that require implementation of energy conservation techniques and technologies. In addition, new buildings would be Leadership in Energy and Environmental Design-certified, reducing building energy consumption within the Port. Proposed Plan projects would also improve operational efficiencies by upgrading equipment; new equipment installed would be more efficient than the older equipment currently used at the project sites.

Consequently, Proposed Plan project construction and operation and land use changes would not cause any significant environmental effect. As impacts on utilities would be less than significant, no mitigation is required.

ES.5.16 Global Climate Change

Impacts from construction and operation of the Proposed Plan projects and land use changes on global climate change were evaluated by determining whether and to what extent the projects would have GHG emissions would exceed the threshold for industrial projects of 10,000 metric tons carbon dioxide equivalent (CO_2e) per year (Impact GCC-1); conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHG (Impact GCC-12); and/or expose people and structures to a significant risk of loss, injury, or death involving flooding as a result of sea level rise (Impact GCC-3).

Projected CO_2e emissions from individual sources are expected to change under the Proposed Plan. For some source categories, such as ocean going vessels in transit, harbor craft, cargo handling equipment, line haul locomotives, and heavy-duty vehicles, emissions would increase due to increased vessel calls and cargo throughput. In contrast, emissions from switcher locomotives, ocean going vessels at berth, and automobiles would decrease as a result of improved technology and greater efficiencies. Overall, construction and operation of the Proposed Plan projects and land use changes would result in significant and unavoidable impacts on global climate change due to annual CO_2e emissions that would exceed the SCAQMD annual GHG emission threshold. SCAQMD's 10,000 metric tons per year CO_2e threshold considered other state, regional, and local plans that addressed the reduction of GHG emissions over the next few years and decades. However, no regulations or requirements have been adopted by relevant public agencies to implement those plans for specific projects, within the meaning of CEQA Guidelines Section 15064.4(b)(3). CEQA Guidelines allow the lead agency discretion in how to address and evaluate significance based on these criteria. After considering CEQA Guidelines and Port-specific climate change impact issues, the Port adopted the SCAQMD annual GHG emission threshold for the purpose of determining the significance of a global climate change impact.

In quantifying unmitigated annual CO_2e emissions, the analysis in this PEIR assumes implementation of current regulations that apply to the main emission source categories operating at the Port. By year 2040, these requirements would generally equal or exceed those identified as source-specific strategies in the 2010 CAAP Update. The assessment conservatively assumes in the unmitigated scenarios that none of the emission reduction measures proposed in the 2017 CAAP Update would be implemented above existing practice or above what would be required by existing regulations. The 2017 CAAP Update proposes strategies that will transition Port operations from fossil-fueled to near-zero and zero-emissions technologies. Therefore, the control strategies in the 2017 CAAP Update represent measures that would mitigate significant levels of GHG emissions from future Port operations under the Proposed Plan.

Mitigation measures to reduce criteria pollutant emissions from operations (**Mitigation Measures GCC-1 through GCC-7** along with **Mitigation Measures AQ-1 through AQ-3 and AQ-6 through AQ-9**) also would reduce GHG emissions during operations. Additional mitigation measures would be implemented on a project-level basis specifically to target sources of GHG emissions from activities under the Proposed Plan. These mitigation measures (**Mitigation Measures GCC-1 through GCC-7**) would be implemented as part of the project-level environmental review process that would occur under the Proposed Plan.

The Proposed Plan would not conflict with any of the applicable federal, state, and regional GHG emission-reduction plans, policies, or regulations. Almost all of the projects proposed for development under the Proposed Plan and land use changes would be located in areas that would not be severely threatened by sea level rise. While a portion of the proposed Pier S Mixed Use Development project footprint would occur within the area predicted to be initially inundated by the POLB's Climate Adaptation and Coastal Resiliency Plan, this inundation would be remedied by the Pier S Shoreline Enhancement project currently in the feasibility and planning stage. In addition, the current POLB Harbor Development Permit process requires sea level analyses to ensure that any future project would be designed to avoid significant risks from sea level rise. Therefore, the impact from sea level rise to the Proposed Plan projects would be less than significant.

ES.5.17 OHSPER

Implementation of the OHSPER project would not require construction as the facility is already operable in its present configuration. Therefore, this project would not have any construction-related environmental effects.

Operations for the OHSPER project would be in accordance with the POLB Operations Management and Monitoring Plan (OMMP), which provides a framework and guidelines for selecting sediment for placement, BMPs, interim and long-term monitoring, sampling and reporting requirements, and an adaptive management approach. Each project that generates material for placement in the OHSPER site would be required to implement and follow the OMMP.

Operation of the OHSPER project would not result in significant effects to aesthetics/visual resources, hazards and hazardous materials, land use, noise, recreation, public services, population and public housing, ground transportation, or global climate change. Operation of the OHSPER project is expected to comply with water quality standards.

The OHSPER site could be susceptible to strong seismic ground shaking. However, there are no structures on the site and operation of the site would not exacerbate risks from a natural hazard. To account for potential sediment shifting during a major seismic event, the following measures are required by the OMMP developed for the OHSPER site. The POLB would implement the following measures as soon as possible following a major seismic event:

- Event-related monitoring would occur following a major seismic event.
- Monitoring would determine if any contaminated sediments became exposed during the event.
- If contaminated sediments are exposed, measures such as placement of cap material would be implemented to remediate the adverse conditions.

Operation of the OHSPER site as a CAD site would involve capping contaminated sediments with uncontaminated material. The sources of uncontaminated capping sediment are yet to be determined, but this would be addressed by individual projects planning to generate sediments for placement at the OHSPER site. However, sediments from adjacent locations with a high sensitivity for paleontological resources will not be used as sources of capping material.

Therefore, operations at the OHSPER site would not damage potential paleontological resources that may be present adjacent to the site.

Operation of the OHSPER project would have the potential to disturb the seafloor when dredged sediments are placed in the site and when stored sediments are removed to be reused in a project elsewhere in the Port. If unknown buried archaeological resources (prehistoric and historical) are present and inadvertently unearthed during ground-disturbing activities associated with operations, impacts would be significant. However, the site was previously disturbed, and site operations would not disturb sediments outside of the site boundary. Therefore, site use would not disturb or destroy archaeological or paleontological resources.

Operation of the OHSPER project for placement of dredged material could result in temporary increases in turbidity levels that could affect foraging behavior of birds or marine mammals. However, these effects would be temporary and would not permanently alter the habitat. Site operations are not expected to affect kelp beds along the federal breakwater, because the elevated turbidity and suspended sediment conditions associated with sediment placement activities would be diluted rapidly within the site vicinity and unlikely to reach the kelp beds. Water quality monitoring would be conducted in accordance with the OMMP to verify that placement operations do not affect the kelp bed. Should results from monitoring document a potential for affecting the kelp bed, then an adaptive management approach would be used to modify placement procedures as appropriate to protect the kelp beds.

ES.6 CUMULATIVE IMPACTS

The PEIR evaluates the potential for the Proposed Plan projects, together with other past, present, and reasonably foreseeable future projects, to make a cumulatively considerable contribution to a significant cumulative impact on each of the environmental resources.

ES.6.1 Aesthetics/Visual Resources

The Proposed Plan's contribution to this cumulative impact would be negligible because buildout of the Proposed Plan projects would be a visually compatible intensification of the Harbor District's existing industrial character and it would not occur within any scenic vista that can be viewed from a designated scenic route or highway.

Construction and operation of the reasonably foreseeable related projects within the San Pedro Bay Harbor Complex would increase overall night lighting and glare. However, the majority of new development would be required to implement standard measures to reduce potential night illumination and avoid the use of structural surfaces capable of reflecting daylight glare. The Proposed Plan's contribution to this cumulative impact would be negligible because Proposed Plan projects would remove older, traditional lighting fixtures with improved controlled fixtures (e.g., low-energy fixtures regulated by timers and light spillover reduction features), which would minimize the potential for daytime glare resulting from increased massing of terminal structures and containers within the Harbor District. Therefore, the Proposed Plan's contribution to cumulative impacts on aesthetics/visual resources would be less than significant.

ES.6.2 Air Quality and Health Risk

Based on the large number of projects that could be under construction at the same time as those identified for the Proposed Plan, the cumulative projects together would exceed the emission thresholds for VOC, CO, NO_x, PM_{10}, and $PM_{2.5}$ and possibly sulfur oxides. Therefore, cumulative projects would result in significant cumulative air quality impacts for these pollutants during the

Proposed Plan construction and operation periods. Mitigated construction and operational activities under the Proposed Plan would contribute emissions of these pollutants and all of them except sulfur oxides would exceed the SCAQMD daily construction emission thresholds. Therefore, emissions from construction and operation under the Proposed Plan would make a cumulatively considerable contribution to a significant cumulative impact for VOC, CO, NO_x, PM_{10}, and $PM_{2.5}$.

The larger construction and operational activities under the Proposed Plan would have the potential to exceed the SCAQMD concentration thresholds for 1-hour and annual NO_2 and 24-hour PM_{10} and $PM_{2.5}$. Therefore, construction and operation under the Proposed Plan would make a cumulatively considerable contribution to a significant cumulative impact for NO_2, PM_{10}, and $PM_{2.5}$. With implementation of **Mitigation Measure AQ-10**, the Port will fund the Community Grants Program to partially address the cumulative air quality impacts of individual projects under the Proposed Plan.

With mitigation incorporated, health risks from construction and operation of the Proposed Plan projects would be significant for individual cancer risk, cancer burden, and chronic and acute noncancer health effects. Therefore, construction and operation of the Proposed Plan projects would make a cumulatively considerable contribution to a significant cumulative impact for individual cancer risk, population cancer burden, and chronic and acute noncancer effects.

Operations from the Proposed Plan would not result in a cumulatively considerable contribution to a significant cumulative odor impact within the Port region or interfere with implementation of an air quality management plan.

ES.6.3 Biota and Habitats

Candidate, sensitive, or special status birds could be affected directly or indirectly by construction and operation of the Proposed Plan projects in combination with effects associated with the related projects. The most significant region-wide impacts on biological resources would be associated with habitat modification and loss. Indirect cumulative impacts could also occur from the increased potential for invasive species (including invasive aquatic species), particularly associated with increased vessel calls.

Potentials for port operations to degrade water, sediment, and habitat quality are addressed in existing Port policies, particularly the Water Resources Action Plan (WRAP) and Green Port Policy. The WRAP provides a guide to attain full beneficial uses of San Pedro Bay water bodies and sediments by promoting science-based studies and BMPs. The WRAP establishes a framework and mechanisms by which the San Pedro Bay Ports will achieve United States Environmental Protection Agency and Regional Water Quality Control Board total maximum daily load goals. The Port developed, as a component of the WRAP, a sediment management policy and guidance manuals to establish specific application of the Contaminated Sediments Task Force Long-Term Management Strategy to the Port's development.

The Port of Long Beach, in collaboration with the Port of Los Angeles, conducts a San Pedro Bay Port Complex-wide assessment of biological resources and habitat conditions on a recurring basis. As demonstrated by the results of the latest (2013 to 2014) harbor-wide assessment, the San Pedro Bay Port Complex continues to support healthy and robust biological communities and improvements in water, sediment, and habitat quality that began in the 1970s and are continuing to the present despite concurrent increases in operational intensity.

Some of the Proposed Plan projects could result in significant but mitigable impacts on sensitive species and habitat. However, with mitigation, the Proposed Plan projects would not result in a cumulatively considerable contribution to significant cumulative impacts. Additionally, beneficial cumulative impacts on biological resources could result in protection of habitat sites (e.g., Gull Park), and other natural areas under the new Environmental Protection and New Sediment Management Areas included under the Proposed Plan.

ES.6.4 Historical and Tribal Cultural Resources

Because the number of cultural and historical resources is finite, limited, and non-renewable, any assessment of cumulative impacts must take into consideration the impacts of the Proposed Plan projects on the resources within the general region, the extent to which those impacts degrade the integrity of the region's resource base, and impacts other projects may have on the regional resource base. If these impacts, taken together, result in a collective degradation of the resource base, then those impacts would be cumulatively considerable.

Cultural and tribal cultural resources are highly threatened in this region, including those at the Port, due to rapid expansion and development. The local terrain has been extensively modified through grading, dredging, cutting, and filling. Tribal cultural and archaeological resources associated with disturbed areas may have been either destroyed or buried. Nonetheless, some resources potentially remain deeply buried below alluvium or recent fill. Built-environment resources (buildings, structures, and infrastructures) constructed in the Port during the late 1960s are now exceeding 50 years of age, and during the next 20 years, resources constructed during the 1970s and 1980s will become potential historical resources. Some resources that were recorded in the past have been destroyed, so the resource base has already suffered from expansion and technological changes.

Projects in the Port of Long Beach and Port of Los Angeles areas would be of concern when evaluating cumulative impacts because of their proximity to the resources evaluated for the Proposed Plan. Although both ports have active cultural resource protection programs in place, the potential alterations proposed for these projects could result in substantial changes to cultural and historical resources. These disturbances could, without appropriate analysis and mitigation controls, represent cumulatively significant impacts on significant cultural and historical resources. For impacts associated with construction of Proposed Plan projects that could degrade or destroy unknown archaeological resources or tribal cultural resources, project-level impacts would be less than significant with implementation of **Mitigation Measures CR-2, CR-3, and CR-4**. Similar measures would be required for any past, present, or reasonably foreseeable projects; therefore, this impact would be cumulatively considerable.

ES.6.5 Geology, Soils, and Seismic Conditions

The Proposed Plan project's contribution to cumulative impacts is similarly less than significant with incorporation of modern construction engineering and safety standards. The cumulative contribution of Proposed Plan projects to erosion and loss of topsoil, risks to life or property associated with expansive soils, risks of directly or indirectly destroying a unique geologic feature, and rendering mineral resources inaccessible would be minor and would not significantly contribute to cumulative impacts.

Paleontological resources are finite, nonrenewable resources with a geographic extent that is generally poorly constrained. It is impossible to know whether they occur within an undisturbed portion of a particular geologic deposit, even if resources have been recovered from the same deposits elsewhere. The likelihood of a paleontological resource within a geologic deposit can only be judged on the basis of the documentation of previously recorded resources nearby and the suitability of the sediments for fossil preservation. Construction of the Proposed Plan projects could result in loss of, or loss of access to, paleontological resources. This impact would be significant but can be mitigated to less than significant with implementation of **Mitigation Measure GEO-1**. Reasonably foreseeable future projects that could contribute to cumulative impacts on paleontological resources may involve ground disturbance within natural terrestrial or aquatic depositional environments (i.e., excluding modern created land and redevelopment in the Ports), including submerged locations. Most notably, projects in the Port of Long Beach and Port of Los Angeles areas would be of concern when evaluating cumulative impacts because of their proximity to the resources evaluated for the Proposed Plan. These disturbances could, without appropriate controls, represent cumulatively significant impacts to paleontological resources. Even though implementation of **Mitigation Measure GEO-1** would diminish the collective potential for degradation of paleontological resources within the Harbor District, some loss of resources is largely unavoidable given the current uncertainty regarding the distribution of resources. Therefore, the Proposed Plan could have a significant contribution to a cumulative impact that is significant and unavoidable.

ES.6.6 Hazards and Hazardous Materials

Virtually all of the Proposed Plan and related projects have the potential to contribute to the risk of hazardous materials spills or releases during construction as a result of normal usage of lubricants, fuels, and hydraulic fluids. However, implementation of normal construction standards, including BMPs and applicable regulations and practices would minimize the potential for an accidental release of hazardous materials or fuels during construction activities. In addition, the effects of minor fluid spills that may result from construction are likely to be isolated to the construction site. Therefore, the contributions from construction of related projects to cumulative impacts are less than significant. During operations, releases of hazardous materials is also possible associated with the cumulative projects. Liquid bulk projects would be required to comply with the RMP requirements of the POLB and, therefore, no highly populated areas would be exposed to hazardous materials releases. In addition, the WRAP reduces the potential for impacts.

Abandoned oil wells are a potential issue throughout the region for a number of cumulative projects. The state Division of Oil and Gas and Geothermal Resources requires re-abandonment procedures in certain cases and the limiting of buildings to areas that are not directly over abandoned oil wells. Therefore, cumulative impacts on hazards and hazardous materials would be less than significant.

ES.6.7 Hydrology and Water Quality

Water and sediment quality within the Harbor District are affected by activities within the Port, inputs from the watershed, and effects from historical (legacy) inputs. Portions of the San Pedro Bay Harbor Complex are identified on the current Clean Water Act 303(d) list as impaired for a variety of chemical and bacteriological stressors and effects on biological communities. For those stressors causing water quality impairments, Total Maximum Daily Loads are being or will be developed that specify load allocations from the individual input sources such that the cumulative loadings would be below levels expected to adversely affect water quality and beneficial uses of the water body.

All discharges from the Proposed Plan projects would be governed by permit limits intended to ensure that discharges comply with water quality regulatory standards and would not degrade surface water or groundwater quality. Cumulative projects associated with the development of POLB facilities are expected to contribute to a greater number of ship visits to the Port. Vessels entering the Port are expected to comply with existing regulations governing handling and discharges of various waste streams. However, increases in vessel traffic would be expected to result in higher mass loadings of contaminants such as copper that is released from vessel hull anti-fouling paints. Portions of the Harbor District are impaired with respect to copper; thus, increased loadings associated with increases in vessel traffic relative to baseline conditions would likely exacerbate water and sediment quality conditions for copper. In addition, with the increase in vessel traffic, the risk of accidental or illegal discharges could reasonably be expected to increase in proportion to the increased ship traffic. The significance of this increased loading related to these discharges would depend on the volumes and composition of the releases and the timing and effectiveness of spill response actions.

Any new development required for the related projects will require permits covering construction activities and operations. In general, compliance with the permits and applicable plans will ensure that projects will not conflict with water quality control plans or groundwater management plans. None of the construction activities or operations associated with the Proposed Plan projects are expected to conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

Therefore, the Proposed Plan’s contribution to cumulative impacts to hydrology and water quality would be less than significant.

ES.6.8 Land Use

The existing industrial land uses and land use plans and policies governing development within the San Pedro Bay Port Complex minimize the potential for cumulative land use impacts. In addition, past and present actions within the San Pedro Bay Port Complex have been developed to ensure proposed projects are consistent with applicable land use plans and policies, including the Coastal Zone Management Act, CCA, Tidelands Trust, 1990 PMP as amended, and Port of Los Angeles PMP. Furthermore, construction and operation of foreseeable related projects have been and will continue to be modified during the project review process to ensure consistency with applicable land use plans and policies. Cumulative impacts on land use associated with buildout of the reasonably foreseeable related projects would be less than significant. The Proposed Plan’s contribution to this cumulative impact would be negligible because it would comply with all applicable land use plans and policies adopted for avoiding or mitigating environmental effects, including the CZMA, CCA, Tidelands Trust, and City of Long Beach General Plan and Zoning Ordinance. Therefore, the Proposed Plan’s contribution to cumulative impacts on land use would be less than significant.

ES.6.9 Noise

Construction noise resulting from reasonably foreseeable future projects would generate localized higher noise levels in the Harbor District. However, construction projects are of limited duration and the noise from any given project would affect a limited geographic area since noise attenuates rapidly with distance. Also, projects far removed from each other, even if under construction at the same time, could be too far apart for the noise from both projects to adversely affect the same location. Nevertheless, cumulative noise from construction of related projects would be significant, and construction and operational activities associated with the Proposed Plan projects could make a cumulatively significant contribution to cumulative construction noise impacts.

Because vibration attenuates rapidly with distance, construction projects would have to occur at the same time and be very close (within a matter of feet) to each other to be considered cumulatively considerable. No known past, present, or reasonably foreseeable future projects would occur this close together and at the same time. Ground vibration from truck or rail traffic associated with operations of the Proposed Plan projects and land use changes would not exceed ground-borne vibration criteria at sensitive receptor locations. However, project operations could also involve other, new sources of vibration that would need to be assessed when project details are known to determine significance of impacts.

ES.6.10 Population and Housing

An increase in Port operations and capacity associated with the Proposed Plan projects combined with other current and reasonably foreseeable Port operations could increase the amount of commercial and retail activity and have the potential to create new jobs in the region and maintain a strong workforce. Construction activities associated with the Proposed Plan would also likely result in additional direct, indirect, and induced number of jobs. However, there are approximately 330,000 construction-related jobs throughout the five-county region and, with recent jobs losses in the industry between 2007 and 2015, it would be expected that the local labor supply would be able to fill any construction-related employment. The Proposed Plan projects combined with other current and reasonably foreseeable Port operations would reassert the Port's contribution to the local economy through employment and income-generating activities and is likely to be a source of direct, indirect, and induced population growth for the area. However, based on its history, population growth associated with the Port would likely not result in a substantial unplanned population growth.

The Southern California Association of Governments prepares the Regional Housing Needs Allocation, which quantifies the need for housing within each jurisdiction resulting from population, employment, and household growth and takes into consideration, "a combination of recent and past trends, reasonable key technical assumptions, and regional growth policies." Planned projects in the area of influence include several new residential units (see Table 2.1-1 for related projects within the City), many of which could induce population growth and create new jobs. Incremental impacts of the Proposed Plan with other past, present, and reasonably foreseeable future projects would not have a significant impact on population and housing in the five-county region given that the number of additional jobs required for construction and operational activities would be minor compared to the overall region and likely would be filled primarily by the local labor force. Therefore, the Proposed Plan projects would likely not result in a substantial unplanned population growth and would not result in a cumulatively considerable contribution to a significant cumulative impact.

ES.6.11 Public Services and Safety

During the time frame for the Proposed Plan, past, present and potentially foreseeable future projects throughout the Port anticipate a growing work force with more ground and vessel transportation, which could affect the demand for public service personnel, equipment, and facilities to adequately serve Port operations. The existing public service facilities and personnel serving the POLB adequately support current and anticipated future construction needs that are required of a functioning and operational Port. Public services available at the Port are continually being evaluated and support the ever changing needs of a functioning and operational Port. The Proposed Plan would not require the development of new facilities or expansion of existing facilities.

Past, present, and reasonably foreseeable projects at the POLB include maintenance and operation of existing visitor-serving commercial facilities and recreational facilities. Construction and operation of the Proposed Plan projects would only occur within the Port Industrial (IP) zone, which is characterized predominantly by maritime industry and marine resources. No construction or operations associated with the Proposed Plan would occur within PD-21, where there is one park.

Therefore, the Proposed Plan would not result in a considerable contribution to significant cumulative impacts on public services and safety.

ES.6.12 Recreation

As part of the CCA, the Port would continue to preserve and enhance access to designated public areas and facilities for recreational activities. Cumulatively, public and recreational enhancement projects would increase the demand for recreational resources that are accommodated by the various existing recreational, educational, and visitor-oriented facilities in the Port area. Several related projects would provide new open space and recreational resources for the public, resulting in reduced potential for substantial physical deterioration or an accelerated rate of deterioration of recreational resources. Therefore, construction and operation of the Proposed Plan projects together with other past, present, and reasonably foreseeable future projects would not result in a cumulatively considerable contribution to a significant cumulative impact on recreational resources that would result in increased use of existing neighborhood and regional parks or other recreational facilities, such that substantial physical deterioration of the facility would occur or be accelerated.

ES.6.13 Ground Transportation

Construction activities associated with the Proposed Plan projects and land use changes would generate temporary increases in traffic but would not make a cumulatively considerable contribution to significant cumulative impacts on the study area intersections and freeway segments operating conditions, conflict with local plans and policies, or interfere with emergency routes. However, Proposed Plan operations would contribute to a significant cumulative impact due to a potential decrease in service at two local intersections. Impacts on traffic at intersections would be less than significant, except at the intersections of Henry Ford Avenue and Anaheim Street and O Street and Pacific Coast Highway (PCH). **Mitigation Measure TRANS-1** would mitigate these impacts. Since this document presents a program-level analysis, determining the extent of improvements needed and the timing to implement those improvements would be speculative. Hence, future project-specific EIRs will evaluate the significance of impacts at the impacted locations and implement measures identified under **Mitigation Measures TRANS-1** to reduce project impacts to a less than significant level, if and when deemed necessary. For these reasons, the identified impacts would remain significant and unavoidable and have a cumulatively considerable contribution to significant cumulative impacts.

ES.6.14 Vessel Transportation

Vessel traffic levels are highly regulated by the USCG COTP and the Marine Exchange via the VTS to ensure the total number of vessels transiting the Port does not exceed the design capacity of the federal channel limits. All recently completed and future projects at the Port of Long Beach and the adjacent Port of Los Angeles, involving vessel transportation are considered by the PMP for each port. These documents provide for the analysis of future projects and, therefore, the associated cumulative impacts to ensure that those impacts are less than significant or are mitigated to the level of less than significant. Therefore, the related projects would not cause a significant cumulative impact from vessel transportation activities.

ES.6.15 Utilities, Service Systems, and Energy Conservation

The reasonably foreseeable related projects are anticipated to adhere to utility provider requirements, current design standards, and municipal code requirements which would reduce the potential for cumulatively significant environmental impacts associated with the construction and/or expansion of utility infrastructure. The Proposed Plan's contribution to this cumulative impact would be minimal because construction and operation of the Proposed Plan projects also would adhere to the same requirements, regulations, and design standards and new infrastructure would be adequately sized to meet the project demands. Therefore, the Proposed Plan's contribution to cumulative impacts on utilities and service systems would be less than significant.

Due to the number of reasonably foreseeable related projects that would place additional demands on utilities and service systems, potentially significant cumulative impacts could occur. However, the Proposed Plan projects would not result in a substantial increase in demand for utilities and service systems, and supply is generally sufficient for the other future related projects. Therefore, the Proposed Plan projects contribution to cumulative impacts on utility demands would be minimal.

The Proposed Plan's contribution to cumulative impacts on renewable energy and energy efficiency plans would be less than significant because construction and operation of the Proposed Plan projects would adhere to the Port's Green Port Policy and Energy Initiative Roadmap energy conservation requirements, ensure new buildings are Leadership in Energy and Environmental Design-certified, and upgrade existing equipment with more energy-efficient technologies.

ES.6.16 Global Climate Change

GHG and global climate change impacts are inherently cumulative impacts. These impacts are discussed in the previous sections; therefore, no additional discussion related to cumulative impacts is provided.

ES.7 COMPARISON OF ENVIRONMENTAL IMPACTS FOR PLAN ALTERNATIVES

Table ES-7 provides a comparison of CEQA significance analyses for the Proposed Plan and alternatives.

TABLE ES-7. COMPARISON OF THE CEQA SIGNIFICANCE ANALYSIS BY ALTERNATIVE

Environmental Resource Area	Proposed Plan	Alternative 1 (No Plan Alternative)	Alternative 2 (No Terminal Development)	Alternative 3 (Reduced Terminal Development)
Aesthetics/Visual Resources	iii/D	iii/**A**	iii/B	iii/C
Air Quality and Health Risk	i/C	i/**A**	i/**A**	i/B
Biota and Habitats	ii/D	ii/**A**	ii/B	ii/C
Cultural Resources	ii/D	ii/**A**	ii/B	ii/C
Geology, Soils, and Seismic Conditions	ii/D	ii/**A**	ii/B	ii/C
Hazards and Hazardous Materials	ii/D	ii/**A**	ii/B	ii/C
Hydrology and Water Quality	iii/D	iii/**A**	iii/B	iii/C
Land Use	iii/**A**	iii/C	iii/B	iii/B

TABLE ES-7. COMPARISON OF THE CEQA SIGNIFICANCE ANALYSIS BY ALTERNATIVE				
Environmental Resource Area	**Proposed Plan**	**Alternative 1 (No Plan Alternative)**	**Alternative 2 (No Terminal Development)**	**Alternative 3 (Reduced Terminal Development)**
Noise	i/N	i/N	i/N	i/N
Population and Housing	iii/D	iii/**A**	iii/B	iii/C
Public Services and Safety	iii/D	iii/**A**	iii/B	iii/C
Recreation	iii/D	iii/**A**	iii/B	iii/C
Ground Transportation	i/C	i/**A**	i/**A**	i/B
Vessel Transportation	iii/D	iii/**A**	iii/B	iii/C
Utilities, Service Systems, and Energy Conservation	iii/D	iii/**A**	iii/B	iii/C
Global Climate Change	i/C	i/**A**	i/**A**	i/B

Notes:
i = Unavoidable significant impacts
ii = Significant but mitigable impacts
iii = Less than significant impacts
A = Fewest environmental impacts
B = More environmental impacts than Category A
C = More environmental impacts than Category B
D = More environmental impacts than Category C
N = No difference
Two or more alternatives with the same letter would have approximately the same level of impacts.

Impacts on the environmental resources would be similar for the Proposed Plan and three alternatives, including the No Plan Alternative (Alternative 1):

- Impacts on aesthetics/visual resources, hydrology and water quality, land use, public housing, utilities, recreation, vessel transportation, and public services would be less than significant for both construction and operations phases;
- Impacts on biological resources, cultural resources, geology and paleontological resources, and hazards and hazardous materials would be significant but mitigable, where occurring for construction and operations phases;
- Impacts on air quality and human health, noise, ground transportation, and global climate change would be significant and unavoidable.

The results of the CEQA significance analysis for each resource area indicate that there would not be an appreciable difference between alternatives in the types and magnitude of potential construction and operational impacts. While the Proposed Plan would provide for greater capacity and throughput, the degree of environmental impacts would not be substantially different from alternatives with comparatively smaller throughput and capacity. Notably, the No Plan Alternative (Alternative 1) would not result in substantially fewer environmental impacts than the Proposed Plan because construction and operation of projects associated with Alternative 1 would result in impacts comparable to those associated with the Proposed Plan and Alternatives 2 and 3.

ES.8 PUBLIC INVOLVEMENT

In accordance with CEQA, the POLB circulated a NOP for a period of 30 days for public review and comment starting on August 9, 2018 and ending on September 10, 2018. An electronic copy of the NOP is available for public review on the POLB's website at www.polb.com/ceqa.

Hardcopies of the NOP are available for public review at the following locations: Port Administration Building, 415 West Ocean Boulevard, Long Beach; Long Beach City Clerk, 411 West Ocean Boulevard, Long Beach; San Pedro Regional Branch Library, 931 South Gaffey Street, San Pedro; and Wilmington Branch Library, 1300 North Avalon Boulevard, Wilmington.

The POLB held a scoping meeting to receive public comments on the Proposed Plan, starting at 6:30 p.m. on August 30, 2018 at the Michelle Obama Neighborhood Library, 5870 Atlantic Avenue, Long Beach, CA 90805. Spanish and sign language translation services were provided.

ES.9 AREAS OF CONTROVERSY

No specific areas of controversy have been identified by the Port or any of the responsible agencies associated with the Proposed Plan. However, in general, air quality is an ongoing concern among area residents and local schools. Construction of the Proposed Plan projects would result in short-term peak daily emissions that would exceed the SCAQMD thresholds for NO_x. There is also ongoing concern regarding GHG emissions and recognition of their significant effects on the global climate and on the environment. GHG emissions associated with construction and operation of the Proposed Plan projects would exceed the SCAQMD significance threshold.

The environmental impacts identified above would be associated with projects that would be constructed and operated under the Proposed Plan. At this time, many of the projects are conceptual, and specific design information that is needed to quantitatively assess impacts is unavailable. Consequently, the assessments are qualitative and based on best available information and, in some cases, assumptions about construction and operational activities based on the nature of the project and experience with previous, similar Port projects.

ES.10 ISSUES TO BE RESOLVED

No specific issues to be resolved have been identified by the Port or any of the responsible agencies associated with the Proposed Plan.

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CHAPTER 1 INTRODUCTION AND PROJECT DESCRIPTION

1.1 INTRODUCTION

The City of Long Beach (City), acting by and through the Board of Harbor Commissioners (BHC) for the Port of Long Beach (POLB or Port), has prepared this Draft Program Environmental Impact Report (PEIR) to identify and evaluate the potential environmental impacts associated with implementation of the proposed Port Master Plan (PMP) Update (hereinafter Proposed Plan). This Draft PEIR assesses the potentially significant environmental effects of adoption and implementation of the Proposed Plan. The Port has prepared the Proposed Plan as a comprehensive land use plan to guide the development within the Long Beach Harbor District (Harbor District) to accommodate changes in the shipping industry and meet projected demand for cargo.

As required by the California Environmental Quality Act (CEQA), this PEIR assesses the potentially significant environmental effects that could result from implementation of the Proposed Plan as well as the potentially significant cumulative impacts of the Proposed Plan, identifies feasible means of avoiding or lessening significant adverse impacts, and evaluates a reasonable range of alternatives to the Proposed Plan, including a No Plan Alternative. The PEIR generally analyzes potential environmental impacts from a Port-wide, programmatic perspective, although one specific future project, the Outer Harbor Sediment Placement Ecosystem Restoration (OHSPER) Site, for which adequate information is available, is analyzed at the project level. For this project, permitting could be based on this PEIR. However, for the remainder of projects in the Proposed Plan project-specific environmental analyses will be undertaken when the anticipated projects are initiated and carried forward.

1.2 BACKGROUND

The Port of Long Beach is located in San Pedro Bay in southern Los Angeles County, adjacent to the Port of Los Angeles (Figure 1.2-1). POLB is one of the nation's busiest seaports and a leading gateway for trade between the United States (U.S.) and the Pacific Rim[2]. As the second busiest container seaport in the U.S., the Port handles trade valued at more than $194 billion annually and supports approximately 51,090 port-related jobs in the Long Beach area, over 316,000 jobs in Southern California, and approximately 12.6 million trade-related jobs across the nation. The Port comprises approximately 3,500 acres of land and 4,600 acres of water area, 10 piers, and berthing facilities for ocean-going vessels (OGVs) along approximately 17 miles of waterfront. All berths lie within 4.5 nautical miles (nm) of the open sea. The Port and its facilities are an essential element of the national maritime industry.

The California Coastal Act (CCA) of 1976 identifies the Port as one of only five locations in the state's coastal zone approved for the purposes of international maritime commerce. The CCA requires ports to prepare and adopt master plans for land and water areas within their boundaries that are located in the coastal zone. PMPs are long-range planning and policy documents that guide development and define allowable land and water uses for port jurisdictions. PMPs also ensure consistency with CCA requirements related to water-dependent and water-related activities, public access to coastal resources, and environmental protection.

[2] The Pacific Rim is a region comprised of countries that border the Pacific Ocean, including Australia, Cambodia, China, Hong Kong, Indonesia, Japan, Laos, Malaysia, New Zealand, Papua New Guinea, the Philippines, Russia, Singapore, South Korea, Taiwan, Thailand, and Vietnam.

Figure 1.2-1. Site Map

The current PMP was last comprehensively updated and certified in 1990. In the ensuing 30 years, the Harbor District has undergone a number of major physical changes. More importantly, the maritime industry that the Port serves has changed dramatically, and the Port's role as a steward of other public resources (e.g., recreation and wildlife) has expanded beyond the scope envisioned by the 1990 PMP, while strategic challenges such as climate change and sustainability have come to the forefront. Accordingly, the 1990 PMP no longer adequately reflects the Port's planning needs and does not provide a sound basis for addressing the challenges and opportunities of the future.

The Port is undertaking this comprehensive Proposed Plan to assess future land and water uses in the Harbor District and to ensure that the PMP reflects the changes that have occurred since the 1990 PMP. The Proposed Plan will reflect changes in the global shipping industry, technological advances, and important factors such as climate change and energy resources consistent with Green Port Policy objectives. The Proposed Plan considers the comprehensive environmental policy (the Green Port Policy, adopted in 2005, to establish a framework for environmentally friendly Port operations) as a strategic priority in the development of Port facilities to accommodate forecasted cargo activity. The Proposed Plan is also needed to re-evaluate land uses and ensure permitting flexibility for future development and has been developed to be consistent with the requirements of the CCA. Through this master planning process, the Port is strategically managing resources and proactively preparing for future challenges to remain competitive in the rapidly changing global economy.

1.2.1 Overview of Port Operations

Containers are the primary cargo moving through the Port. The Port's six container terminals have 80 berths and 71 modern, large gantry cranes for loading and unloading container vessels. In 2018, the busiest year in its history, the Port handled a record 8.1 million twenty-foot equivalent units (TEUs), a measure of containerized cargo volume roughly equivalent to a twenty-foot long shipping container.

Other major cargoes include: liquid bulk such as crude oil, refined products, and chemicals; dry bulk cargoes such as gypsum, cement, aggregate, scrap metal, and petroleum coke; automobiles; and "break bulk[3]" cargoes such as newsprint, forest products, fruit, steel coils and shapes, and other cargoes that require individualized handling.

The Port does not directly operate the cargo handling facilities; instead, it operates as a landlord port, leasing land and facilities (wharves, buildings, etc.) to companies engaged in maritime goods movement, such as stevedoring companies and other marine terminal operators, tugboat companies, various maritime service companies, and other water-dependent operations.

Vessels calling at the Port transit through navigational channels within the harbor, to and from their berths at marine terminals where their cargo is loaded and unloaded. In 2017, there were approximately 2,805 calls by OGVs. Container vessels are loaded and unloaded by large, electric-powered gantry cranes mounted on rails along the wharf face. Other cargoes are loaded and unloaded with conveyors (for most dry bulk), pipelines (for liquid bulk), or dock cranes, although automobiles are driven off the vessels onto the wharf. The amount of cargo a marine terminal handles in a given time period is defined as its throughput. A terminal's maximum practical throughput is its capacity, which is how much cargo the terminal could handle given its size, configuration, and equipment. A terminal's capacity may be limited by how many vessels it can

[3] The term break bulk derives from days before containerization when virtually all non-bulk cargo was shipped on pallets or in crates, bales, bags, and barrels, but now refers to a more restricted range of non-containerized, non-bulk cargoes.

handle (“berth-constrained”), or by how much cargo its landside facilities (e.g., container yard, truck gate, pumps, pipelines, and storage tanks) can handle (“yard-constrained”), or by other factors.

Containers are sorted at the marine terminal container yards by a variety of diesel- or natural-gas-powered, diesel-electric hybrid, and electric-powered mobile cargo handling equipment (CHE). Import containers that are loaded onto trucks are transported to destinations in Southern California and adjacent states, such as regional distribution centers and transloading warehouses. Portions of the import containers that are destined for more distant points in the central and eastern U.S. are loaded onto trains, either directly in the marine terminals or by being trucked to local intermodal railyards. Export containers follow the reverse pathways, with the exception that very few are handled at transloading facilities. In 2018, the Port handled 8.1 million TEUs, approximately 23 percent of which were moved by on-dock rail and the rest by trucks. Liquid bulk cargoes are transported to and from the marine terminals primarily by pipeline, although some is handled by trucks and railcars. The remaining cargo types are moved to and from marine terminals by trucks and trains. Most container terminals operate five day-shifts, Monday through Friday; and typically four to five off-peak shifts during week nights and Saturdays.

1.2.2 Port History

In 1911, the State of California granted state tidelands “in trust” to the City “for the establishment, improvement, and conduct of a harbor…for the promotion and accommodation of commerce and navigation” (Chapter 676, Statutes of 1911). The City designated a portion of the City’s tidelands at the mouth of the Los Angeles River as the Port, and authorized the dredging of channels and construction of docks. Subsequent state legislation and City actions broadened the uses of tidelands trust lands to include commerce, navigation, marine recreation, and fisheries, and established the Harbor District and Harbor Department.

The Port continued to develop channels and piers throughout the 1920s to accommodate the growth in maritime commerce that accompanied overall growth in the Los Angeles region. In the 1930s, the federal government began construction of the large breakwaters that protect the Port from the open sea, and in 1940 the U.S. Navy began construction of a naval station and naval shipyard on Terminal Island. At this point, the Harbor District included maritime commerce, commercial fisheries, oil extraction from the underlying Wilmington Oil Field, and federal (Navy) uses. During World War II, activity and facilities in the Port increased substantially in support of the war in the Pacific and land was filled to provide additional docks and cargo handling sheds, particularly on current-day Piers E, F, and G.

In the 1960s, containerization of cargo was introduced: formerly break bulk cargoes could be loaded into containers at the point of origin and the containers loaded onto ships much faster and with much less breakage and loss of cargo than before. In response, the Port developed the nation’s first purpose-built container terminal, the Sea-Land operation on Pier G. Piers J and F also were completed, adding 310 acres of land to the Port, and implementation of an oilfield management program halted the land subsidence caused by extraction of millions of barrels of oil over the previous four decades.

During the 1970s and 1980s the Port continued to expand, both seaward through landfill and landward through acquisition. The Port also converted outmoded break bulk cargo handling facilities to modern container and automobile import terminals, and installed on-dock rail facilities. On-dock railyards allow containers to be loaded onto and unloaded off of trains inside a marine terminal, instead of having to be trucked to a railyard some distance from the Port. In 1989, the Port of Long Beach and Port of Los Angeles implemented the Intermodal Container Transfer Facility (ICTF), an intermodal rail terminal just outside the Harbor District.

Since the first PMP was certified in 1978, containerization has become the dominant cargo handling mode for previously break bulk cargoes. Today, 80 percent of general cargo is containerized while less than 1 percent is break bulk. Accordingly, the expansion of marine terminal capacity, particularly container terminals, continued through the 1990s up until the present with the purchase and redevelopment of a large oilfield on Pier S and Pier A, and conversion of the former Long Beach Navy Yard and Naval Station on Terminal Island to a container terminal. Channels and berths were deepened to accommodate the larger container vessels that began to be deployed in the 1990s, a trend that continues to drive the redevelopment and expansion of container terminals and the continued deepening of channels and berths. Rail facilities were enhanced and operation of the rail complex, formerly managed by Southern Pacific, was turned over to a dedicated terminal railroad company. On-dock rail was supported by the opening of the Alameda Corridor rail connection in 2002 between the two ports and downtown Los Angeles railyards.

Facilitating the rapid growth of container throughput volumes were new techniques developed to facilitate cargo handling operations and shipment by rail to inland destinations and even to the East Coast for transshipment to Europe (a practice known as “landbridge” shipping). Faster transit times and cost savings for shippers and carriers were key factors that drove development of the major West Coast ports. Accordingly, cargo for local and regional markets was augmented by discretionary intermodal cargo (i.e., cargo that is moved via the lowest cost and most efficient level of service, which may or may not be the San Pedro Bay Ports). By 2018, the Port’s throughput was approximately five times the 1990 throughput levels, having exceeded 8,000,000 TEUs.

In addition to physical changes, a number of changes in Port policies have occurred. Notably, in 2005 the Port adopted its Green Port Policy, which guided the Port’s environmental protection efforts. The Port also implemented the Clean Air Action Plan (CAAP), Water Resources Action Plan (WRAP), and numerous other programs designed to reduce the impact of Port operations on the environment and neighboring communities. Green Port programs are implemented in coordination with similar programs in the adjacent Port of Los Angeles to provide a region-wide pollution control initiative.

1.2.3 Coastal Zone Management Act

The federal Coastal Zone Management Act of 1972 (CZMA; Title 16 United States Code [U.S.C.] 1451–1464) was enacted in recognition of the national importance of coastal zone resources. The CZMA requires states to comply with certain standards related to the management and protection of coastal resources, including both natural areas and those devoted to commercial, industrial, and residential uses.

Section 307(c)(3)(A) of the CZMA states that “any applicant for a required federal license or permit to conduct an activity, in or outside the coastal zone, affecting any land or water use or natural resource of the coastal zone of that state shall provide a certification that the proposed activity complies with the enforceable policies of the state’s approved program and that such activity would be conducted in a manner consistent with the program.” In order to participate in the coastal zone management program, a state is required to prepare a program management plan. Once the plan and its enforceable program policies are approved, a state program gains “federal consistency” jurisdiction. This means that any deferral action (e.g., a project requiring federally issued licenses or permits) that occurs within a state’s coastal zone must be found as consistent with state coastal policies before the federal action can occur. The State of California plan is described in Section 1.2.4.

1.2.4 California Coastal Act

The CCA (California Public Resource Code [PRC] Division 20) is the State of California's legislation that enacts the provisions of the CZMA in California. The goals of the CCA, as set forth in PRC Section 30001.5, are generally to protect the coastal environment, assure orderly utilization and conservation of coastal resources, maximize public access and recreational opportunities, give priority to coastal dependent and coastal-related development, and promote coordinated planning for beneficial uses in the coastal zone. The CCA established the California Coastal Commission (CCC) as the coastal management and regulatory agency over the coastal zone (PRC Section 30103), within which the Port is located (Figure 1.2-1).

The boundary of the state's coastal zone is defined by the CCA (PRC Section 30103[a]) as:

> *"that land and water area of the State of California from the Oregon border to the border of the Republic of Mexico, specified on the maps identified and set forth in Section 17 of Chapter 1330 of the Statutes of 1976, extending seaward to the state's outer limit of jurisdiction, including all offshore islands, and extending inland generally 1,000 yards from the mean high tide line of the sea... in developed urban areas the zone generally extends inland less than 1,000 yards."*

The CCA recognized that commercial ports in California represent areas that are, and for many years have been, devoted to transportation and commercial, industrial, and manufacturing uses. Chapter 8 of the CCA states that there is no need to change the location of those ports or to establish new ports, and encourages ports to "modernize and construct necessary facilities within their boundaries to minimize or eliminate the necessity for future dredging and filling to create new ports in new areas of the state."

CCA Chapter 8 (Article 3) stipulates that ports shall prepare and adopt master plans for the land and water areas within their boundaries that are located in the coastal zone. Following CCC certification of the PMP, a port is granted authority to issue coastal development permits (CDPs) within its boundaries. Approvals of certain categories of development defined in CCA Section 30715 may be appealed to the CCC. Appealable projects include: liquefied natural gas (LNG) and crude oil projects that could have a significant impact on oil and gas supplies; wastewater treatment facilities except those producing incidental amounts associated with Port activities; road or highway projects that are not principally for internal circulation within the Port; office and residential buildings not associated with Port administrative activities; hotels, motels, and shopping facilities not associated with commercial goods for water-oriented purposes; commercial fishing facilities; marina facilities for recreational, small craft; oil refineries; and, petrochemical production plants (PRC Section 30715).

CCA Article 3 (PRC Section 30711[a]) requires that a PMP include the following:

- Proposed uses of land and water areas, where known;
- Projected design and location of port land areas, water areas, berthing, and navigation ways and systems intended to serve commercial traffic within the area of jurisdiction of the port governing body;
- Estimate of the effects of development on habitat areas and the marine environment, review of existing water quality, habitat areas, and quantitative and qualitative biological inventories, and proposals to minimize and mitigate any substantial adverse effect;

- Description of proposed projects listed as appealable under Section 30715 in sufficient detail to enable determination of their consistency with CCA Chapter 3 policies; and
- Provisions for adequate public hearings and public participation in port planning and development decisions.

CCA Chapter 3 identifies six coastal resources planning and management policies that address coastal zone conservation and development decisions and that are generally used to evaluate a proposed project's consistency with the CCA:

- Providing for maximum public access to California's coast;
- Protecting water-oriented recreational activities;
- Maintaining, enhancing, and restoring California's marine environment;
- Protecting sensitive habitats and agricultural uses;
- Minimizing environmental and aesthetic impacts of new development; and
- Locating coastal dependent industrial facilities within existing sites, whenever possible.

1.2.5 Factors Affecting Demand for Port Development

Two primary goals of the Proposed Plan are to accommodate forecasted demands of diverse cargoes and to develop modern, efficient terminal facilities. While these goals are consistent with previous PMPs, evolving terminal operational capabilities and changes within the global marketplace make today's planning process dynamic. Essential factors affecting the demand for the Port development in the Proposed Plan include the following:

- The Port has a major role in facilitating commerce and the distribution of commodities throughout extensive market areas (i.e., international and domestic).
- Factors impacting international trade patterns include a country's macroeconomic environment, global demand for raw and finished goods, and the availability and price of energy resources.
- The Port operates as a "landlord" port. As such, proposed tenant facility developments are coordinated between the Port and its tenants.
- The Port competes with state and regional operating port authorities that may have access to larger economic development opportunities and control over more of the supply chain operations and costs.

1.2.5.1 Market Commodities and Trade Routes

The Port's market areas are divided into nine regions: North America, Central America, South America, Europe, Asia, Australia and Oceania, Africa, U.S. Possessions and Territories, and miscellaneous. Although the Port's major trading partners are the Asian Pacific Rim countries, the Port handles imports and exports from over 150 countries. The Port's primary trading partners based on dollar value are listed in Table 1.2-1.

Table 1.2-2 and Table 1.2-3 list the Port's top export and import commodities. Top export commodities for transpacific trade consist of machinery, plastics, agricultural products, and bulk commodities such as petroleum coke, liquid petroleum, and chemicals. Top import commodities for transpacific trade include crude oil and consumer goods such as electronics, furniture, plastic goods, and apparel.

TABLE 1.2-1. PORT OF LONG BEACH PRIMARY TRADING PARTNERS (2018)		
Rank	**Trading Countries**	**Value (Billion U.S. Dollars)**
1	China	52.22
2	Japan	13.06
3	South Korea	7.49
4	Australia	5.10
5	Vietnam	4.25
6	Taiwan	4.12
7	Saudi Arabia	2.92
8	Hong Kong	1.59
9	Philippines	1.14
10	Thailand	1.11
Source: (USCB 2019)		

TABLE 1.2-2. PORT OF LONG BEACH – TOP EXPORTS (2018)		
Rank	**Commodity Type**	**Value (Billion U.S. Dollars)**
1	Machinery and Machine Tools	4.41
2	Motor Vehicles and Parts	3.53
3	Plastics and Plastic Products	2.15
4	Meat Products	1.62
5	Edible Fruits and Nuts	1.60
6	Electric Machinery, Sound, and Television Equipment	1.53
7	Cotton, Yarn, and Fabric	1.28
8	Optic, Photo, and Medical Instruments	1.18
9	Mineral Fuel and Oil	1.15
10	Miscellaneous Chemical Products	1.03
Source: (USCB 2019)		

TABLE 1.2-3. PORT OF LONG BEACH – TOP IMPORTS (2018)		
Rank	**Commodity Type**	**Value (Billion U.S. Dollars)**
1	Machinery and Machine Tools	14.41
2	Electric Machinery, Sound, and Television Equipment	13.55
3	Mineral Fuel and Oil	7.30
4	Furniture, Bedding, and Lamps	4.38
5	Motor Vehicles and Parts	4.02
6	Toys, Games, and Sports Equipment	2.99
7	Plastics and Plastic Products	2.89
8	Iron and Steel Products	2.29
9	Footwear	2.22
10	Rubber and Rubber Products	1.64
Source: (USCB 2019)		

Sections 1.2.5.2 through 1.2.5.4 discuss the studies and reports associated with the Port's forecast demand, competitive factors, and terminal capacity, addressing the needs and driving factors for proposed development.

1.2.5.2 San Pedro Bay Long-term Unconstrained Cargo Forecast

The San Pedro Bay Long-Term Unconstrained Cargo Forecast provides a 25-year forecast (2015 to 2040) for growth of container and non-container cargo volumes moving through the Port of Long Beach and the Port of Los Angeles (Mercator 2016).

Container Cargo

The San Pedro Bay Port Complex is the largest container gateway in North America. The growth rate over the Proposed Plan planning period (through 2040) for the Port, along with the assumed compound annual growth rate is shown in Table 1.2-4. This growth scenario is assumed for the Proposed Plan and is not expected to change in the near future.

TABLE 1.2-4. PORT OF LONG BEACH CONTAINER GROWTH RATE

Year	San Pedro Bay Ports Expected Forecast (Million TEUs)[1]	Port Expected Forecast (Million TEUs)[2]	Compound Annual Growth Rate
2015	15.4	6.9	-
2020	19.3	8.7	4.5%
2025	23.5	10.6	4.0%
2030	28.3	12.7	3.8%
2035	34.3	15.4	3.9%
2040	41.1	18.5	3.7%

Sources:
[1] (Mercator 2016)
[2] Port calculation (approximately 45% of the San Pedro Bay Ports Expected Forecast column)
Key: TEU = twenty-foot equivalent unit

Non-Container Cargo

The non-container terminals handle a limited number of commodities due to their specialized handling requirements and storage infrastructure. Dry bulk, liquid bulk, and neo bulk (automobiles) terminals are designed to handle one cargo type. The specific non-container types identified in the forecast and Proposed Plan include liquid bulk, dry bulk, break bulk, and roll on/roll off (Ro/Ro).

The forecast for non-container cargoes is based on domestic and foreign industrial demand for various commodities. The outlook for this cargo segment is based on the 2014 Summary of Non-Container Volume for the San Pedro Bay Ports, which was the latest data available at the time of the forecast study. Table 1.2-5 shows the volume of imports, exports, and total by cargo handling type for 2014.

The forecast for non-containerized cargo is mixed. Liquid bulk imported commodities are forecast to decline by 2040. In contrast, non-crude oil exports are expected to double during the same period from 9 million to 18 million metric tons (MMT) (Mercator 2016). Imported gypsum makes up the largest share of the dry bulk market, representing a major part of the construction industry and for which volumes are expected to increase. However, dry bulk imports represent a very small share of total non-container imports (Table 1.2-5).

TABLE 1.2-5. SUMMARY OF SAN PEDRO BAY PORTS 2014 NON-CONTAINER VOLUME

Cargo Handling Type	Imports (Million Metric Tons)	Exports (Million Metric Tons)	Total (Million Metric Tons)
Liquid Bulk (excludes pipelines)	30.30	3.40	33.70
Dry Bulk	0.40	7.30	7.70
Break Bulk	2.70	0.00	2.70
Ro/Ro	0.60	0.05	0.65
Total	**34.0**	**10.75**	**44.75**

Source: (Mercator 2016)
Key: Ro/Ro = roll on/roll off

Dry bulk exports consist largely of petroleum coke, coal, and scrap metal. Dry bulk exports are expected to increase until 2020 and then remain generally flat thereafter to 2040. The volume of break bulk cargo is anticipated to increase due to the continued expansion of construction and manufacturing activities in Southern California, Nevada, and Arizona (Mercator 2016). Finally, the import and export Ro/Ro markets are both expected to increase in line with growth in the global automotive industry. Imports into Southern California are forecast to increase and exports from the U.S. will see similar growth.

1.2.5.3 Port Competitiveness

A key factor in the future growth of cargo volumes through the Port of Long Beach will be the effects of competition from other ports, not only the Port of Los Angeles but other West Coast ports and even ports on the East and Gulf Coasts (Mercator 2016). Competition from the neighboring Port of Los Angeles could result in any of a number of scenarios for the Port of Long Beach, depending on the scale and timing of navigational and terminal improvements at the two ports. In recent years, the Port of Long Beach has handled approximately 45 percent of the cargo moving through the San Pedro Bay Port Complex. There are many factors influencing this share, including the relative terminal capacity available at the Port of Long Beach and Port of Los Angeles and discretionary choices by ocean carriers and ocean carrier alliances regarding where to deploy their regular liner services. As a result, the share likely to be handled by the Port of Long Beach is variable from year to year and difficult to predict with certainty. The projects considered in the Proposed Plan are expected to maintain the Port's proportional share of terminal capacity and accommodate nearly 45 percent of the container throughput projected by the Mercator (2016) forecast.

The more serious competition in the future is likely to be from more distant ports. According to Mercator (2016), although the San Pedro Bay Ports are still the leading container gateway in North America, they have lost share in recent years, since peaking in 2006, as a result of cargo diversion to other ports. That loss of share may continue if the San Pedro Bay Ports are unable to provide enough access for ultra large container ships (ULCS), as well as other key improvements, in the period 2025–2040. In that case, shipping lines would increasingly turn to other ports, including all-water routes to the East Coast (facilitated by the expansion of the Panama Canal), where the major ports are developing container facilities for ULCS.

Cargo destined for the local market—Southern California and nearby states—will continue to come to the Port because no other option makes economic sense. However, the Port faces serious competition from other ports for cargo that is destined for inland points (interior point intermodal [IPI] cargo) in the U.S. IPI cargo travels by sea from Asia to a North American port and then by rail to its inland destination. Historically, the San Pedro Bay Ports have dominated this segment of containerized cargo, which accounts for over a quarter of loaded import containers that transit through the Port (Mercator 2016), sending large amounts of IPI cargo to the Midwest, Southeast, and Texas. However, the faster, cheaper all-water routes to the East Coast and Gulf Coast ports and expanded port capacity in the Pacific Northwest challenge that dominance.

In summary, existing data and forecasts suggest that retaining the IPI (discretionary) portion of the Port's cargo throughput will require maintaining the Port as a preferred gateway for cargo from the Pacific Rim. This will be achieved by controlling costs, improving goods movement infrastructure, and ensuring adequate facilities for the largest vessels expected to enter the transpacific market. Costs can be controlled by improving efficiency through optimizing terminal design and operating modes to handle the high volume of cargo from such large, modernized logistics management facilities outside the terminals. The goods movement infrastructure, especially the rail network and intermodal facilities, must be expanded and modernized to accommodate future intermodal cargo volumes. Finally, channels, turning basins, berths, and wharves must be expanded, reconfigured, and strengthened as necessary to ensure safe operation of ULCS of the future.

1.2.5.4 Port-wide Capacity

The Port conducted a land use study that involved development of a modeling tool (i.e., Integrated Land Use Tool [ILUT]) to analyze the capacity and operating impacts of the marine terminals at the Port, including container, auto, dry bulk, break bulk, and liquid bulk terminals (WSP 2017). The ILUT models the Port terminals and transportation components by considering all relevant aspects of Port operations including ship and cargo profiles for each terminal, dwell times, work shifts, operating hours, on-dock/off-dock activity, as well as transportation and navigational networks. Based on ILUT model outputs, the Port-wide constrained container capacity is approximately 13.6 million TEU/year, which is roughly double the throughput handled by the Port in 2017. A more detailed description of the ILUT can be found in Appendix B (Integrated Land Use Tool). The Port has sufficient capacity to accommodate 45 percent of the demand forecasted for San Pedro Bay up to year 2032 (WSP 2017).

1.2.6 1990 Port Master Plan

The Port's PMP, which was last comprehensively updated and certified by the CCC in 1990, is a land use plan that provides policies to guide development within the Harbor District for accommodating changes in the shipping industry and meeting projected demand for cargo. The PMP describes how the Port intends to develop and manage its land and water areas, and how that management will be consistent with CCA requirements related to water-dependent and water-related activities, public access to coastal resources, and environmental protection. A list of PMP amendments certified by the CCC since 1978 is shown in Table 1.2-6. The amendments range from specific projects and programs to comprehensive updates of the PMP. These subsequent amendments have been certified by the CCC, meaning they are consistent with the CZMA and CCA.

The 1990 PMP as amended divides the Harbor District into 10 planning districts (Figure 1.2-2), and allows a variety of land and water uses within each district (Table 1.2-7 and Figure 1.2-3).

TABLE 1.2-6. PORT MASTER PLAN AND AMENDMENT CERTIFICATIONS

PMP	Title	CCC Certification Date
Original	Port of Long Beach Port Master Plan	October 1978
Amendment 1	Risk Management Plan	June 1981
Amendment 2	Guidelines for Implementation of the Port of Long Beach Certified Port Master Plan	February 1982
Amendment 3[1]	Port of Long Beach Master Plan Update	October 1983
Amendment 4	Pier A Berths 5–10 Expansion	June 1984
Amendment 5	Pier J Landfill and Anaheim Bay Mitigation Projects	March 1988
Amendment 6[1]	Port of Long Beach Port Master Plan Update	September 1990
Amendment 7	*De Minimis* Port Master Plan Amendment - Placement of Clean Dredge Material in Main Channel	September 1995
Amendment 8	Bolsa Chica Habitat Mitigation Credits	October 1996
Amendment 9	Naval Complex Permitted Uses; Terminal Island Planning District Boundary Modifications; and Homeless Service Center	July 1996
Amendment 10	Pier T Marine Terminal; Modify Permitted Location for Homeless Service Center; Add Credits to Habitat Mitigation Credit Account	May 1997
Amendment 11	Temporary Storage or Permanent Disposal of Clean Dredge Material at Borrow Site in Southwest Harbor Planning District	May 1998
Amendment 12	Construction of 30-acre Landfill in Slip 2 at Pier E in Middle Harbor Planning District	October 1998
Amendment 13	Modification of Anticipated Projects on Terminal Island	November 1998
Amendment 14	Terminal Island Planning District Landfill Projects	June 1999
Amendment 15	Construction of a 42 Acre Landfill at Piers G and J	December 2000
Amendment 16	Construction of Landfill on Piers D/E/F in the Middle Harbor Planning District	March 2001
Amendment 17	Widening of the Cerritos Channel	August 2002
Amendment 18	Modernization of the Existing Pier J South	N/A[2]
Amendment 19	Widening of the Navy Mole	February 2003

Key: CCC = California Coastal Commission; N/A = not applicable
Notes:
[1] Comprehensive updates to the Port Master Plan occurred with Amendment 3 (1983) and Amendment 6 (1990).
[2] Amendment 18 was initially considered by the Port of Long Beach but not carried forward for approval by the CCC.

TABLE 1.2-7. 1990 PMP AS AMENDED PLANNING DISTRICTS AND PERMITTED AND EXISTING USES

Planning District	Permitted Uses	Existing Uses
1 – North Harbor	Port-Related Industries and Facilities, Non-Port Related Areas	Numerous small, Port-owned and privately owned land parcels that are devoted to Port-Related and Non-Port Related uses.
2 – Northeast Harbor	Primary Port Facilities, Ancillary Port Facilities, Oil and Gas Production, Utilities	Petroleum cargo, dry bulk cargo, automobile storage and distribution, and Pacific Harbor Line on-dock rail support facilities on Pier B; SSA Terminals/Matson operations on Pier C; and bulk operations and warehousing operations on Pier D.
3 – Northwest Harbor	Primary Port Facilities, Ancillary Port Facilities, Oil and Gas Production, Utilities	Container terminal operations at Pier A (Berths A88–A96).
4 – Terminal Island	Primary Port Facilities, Port-Related Industries and Facilities, Ancillary Port Facilities, Hazardous Cargo Facilities, Navigation, Oil and Gas Production	Container terminal operations, liquid bulk facility, scrap metal export facility, lumber terminal, oil and gas production, boat repair and impound facility at Berth 99, Vopak Long Beach Terminal adjacent to Berth 101, boat marina at Berth 98, and Southeast Resource Recovery Facility, representing a “trash to energy” facility (operated by the City of Long Beach).
5 – Middle Harbor	Primary Port Facilities, Port-Related Industries and Facilities, Ancillary Port Facilities, Oil and Gas Production	Middle Harbor container terminal and Pier D dry bulk (cement) terminal.
6 – Southwest Harbor	Anchorage Area, Primary Port Facilities, Ancillary Port Facilities, Hazardous Cargo Facilities	Navigation and anchorage areas.
7 – Navigation	Navigation	Navigation.
8 – Southeast Harbor	Primary Port Facilities, Port-Related Industries and Facilities, Ancillary Port Facilities, Oil and Gas Production	Piers G and J container terminal operations, Pier F break bulk (automobiles and heavy equipment), liquid bulk (crude oil), and dry bulk (cement and salt) terminals.
9 – Queensway Bay	Commercial/Recreational Facilities, Primary Port Facilities, Ancillary Port Facilities, Oil and Gas Production	Queen Mary, Carnival Cruise Terminal, hotels, restaurants, and oil and gas production.
10 – Outer Harbor	Navigation, Maneuvering	Navigation.
Key: PMP = Port Master Plan		

Figure 1.2-2. Current Planning Districts (1990 PMP as amended)

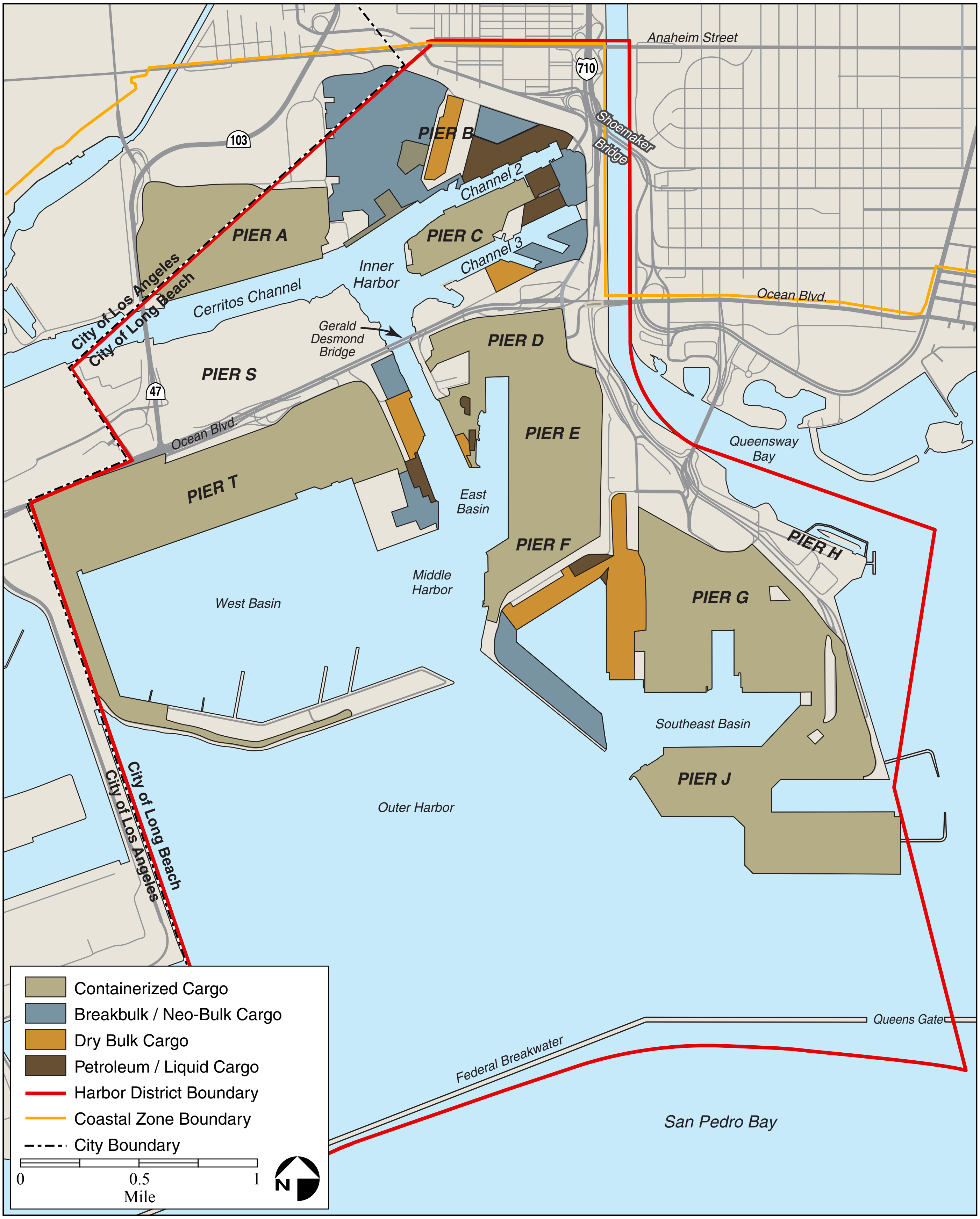

Figure 1.2-3. Existing Land Uses (2018)

1.3 CEQA COMPLIANCE

This PEIR, which includes program-level analyses of various projects and a project-level analysis of one project (refer to Section 1.8.4, Proposed Plan Projects Analyzed in the PEIR), has been prepared in accordance with the requirements of CEQA (PRC Section 21000 et seq.), CEQA Guidelines (14 California Code of Regulations [CCR], Section 15000 et seq.), and POLB Procedures for Implementation of the CEQA (Resolution Number HD-1973). According to CEQA Guidelines Section 15121(a) (CCR, Title 14, Division 6, Chapter 3), the purpose of an Environmental Impact Report (EIR) is to serve as an informational document that:

> *…will inform public agency decision-makers and the public generally of the significant environmental effect of a project, identify possible ways to minimize the significant effects, and describe reasonable alternatives to the project.*

This Draft PEIR evaluates the direct, indirect, and cumulative impacts of the Proposed Plan in accordance with the provisions set forth in CEQA and the CEQA Guidelines. It will be used to address potentially significant environmental issues and to recommend adequate and feasible mitigation measures that, where possible, could reduce or eliminate significant environmental impacts.

1.3.1 Purpose of a Program Environmental Impact Report

A PEIR is considered the appropriate document to address the Proposed Plan because it is a type of EIR that is prepared for a series of actions that can be characterized as one large program and that are related as follows, per CEQA Guidelines Section 15168:

- Geographically;
- As logical parts in the chain of contemplated actions;
- In connection with issuance of rules, regulations, plans, or other general criteria to govern the conduct of a continuing program; or
- As individual activities carried out under the same authorizing statutory or regulatory authority, and having generally similar environmental impacts that can be mitigated in similar ways.

Subsequent proposed development must be evaluated to determine whether additional CEQA analysis is required. If a later activity (not subject to an exemption) would have effects that were not examined in the PEIR, a new Initial Study would need to be prepared leading to either an EIR or a Negative Declaration (CEQA Guidelines Section 15168(c)(1)). If the agency finds that any of the events detailed in PRC Section 21166 and CEQA Guideline Section 15162 have occurred, additional CEQA analysis would be required. For example, if "substantial changes are proposed in the project which will require major revisions of the previous EIR … due to the involvement of new significant environmental effects or a substantial increase in the severity of the previously identified significant effects…," then additional CEQA documentation will be required (CEQA Guideline Section 15162(a)(1)). Feasible mitigation measures and alternatives developed in the PEIR will be incorporated into subsequent actions occurring under the Proposed Plan (CEQA Guidelines Section 15168(c)(3)).

A PEIR may serve as a first-tier document for later CEQA review of projects included within a program. A PEIR can be used to simplify the task of preparing subsequent environmental documents on later activities in the program (CEQA Guidelines Section 15168). Accordingly, a PEIR can:

- Provide the basis in an Initial Study for determining whether the later activity may have any significant impacts;
- Be incorporated by reference to address regional influences, secondary impacts, cumulative impacts, broad alternatives, and other factors that apply to the program as a whole; and/or
- Focus an EIR on a later activity to permit discussion solely of new impacts that had not been considered before.
- In addition to the program-level analysis, this PEIR includes a project-level analysis of the OHSPER project for which sufficient data is available. This project that is analyzed at the project level can be approved by the BHC and permitted upon certification of this PEIR.

The Proposed Plan is subject to approval by the CCC, which operates under its own regulatory programs that replace the PEIR with a comparable form of environmental review. This Draft PEIR has been prepared in accordance with the requirements of CEQA to assist the CCC in conducting mandated environmental review. In addition, other state and local agencies that have jurisdiction or regulatory responsibility over components of the Proposed Plan will also rely on this PEIR for CEQA compliance as part of their decision-making process.

1.3.2 CEQA Baseline

CEQA Guidelines Section 15125(a) states that the existing physical environmental conditions at the time of the Notice of Preparation (NOP) will normally constitute the baseline for determining whether impacts are significant. The NOP for the Proposed Plan was published in August 2018.

The CEQA impact analysis in this PEIR compares conditions in August 2018 (the CEQA Baseline) to projected impacts from the Proposed Plan and alternatives through the year 2040 (i.e., the Proposed Plan planning horizon). In August 2018, various projects included in the PEIR baseline analysis had been analyzed under CEQA, permitted, and construction was completed or nearly complete. These projects (i.e., Middle Harbor Redevelopment Program, Gerald Desmond Bridge Replacement, Schuyler Heim Bridge Replacement, Pier J North Wharf Rail Crane Girder Upgrades, Administrative Building Site Support Yard [existing temporary use], and Pier B Street Pacific Crane Maintenance Company Chassis Support Yard [existing temporary use]) are included in the baseline analysis, as they accurately reflect “existing conditions” at the Port for the purposes of this analysis.

In contrast, by August 2018 various other Port projects (i.e., Pier B On-Dock Rail Support Facility, Toyota Logistics Services Improvement Project, Fireboat Station No. 20, Terminal Island Wye Improvements, Southern California Edison (SCE) Transmission Tower Replacement, Administrative Building Demolition, Double Track Access from Pier G to J, Fireboat Station No. 15, and the Pier J Bike and Pedestrian Path Segments 1–6) had been analyzed under CEQA and permitted, but construction either had not been started or was not near completion. To provide a conservative assessment of “existing conditions,” these projects are not included in the baseline analysis of potential impacts from the Proposed Plan and also are not analyzed as part of the Proposed Plan, since they have already been analyzed under CEQA and approved. Instead, the impacts of these other Port projects are analyzed and disclosed as part of the cumulative projects analysis in this PEIR.

It should be noted that the CEQA Baseline differs from the No Plan Alternative in that the No Plan Alternative addresses projects that are likely to occur over time, including those that were previously approved and permitted at the time of the NOP but had not yet commenced construction.

1.4 PLAN PURPOSE

Although there have been numerous amendments to the Port's PMP, the current PMP was last comprehensively updated and certified in 1990. In the ensuing 30 years, the Harbor District has undergone a number of major physical changes; more importantly, the maritime industry that the Port serves has changed dramatically, the Port's role as a steward of other public resources (e.g., recreation and wildlife) has expanded beyond the scope envisioned by the 1990 PMP, and strategic challenges such as climate change and sustainability have come to the forefront. Accordingly, the 1990 PMP as amended no longer adequately reflects its current planning priorities and does not provide a sound basis for addressing the challenges and opportunities of the future.

The purpose of this comprehensive Proposed Plan is to ensure that the Port's master planning document 1) reflects the changes in the Harbor District that have occurred since the PMP was last comprehensively updated in 1990; and 2) allows the Port to respond to future changes, both anticipated and unexpected, in land use policy, maritime commerce, and facilities development. As such, the Proposed Plan is intended to reflect changes in the global shipping industry, technological advances, and important factors such as climate change and energy resources consistent with Green Port Policy objectives.

1.5 PLAN NEED

Since the 1990 PMP, the global shipping industry has undergone significant changes aided by technological advances. In addition, cargo volumes at the Port have risen dramatically from 1.5 million TEUs in 1990 to 8.1 million TEUs in 2018. A sustained increase in cargo activity and execution of large capital projects, including the final phases of the Middle Harbor Redevelopment Program, have prompted the need for a comprehensive update to the 1990 PMP. The Proposed Plan provides a long-term plan for the development of Port facilities to accommodate forecasted cargo activity while supporting the Port's strategic priorities that include environmental stewardship, protecting the health of adjacent communities, and providing opportunities for jobs.

The strategic direction of the Port is based on the Port of Long Beach Strategic Plan (2019a), which envisions the Port as a facilitator of international trade with a commitment to operational excellence, environmental stewardship, safety, security, and community partnership.

Beginning with this update, the Proposed Plan will be updated regularly and amended as the port industry responds to forecasts of cargo demand, economic trends of global trade, increasing sizes of container vessels, changing cargo handling technologies, and environmental sustainability goals and requirements.

1.6 PLAN OBJECTIVES

For purposes of the CEQA analysis, the key objectives of the Proposed Plan include the following:

1. Accommodate future cargo demand and changing industry practices and trends to the maximum extent practicable;
2. Optimize use of existing and future Port land through efficient and sustainable reconfiguration and redevelopment;
3. Maximize terminal operational efficiencies and on-dock rail systems within the Port;

4. Develop the Port in a sustainable manner and minimize adverse environmental impacts, consistent with the CCA and applicable federal, state, and local regulations; and

5. Enhance public access and recreational opportunities in designated areas within the Harbor District.

Additional objectives of the Proposed Plan include maintaining permitting flexibility to support future Green Port development and promoting coastal dependent development to ensure the Port remains a primary economic resource of the national maritime industry.

1.7 PLAN SETTING AND LOCATION

1.7.1 Regional Context

The Port of Long Beach is located on the shoreline of San Pedro Bay in southeastern Los Angeles County, adjacent to the Port of Los Angeles, which is operated by the City of Los Angeles Harbor Department (LAHD). The Port is served by the Long Beach Freeway (Interstate [I]-710), which connects it to downtown Los Angeles, and by the Terminal Island Freeway (SR-47) connecting the Port with the ICTF in Carson. The Alameda Corridor, a fully grade-separated rail line, runs between the two San Pedro Bay Ports and downtown Los Angeles, connecting the ports with the nationwide rail network (Figure 1.2-1).

1.7.2 Plan Setting

The Port consists of approximately 3,500 acres of land and 4,600 acres of water. It includes berths for OGVs on 10 piers designated by letters (A through G, J, S, and T). Pier H, located in Queensway Bay, supports recreational and visitor-serving activities within the Harbor District and is administered through lease agreements with the City of Long Beach.

The Port leases land to approximately 22 marine terminals, including 5 break bulk terminals, 11 bulk terminals, and 6 container terminals, as well as numerous support and ancillary businesses such as trucking operations, warehouses, marine construction facilities, tugboat and pilot services, marine fuel providers, and a sport fishing operation. In addition, the Port includes a number of oil operating areas that are devoted to the continued production of oil from the Long Beach and Wilmington Oil Fields. Port operations support approximately 51,090 jobs in Long Beach and over 316,000 jobs in the five-county Southern California region (POLB 2018a).

1.8 OVERVIEW OF THE PROPOSED PLAN

The Proposed Plan addresses all elements required under CCA Chapter 8, Article 3 (Section 30711[a][b]), including permitted land and water uses, design and location of land use areas, estimate of development effects on environmental resources, and anticipated projects listed as appealable. The Proposed Plan includes a number of changes from the 1990 PMP as amended related to the overall goals and policies, the number and configuration of planning districts, land and water use designations for the planning districts, and anticipated projects. These changes reflect the changing nature of maritime commerce and related goods movement industries, developments that have changed the Port's physical configuration, and a Port focus on incorporating the Green Port Policy into the Proposed Plan.

This PEIR focuses on changes in land use that would result in changes and/or intensification of activities with the potential for adverse impacts on the physical environment, as well as anticipated projects.

1.8.1 Development Goals

The Proposed Plan addresses the Port's long-range planning goals related to future development. The goals balance the Port's role as an essential element of the national maritime industry with its responsibilities to protect coastal resources and maximize public access and recreational opportunities, while also maintaining consistency with policies and applicable regulations. In addition, the goals are intended to prioritize Primary Port and Port-Related uses within existing industrialized areas while promoting compatibility with other uses within the Harbor District.

Goal 1: Accommodate Forecasted Demand for Diverse Cargoes

A general provision of the CCA is the protection and management of existing commercial ports to eliminate the need to create new ports in other coastal areas of the state. The statute encourages the Port to modernize and develop facilities to accommodate cargo demand.

A primary goal of the Proposed Plan is to accommodate forecasted demand of diverse cargoes (e.g., container, liquid bulk, dry bulk, break bulk, and Ro/Ro) within the Harbor District. A related goal of the Proposed Plan is to maintain the Port's market share within San Pedro Bay. Historically, the Port of Long Beach has handled approximately 45 percent of baywide throughput, and the Port of Los Angeles has handled approximately 55 percent. Cargo handling capacity may be enhanced by introducing more efficient modes of operation on existing terminals. The Proposed Plan places a priority on accommodating larger vessels in the Middle Harbor and Outer Harbor (south of the Gerald Desmond Bridge) where there are fewer navigational constraints.

Goal 2: Develop Modern Facilities with Efficient Operations

Port facility modernization is necessary to optimize operational efficiencies, increase resilience against future risks such as climate change, and promote safety and security in design and operations. The Port needs the support and assistance of industry shippers, carriers, and private terminal operators to modernize operations and increase efficiencies. The Proposed Plan is a market-driven plan that will guide future capital planning and development. It is intended to be a flexible tool for the implementation of future projects, rather than a definitive timeline of capital improvements. As such, projects would be evaluated for inclusion in the Port's Capital Program as part of the capital planning process.

To that end, the Port is working with terminal operators and other stakeholders to enhance berthing capabilities to meet "big ship" requirements and expand on-dock rail in order to reduce dwell time of containers. As more containers are moved by rail, the Port's tenants achieve greater reliability and efficiency. With advances in technology, the Port is also integrating informational systems to reduce operational inefficiencies and streamline the flow of cargo.

Goal 3: Integrate Green Port Policy and Land Use Planning and Development

The Port demonstrates environmental stewardship through implementation of its Green Port Policy adopted in 2005. Elements of the Green Port Policy include improvements to air quality, water quality, sediment management practices, sustainable energy initiatives, sea level rise (SLR) adaptation, and protection of marine habitat. In addition, the Port actively engages with the community on matters of environmental justice in an effort to continue to reduce the negative effects of Port operations, such as air contaminants.

Since 2005, the Port has significantly reduced air contaminants, supported the use of cleaner fuels in OGVs, completed a changeover of the truck fleet from heavy-polluting diesel drayage trucks to newer model year trucks, and continues to advance development of clean air technologies.

Long-range land use planning will support the continuing implementation of Green Port Policy initiatives. Consistent with other goals of the Proposed Plan, proposed terminal improvements will enhance operational efficiency and optimize land use by redeveloping existing facilities. Modernized terminals will have the ability to employ the latest technology to minimize environmental impacts. For example, the use of zero-emissions yard equipment is associated with reduced air pollutant emissions compared to diesel-powered equipment. The concentration of trucks, trains, cargo vessels, and CHE in container terminals means that those terminals have historically been relatively intense sources of air pollution, including harmful diesel emissions. In response, the Proposed Plan prioritizes container terminal development in the Outer Harbor, which is further from communities, while uses in the Inner Harbor focus on non-container uses that tend to be smaller sources of air pollution, as needs dictate. This will increase the distance of air pollutant emissions generated from container cargo operations from sensitive receptors. New land use and water use designations in the Proposed Plan facilitate implementation of Green Port Policy initiatives. For example, a new Renewable Energy Resources designation permits the development of energy production facilities, such as solar, geothermal, or hydrogen fuel cell in certain districts. Sediment management areas will allow for the placement of sediment in previously unassigned water locations, thereby supporting ecosystem restoration including creation of shallow-water habitat. A new Environmental Protection designation for land and water uses allows for the protection of habitat sites (e.g., Gull Park) and other natural areas.

Goal 4: Protect and Enhance the Coast for the Benefit of All Port Users and Communities

While the Port is an international gateway with a global reach, it maintains a unique commitment to neighboring communities affected by Port operations. In order to maximize benefits to these communities, the Port protects and enhances the coastal environment for the enjoyment of visitors to the waterfront. In particular, Queensway Bay (Figure 1.2-1), located within the Harbor District, provides areas for waterfront access and recreational opportunities.

Under the Public Trust Doctrine, the Port acts as a steward of public tidelands granted in trust by the state for the benefit of the people of California. Public access and recreational opportunities are maintained through long-range land use planning and the Port's ongoing initiatives.

In addition to maintaining public access to the waterfront, the Port promotes education and access to information regarding Port operations and environmental programs. The Port also supports activities and school programs to increase understanding of Port operations and its significance to the regional economy. Educational programs include the POLB Academy, which offers industry-training and internship opportunities for high school and college students. The POLB Maritime Center of Excellence at Long Beach City College is a new initiative to provide training for individuals who seek to join the supply chain and logistics industry.

The POLB Community Grants Program aims to lessen Port impacts on the community by investing in projects outside the Harbor District to minimize Port impacts on air, noise, water, and traffic (POLB 2019b). The program prioritizes projects in the neighborhoods and corridors where these impacts are most acutely felt. It builds on the successes of the Port's previous mitigation grant programs, and provides additional funding for community programs and capital projects with long-lasting neighborhood benefits.

Continuing partnerships with local communities, industry representatives, educational institutions, government agencies, and other stakeholders are essential to a robust and inclusive planning process.

1.8.2 Planning Districts

1.8.2.1 Changes to Planning Districts

The Proposed Plan proposes to reduce the number of planning districts from ten to seven and modify the boundaries of some individual planning districts. The Proposed Plan would consolidate the planning districts based on current and projected land uses. The proposed planning districts are: 1) North; 2) Northeast; 3) Northwest; 4) West Basin; 5) Southeast; 6) Anchorage and Open Water; and 7) Queensway Bay (Figure 1.8-1).

To achieve the reduction in the number of planning districts, the Proposed Plan would consolidate existing Districts 5, 7, 8, and 10 into a new District 5 (Southeast). The boundaries of the new planning district correspond to the outer boundaries of the four existing districts that would be consolidated.

Four planning districts would not change their boundaries under the Proposed Plan. Proposed Planning Districts 1 (North), 2 (Northeast), 6 (Anchorage and Open Water), and 7 (Queensway Bay) would correspond in area and configuration to existing planning districts 1, 2, 6, and 9, respectively.

The Proposed Plan would reconfigure existing Districts 3 and 4 by expanding District 3 to include the portion of Terminal Island north of the Gerald Desmond Bridge and reducing District 4 by the same area. This change would support the Proposed Plan goal of prioritizing container uses in the Outer Harbor (Planning Districts 4 through 7) and non-container uses in the Inner Harbor (Planning Districts 1, 2, and 3).

1.8.2.2 Proposed Planning Districts

The proposed planning districts are described below. The allowable land and water uses for the planning districts are summarized in Table 1.8-1.

TABLE 1.8-1. PROPOSED PLAN PLANNING DISTRICTS AND ALLOWABLE USES

Planning District	Land Uses	Water Uses
1 – North	Port-Related Facilities Institutional Facilities[1] Oil and Gas Production Facilities	N/A
2 – Northeast	Primary Port Facilities Port-Related Facilities Maritime Support Facilities Hazardous Cargo Facilities Oil and Gas Production Facilities Utilities Institutional Facilities Visitor-Serving Commercial Facilities	Navigable Corridor Maneuvering and Berthing Recreational Sediment Management Areas Environmental Protection
3 – Northwest (Formerly 1990 PMP as Amended Districts 3 and 4)	Primary Port Facilities Port-Related Facilities Maritime Support Facilities Hazardous Cargo Facilities Oil and Gas Production Facilities Utilities Renewable Energy Resources	Navigable Corridor Maneuvering and Berthing Sediment Management Areas Environmental Protection
4 – West Basin	Primary Port Facilities Port-Related Facilities Maritime Support Facilities	Navigable Corridor Maneuvering and Berthing Sediment Management Areas

TABLE 1.8-1. PROPOSED PLAN PLANNING DISTRICTS AND ALLOWABLE USES		
Planning District	**Land Uses**	**Water Uses**
	Hazardous Cargo Facilities Oil and Gas Production Facilities Utilities Institutional Facilities Renewable Energy Resources Environmental Protection	Environmental Protection
5 – Southeast (Formerly 1990 PMP as Amended Districts 5, 7, 8, and 10)	Primary Port Facilities Port-Related Facilities Maritime Support Facilities Hazardous Cargo Facilities Oil and Gas Production Facilities Institutional Facilities Environmental Protection	Navigable Corridor Maneuvering and Berthing Sediment Management Areas Environmental Protection
6 – Anchorage and Open Water	N/A	Anchorage Area Navigable Corridor Maneuvering and Berthing Sediment Management Areas Environmental Protection
7 – Queensway Bay (Formerly PMP 1990 District 9)	Primary Port Facilities Maritime Support Facilities Oil and Gas Production Facilities Institutional Facilities Visitor-Serving Commercial Facilities Recreational Open Space Facilities Environmental Protection	Navigable Corridor Maneuvering and Berthing Recreational Sediment Management Areas Environmental Protection

Key: N/A = not applicable; PMP = Port Master Plan
Note:
[1] Per PMP Amendment #10, Institutional Facilities is a limited land use in Planning District 1 for the City of Long Beach Multi-Service Center.

Proposed Planning District 1 (North)

Planning District 1 (North) is one of three planning districts located in the Inner Harbor (Figure 1.8-1). This planning district is located along the Anaheim Street corridor, which includes light industries and businesses that support Port activities, such as truck fueling and maintenance facilities, logistics providers, and container storage yards. The Multi-Service Center, an existing homeless services facility is on Anaheim Street. Planning District 1 consists of a combination of Port-owned property and small, privately owned parcels, and street or highway rights-of-way. This planning district contains older industrial buildings, vacant land, and some uses that are not Port-related. There is no navigational water frontage. The geographic boundaries and uses of Planning District 1 (North) are the same as Planning District 1 (North Harbor) in the 1990 PMP as amended and are not changed in the Proposed Plan. Planning District 1 (North) boundaries are described below:

North: Northern edge of Anaheim Street;

East: Western property line of the Los Angeles County Flood Control Channel;

South: Northern edge of the 20-foot right-of-way north of the main line tracks on the existing Pier B railyard; and

West: Harbor District boundary and City of Long Beach city limit.

Figure 1.8-1. Proposed Plan Planning Districts

Proposed Planning District 2 (Northeast)

Planning District 2 (Northeast) consists of container and non-container facilities at Pier B, Pier C (container terminal), and Pier D (dry bulk and private maritime support properties). The waterways in this planning district include the Inner Harbor, Turning Basin, and Channels No. Two and Three (Figure 1.8-1). This planning district is currently home to various legacy Primary Port uses, visitor-serving activities (Berth 55 sport fishing), rail infrastructure, SCE transmission right-of-way (at the district perimeter), and road and highway rights-of-way. The geographic boundaries and uses of Planning District 2 (Northeast) are the same as Planning District 2 (Northeast Harbor) in the 1990 PMP as amended and are not changed in the Proposed Plan. Planning District 2 (Northeast) boundaries are described below:

North: Harbor District boundary and City of Long Beach city limit (northwest section) and the southern boundary of Planning District 1 (North);

East: The western property line of the Los Angeles County Flood Control Channel;

South: Long Beach Tidelands Line (Statutes of 1965, First Extraordinary Session 1964, Chapter 138[4]); and

West: Western edge of Carrack Avenue and a line directly to the waterfront, then extending through the Turning Basin to the point of intersection between the centerline of the Back Channel and Long Beach Tidelands Line (Chapter 138).

Proposed Planning District 3 (Northwest)

Planning District 3 (Northwest) includes the Pier A container terminal with an intermodal railyard and Pier S (Figure 1.8-1). Pier A facilities are located partially in the Harbor District and partially in the City of Los Angeles, but only the facilities located in the Harbor District are within the scope of the Proposed Plan. The Badger Bridge across the Cerritos Channel connects the marine terminals of the San Pedro Bay Ports on Terminal Island to the regional rail network.

The primary use on Pier A is a container terminal located in the Inner Harbor on the north side of the Cerritos Channel. Pier S, located on Terminal Island east of the Commodore Schuyler Heim Bridge and on the south side of the Cerritos Channel, is an undeveloped site. There are two private terminals located near Pier S: the Plains West Coast Terminal used for the storage of petroleum products (non-cargo) and the Long Beach Generation Peaker-plant facility used to support the SCE power grid. On the west side of the Badger Bridge access road is another petroleum and chemical terminal. In the southwest corner of the planning district is the Southeast Resource Recovery Facility (SERRF).

Maritime support uses in this planning district include on-dock rail from the north serving Pier A. Henry Ford Avenue Bridge, also known as the Badger Bridge, serves Terminal Island, which is divided between the Port of Long Beach and Port of Los Angeles.

The Proposed Plan adds Hazardous Cargo Facilities and Renewable Energy Resources designations to recognize legacy land uses within the planning district. Hazardous cargo facilities include existing petroleum and chemical transfer facilities. The Renewable Energy Resources use supports the continuing operation of SERRF and enables planning for future renewable energy generation. There is an existing tank farm on the Plains West Coast Terminal, which handles liquid bulk operations under the Hazardous Cargo Facilities designation. The Proposed Plan

[4] Chapter 138 is an act relating to the tidelands and submerged lands granted by the State to the City of Long Beach and associated revenues. The Act was approved on June 4, 1964.

retains the existing water uses for this planning district, including Navigable Corridor (Inner Harbor Turning Basin and Cerritos Channel connection to the Main Channel) and Maneuvering and Berthing (Pier A, Pier S, and private terminals).

Planning District 3 (Northwest) boundaries are described below:

<u>North</u>: Harbor District boundary and City of Long Beach city limit;

<u>East</u>: Western edge of Carrack Avenue and a line directly to the waterfront, then extending through the Turning Basin to the point of intersection between the centerline of the Back Channel and Long Beach Tidelands Line (Chapter 138);

<u>South</u>: Northern edge of Ocean Boulevard, which corresponds to the Long Beach Tidelands Line (Chapter 138); and

<u>West</u>: Harbor District boundary and City of Long Beach city limit.

Proposed Planning District 4 (West Basin)

Planning District 4 (West Basin) encompasses the former U.S. Naval Station (Figure 1.8-1) and is one of the three planning districts in the Middle/Outer Harbor. This planning district includes a major container terminal on Pier T, a 381-acre terminal with a 5,000-foot berth. Non-container terminals/facilities are located on Pier T Echo at the easternmost part of Pier T. These facilities consist of a liquid bulk (crude oil) facility, a scrap metal export facility, and a lumber terminal. Facilities on the Navy Mole include S7 Sea Launch, the U.S. Department of Transportation (USDOT) Maritime Administration area, and the U.S. Navy fueling dock at Pier 12. The Navy intends to renew fueling operations at Pier 12 as part of the Defense Fuel Support Point San Pedro.

The Proposed Plan adds Environmental Protection and Renewable Energy Resources land uses to designate areas for environmental protection and enable planning for future renewable energy generation. The Proposed Plan retains the existing water use and also adds Maneuvering and Berthing to accommodate use of berthing areas adjacent to cargo handling berths and designated turning basins; adds Sediment Management Areas to accommodate areas for temporary and permanent disposal of harbor dredge materials; and adds Environmental Protection to accommodate water areas reserved for environmental restoration and protection.

Planning District 4 (West Basin) boundaries are described below:

<u>North</u>: Long Beach Tidelands Line (Chapter 138);

<u>East</u>: A line from the point of intersection between the centerline of the Back Channel and Long Beach Tidelands Line to the tip of the Pier T complex to the tip of the southern shoreline of the Navy Mole;

<u>South</u>: Southern shoreline of the Navy Mole; and

<u>West</u>: Harbor District boundary and City of Long Beach city limit.

Proposed Planning District 5 (Southeast)

Planning District 5 (Southeast) consolidates four existing planning districts into one. The Proposed Plan includes this mega-container district to meet future cargo demands and support the introduction of larger container vessels into the transpacific markets (Figure 1.8-1). Planning District 5 (Southeast) consists of the 1990 PMP as amended Middle Harbor Planning District, Southeast Planning District, Navigation Area Planning District, and Outer Harbor Planning District, and will be the largest primary container area of the Port.

The terminals at Piers D, E, and F are part of the Middle Harbor Redevelopment Program, which will construct a single large terminal, known as the Long Beach Container Terminal (LBCT) when complete. The new, modern terminal will employ new technologies and upgrades infrastructure to improve the Port's cargo handling capabilities while also improving the environment. The gross terminal area is 300 acres with a wharf length of 4,250 feet. When complete, the LBCT complex will have the capability of handling vessels up to 22,000 TEU capacity.

The Pier G container terminal consists of 260 acres and three wharves in excess of 3,700 feet.

Non-container terminals located in Planning District 5 (Southeast) include:

- Break bulk and general cargo (automobile) on Pier F;
- Dry bulk terminals (cement) located on Pier D and Pier F;
- Dry bulk (e.g., salt, petroleum coke, sulfur, soda ash, calcined coke, coal) on Pier G; and
- Liquid bulk (petroleum and bunker fuel) on Pier F.

The Proposed Plan adds Hazardous Cargo Facilities land use to accommodate existing Chemoil marine terminal operations on Pier F. The Institutional Facilities land use designation has been added to the planning district to accommodate two fireboat station projects. The Proposed Plan also adds the Environmental Protection land use to designate areas for environmental protection and restoration. The Proposed Plan retains the existing water uses and also adds the Sediment Management Areas water use designation to accommodate areas for temporary and permanent disposal of harbor dredge materials in this planning district.

Planning District 5 (Southeast) boundaries are described below:

North: Long Beach Tidelands Line (Chapter 138);

East: Western right-of-way of Harbor Scenic Drive along the shoreline to the Queensway Bay Planning District and Pier H to the east;

South: Harbor District boundary at the Queens Gate harbor opening; and

West: A line from the west side of the Queens Gate harbor opening at the Harbor District boundary to the eastern tip of the Navy Mole and continued to the point of intersection between the centerline of the Back Channel and Long Beach Tidelands Line.

Proposed Planning District 6 (Anchorage and Open Water)

Planning District 6 (Anchorage and Open Water) encompasses the water area south of the Navy Mole (Figure 1.8-1). The existing water use designations in this planning district are retained in the Proposed Plan. In addition to the existing water uses, the Proposed Plan adds the Sediment Management Areas designation to accommodate areas for temporary and permanent disposal of harbor dredge materials in this planning district. The Environmental Protection designation is added to recognize an existing shallow-water habitat area. There are no land uses in this planning district.

Planning District 6 (Anchorage and Open Water) boundaries are described below:

North: Southern water edge of the Navy Mole;

East: A line from the east tip of the Navy Mole to a point on the Harbor District boundary near the western opening of the Queen's Gate;

South: Harbor District boundary; and

West: Harbor District boundary and City of Long Beach city limit.

Proposed Planning District 7 (Queensway Bay)

Planning District 7 (Queensway Bay) is the Port's primary visitor-serving area for recreational and commercial users (Figure 1.8-1). Land and water uses within this planning district support Queensway Bay as a major visitor-serving destination and enhance the Port's relationship with downtown Long Beach, the Convention Center, and other tourist attractions. Oil production activities are also present in this planning district. Queensway Bay continues to serve as a recreational buffer between downtown Long Beach and the Port's industrial operations. The Proposed Plan adds Institutional Facilities to recognize legacy land uses within the planning district related to public facilities, education, and marine research areas. In addition to the existing water uses, the Proposed Plan adds the Navigable Corridor designation for use of waterways that serve the cruise terminal and small craft marinas (e.g., sport fishing and marina slips). The Environmental Protection water use designation is added to recognize the potential for future shallow-water habitat in the Pier J fishing area.

Planning District 7 (Queensway Bay) boundaries are described below:

<u>North</u>: Centerline of Anaheim Street and the Anaheim Street Bridge;

<u>East</u>: Harbor District boundary along the east side of the Flood Control Channel and in the open water;

<u>South</u>: North corner of the Pier J South Slip opening; and

<u>West</u>: West side of Harbor Scenic Drive separating Pier H and the Queen Mary's Visitor area from Primary Port uses at Pier J, and continuing along the western property line of the Los Angeles County Flood Control Channel.

1.8.3 Proposed Land and Water Use Designations

As required by the CCA, the Proposed Plan identifies "proposed uses of land and water areas, where known." To satisfy this requirement, functional land use and water use designations were established and updated as necessary in the Proposed Plan.

The 1990 PMP as amended includes nine land use designations. The Proposed Plan revises some land use designations from those used previously, and renames designations to reflect the allowable land uses in the districts (Table 1.8-2). A summary of changes is described below.

- The Ancillary Facilities designation has been renamed Maritime Support Facilities to specify water-dependent facilities.
- A new Institutional Facilities designation replaces Federal Uses and includes activities associated with federal, state, regional, and local public agencies.
- The Commercial/Recreational designation has been renamed Visitor-Serving Commercial Facilities to specify general public commercial uses.
- A new Recreational Open Space Facilities designation includes non-commercial general public areas such as parks and waterfront access.
- A new Environmental Protection designation includes areas reserved for environmental restoration and protection.
- A new Renewable Energy Resources designation includes areas utilized for power generation from renewable sources and energy storage.

The 1990 PMP as amended includes four water use designations. Since 1990, there have been two amendments associated with placement of dredge materials and sediments, and they remain in effect as related to the use of water areas. The Proposed Plan creates two new water use designations and renames designations to reflect the allowable water uses in the districts (Table 1.8-2). A summary of changes is described below.

- A new Sediment Management Areas designation recognizes water sites to be used for storage and disposal of sediments.
- A new Environmental Protection designation includes water areas reserved for habitat restoration and protection.
- The Maneuvering Areas designation is renamed Maneuvering and Berthing to add vessel berthing activities.

TABLE 1.8-2. PROPOSED LAND AND WATER USE DESIGNATIONS

1990 PMP As Amended Use Category	Proposed Plan Use Category	Comments
Land Use		
Primary Port Facilities	Primary Port Facilities	No change.
Hazardous Cargo Facilities	Hazardous Cargo Facilities	No change.
Port-Related Industries and Facilities	Port-Related Facilities	This category has been renamed to eliminate reference to industries.
Ancillary Port Facilities	Maritime Support Facilities	This category has been renamed to specify water-dependent facilities.
Commercial/Recreational Facilities	Visitor-Serving Commercial Facilities	This category has been divided into two new categories: one for commercial uses for the general public, and one that includes non-commercial general public areas such as parks and waterfront access.
	Recreational Open Space Facilities	
Non-Port Related Areas	Institutional Facilities	This category consolidates Non-Port Related Areas and Federal Use into a new category that includes activities associated with federal, state, regional, and local public agencies.
Federal Use		
Oil and Gas Production	Oil and Gas Production Facilities	This category has been renamed to specify facilities for production of oil and gas.
Utilities	Utilities	This category has been redefined to include only major utility facilities for electricity generation, water treatment, gas, telecommunications, resource recovery, waste handling, and rights-of-way dedicated for utilities.
N/A[1]	Renewable Energy Resources	This is a new category that includes areas utilized for power generation from renewable sources.
N/A[1]	Environmental Protection	This is a new category that includes areas reserved for environmental restoration and protection.
Water Use		
Anchorage Areas	Anchorage Areas	No change.
Navigable Corridor	Navigable Corridor	No change.

TABLE 1.8-2. PROPOSED LAND AND WATER USE DESIGNATIONS		
1990 PMP As Amended Use Category	**Proposed Plan Use Category**	**Comments**
Maneuvering Areas	Maneuvering and Berthing	This category was revised to specify the use of berthing areas adjacent to cargo handling berths and designated turning basins.
Recreational/Sport Fishing	Recreational	This category has been revised to include areas designated for general recreational navigation.
N/A[1]	Sediment Management Areas	This is a new category that includes areas for temporary and permanent placement of harbor dredge materials.
N/A[1]	Environmental Protection	This is a new category that includes water areas reserved for environmental restoration and protection.

Key: N/A = not applicable; PMP = Port Master Plan
Note:
[1] These are new land and water use categories that were not included in the 1990 PMP as amended.

1 The Proposed Plan land and water definitions are provided in Table 1.8-3.

TABLE 1.8-3. PROPOSED PLAN LAND AND WATER USE DEFINITIONS		
Land Use	**Description**	**Examples**
Primary Port Facilities	Marine terminal uses for vessel berthing, cargo loading/unloading, handling, storage, and movements. The scope of activities includes cargo handling systems, administrative offices supporting terminal operations, maintenance and repair facilities, transit sheds, gate operations, on-dock intermodal facilities, and other activities supporting Primary Port uses.	Container, break bulk, Ro/Ro, omni (combination of cargo handling), dry bulk, liquid bulk, and cruise terminals and facilities.
Hazardous Cargo Facilities	Primary Port and Maritime Support Facilities that handle hazardous materials in sufficient volume that could create the potential for a catastrophic loss.	Terminals engaged in the primary loading and unloading, storage, and transfer of petroleum and chemical products with a National Fire Protection Association rating of 2 or greater. Facilities that handle raw crude, intermediate hydrocarbon products, refined products, gases and liquefied gases (flammable and/or toxic).
Maritime Support Facilities	Facilities other than those included as Primary Port uses that are water-dependent and are necessary to support Port operations.	Ship yards, towboat and salvage operations, bunker barge loading, and marine research.
Port-Related Facilities	Facilities other than those included as Primary Port uses that are not water-dependent and are necessary to support Port operations.	Warehousing, distribution activities, off-terminal cargo storage, chassis storage and repair, off-dock rail within Harbor District boundaries, and Port

TABLE 1.8-3. PROPOSED PLAN LAND AND WATER USE DEFINITIONS		
Land Use	**Description**	**Examples**
		authority operations and maintenance facilities.
Oil and Gas Production Facilities	Areas utilized for oil and gas production sites.	Oil and gas production facilities including tankage, processing plants, drilling sites, and water injection wells.
Institutional Facilities	Areas dedicated and operated by local, state, or federal agencies other than the Port Authority.	Facilities include public safety, emergency response staging areas, education and marine research, offices involved in direct support of maritime activities, and one homeless services center in the North Harbor.
Utilities	Areas utilized for major utility facilities and rights-of-way dedicated for utilities.	Major utility facilities for electricity generation, water treatment, gas, telecommunications, resource recovery, waste handling, and rights-of-way dedicated for utilities. Examples include the SCE Transmission Tower right-of-way, NRG Long Beach Generating Station, and SERRF.
Visitor-Serving Commercial Facilities	Areas serving commercial uses for the public. The special visitor-serving uses at the Queen Mary are included in this land use designation.	These facilities include cultural uses, museums, theaters, restaurants, retail, harbor tours, sport fishing and tackle shops, conference centers, marinas, and boat sales.
Recreational Open Space Facilities	Areas reserved for the general public such as parks and waterfront access.	Public parks, cultural areas.
Environmental Protection	Areas reserved for environmental restoration and protection.	Protected habitat sites (e.g., Gull Park), and other natural areas.
Renewable Energy Resources	Areas utilized for power generation from renewable sources and energy storage.	Solar, geothermal, wind, hydrogen fuel cells, and production of hydrogen for Port-related uses and/or power generation.
Anchorage Areas	Designated areas for temporary vessel anchorage for bunkering, lightering, and maritime activities.	Anchorage areas include 24-hour limited stay, commercial and recreational vessels, lightering and bunkering, 48-hour deep-draft, explosive, and vessels over 40-feet draft or 800-feet length overall.
Sediment Management Areas	Areas for temporary or permanent placement of harbor dredge materials.	Storage and disposal of clean materials deemed suitable for open-water disposal and disposal of contaminated materials (i.e., material not suitable for open-water disposal) in a sediment storage site or a Confined Aquatic Disposal site. Clean materials can be disposed of in U.S. Environmental Protection Agency ocean dumping sites or transported to

TABLE 1.8-3. PROPOSED PLAN LAND AND WATER USE DEFINITIONS		
Land Use	**Description**	**Examples**
		nearby fill sites, approved landfills, and sediment storage sites approved by the CCC. Also includes placement of material for ecosystem restoration, such as for creation of shallow-water habitat. Advanced placement of materials in future fill sites.
Maneuvering and Berthing	Water areas needed for handling, turning, and maneuvering of vessels from the navigation channel to the berthing basins.	Berthing areas adjacent to cargo handling berths and designated turning basins.
Navigable Corridor	Water area designated Long Beach Main Channel by the U.S. Army Corps of Engineers.	Designated Federal Channel.
Recreational	Open and sheltered water areas that are used for recreational navigation.	Water areas used for sport fishing, recreational mooring, and navigation to and from the Queensway Bay Planning District.
Environmental Protection	Water areas reserved for environmental restoration and protection.	Water areas used for habitat restoration and protection.
Key: CCC = California Coastal Commission; NRG = NRG Energy, Inc.; Ro/Ro = roll on/roll off; SCE = Southern California Edison; SERRF = Southeast Resource Recovery Facility		

The Port would be responsible for determining the primary land use category for all projects. Any substantial deviations from an allowable land use would require an amendment to the Proposed Plan. After an amendment is approved and certified by the CCC, the Proposed Plan would be updated and supersede the previous version of the plan.

1.8.4 Proposed Plan Projects Analyzed in the PEIR

The PEIR analyzes reasonably foreseeable projects within the Port's jurisdiction that have not already been permitted and evaluated in another CEQA document. A program-level analysis is presented for projects that are conceptual or do not have sufficient details available at this time. A project-level analysis is presented for the OHSPER site, which has sufficient details available, and can be permitted by the BHC once the PEIR is certified. Projects analyzed at the program level will need additional environmental analysis in the future. All of the projects described below are in various planning stages and may be initiated by 2040 (Figure 1.8-2). Construction of the Proposed Plan projects are not anticipated to occur simultaneously due to operational, capital planning, and budgetary constraints; permitting restrictions, and environmental credit requirements associated with fill.

1.8.4.1 Administrative Building Site Support Yard (Expansion)

This project would expand the existing 7-acre temporary chassis support yard, currently serving the Middle Harbor Terminal and located in the footprint of the former Port Administrative Building parking lot, by approximately 13 acres. The existing support yard would expand into the footprint of the former Port Administrative Building, which would be demolished under the Administrative Building and Maintenance Facility project, which is a separate Port project, and used as a support yard (chassis, empties, or peel-off) for nearby terminals. This project could involve demolition or construction of infrastructure (e.g., buildings or trailers, utility infrastructure, gates, or other support structures) within the expanded yard.

Figure 1.8-2. Proposed Plan Projects Evaluated in the PEIR

1.8.4.2 Protective Boat Basin (Berth F202)

This project would construct a small boat basin, protected by a breakwater, along the Main Channel to shelter Joint Command and Control Center (JCCC) small craft. The project would involve relocation and extension of the existing Jacobsen Pilots dock; construction of a new multi-use dock with nine boat slips to provide berthing spaces for the POLB Security Division, Long Beach Police Department (LBPD), and other visiting Governmental Security Agency boats; and dredging and construction of a fixed breakwater and dike (approximately 12,000 square feet or 0.3 acre of fill) to provide the necessary wave protection to the proposed docks. An additional third dock for overflow/haul-out staging of the user vessels described above would be constructed to the north. The project would also include removal of the docks at Pier F. Furthermore, this project would include the construction of other support infrastructure and utilities.

1.8.4.3 Fourth Track at Ocean Boulevard

This project would construct a fourth track with a modified switch layout connection at Ocean Boulevard and Harbor Scenic Drive, linking the four tracks north and south of the Ocean Boulevard overhead. Currently, there are four tracks north and south of Ocean Boulevard; however, at Ocean Boulevard these tracks narrow down to three. This project would relocate an existing roadway (i.e., Harbor Scenic Drive southbound) and main line track and add a new track to make a continuous four-track rail corridor to increase efficiency of the rail line, provide operational flexibility, and improve the connection to the Middle Harbor and Pier B railyards (POLB 2018b).

1.8.4.4 Ocean Boulevard Bicycle Gap Closure

This project would provide a Class I bike path (approximately 0.5 mile) connecting the eastern terminus of the Mark Bixby Bicycle Path on the new Gerald Desmond Bridge to the City's bicycle network east of the Los Angeles River. The approximate project limit is between Pico Avenue and Golden Shore along Ocean Boulevard across the Los Angeles River.

1.8.4.5 OHSPER

The Western Anchorage Sediment Storage Site[5] (WASSS) would be renamed as the OHSPER site. The OHSPER would operate substantially similar to the currently permitted WASSS, but would serve as an approved Confined Aquatic Disposal (CAD) location for maintenance dredging and capital development projects that generate contaminated sediments and sediments suitable for ocean disposal (Figure 1.8-3). A CAD is a disposal method that involves the placement of contaminated dredged material from the aquatic environment at an appropriate open-water placement site, in this case an existing depression in the harbor bottom to hold layers of deposited material, which is then capped (i.e., buried) with a layer of clean sediment. This process contains and isolates the contaminated material from the aquatic environment.

The WASSS currently consists of two large deep underwater depressions (i.e., areas where sediment or material was previously taken and moved to another location) called the North Lobe and South Lobe that are currently used for placement and storage of dredged sediments for future reuse in Port landfills. The project site and the surrounding vicinity was used by POLB between the 1950s and 1980s to mine sand for use as fill material during the creation of Pier J and other terminal development projects, resulting in the creation of the North Lobe and South Lobe. In 1998 this area was officially designated the WASSS as part of PMP Amendment #11.

[5] The Western Anchorage Sediment Storage Site was named as such because it covers all or part of three "anchorages" (i.e., B5, B9, and B10), which are designated areas for ships to anchor while waiting for berth space or loading materials.

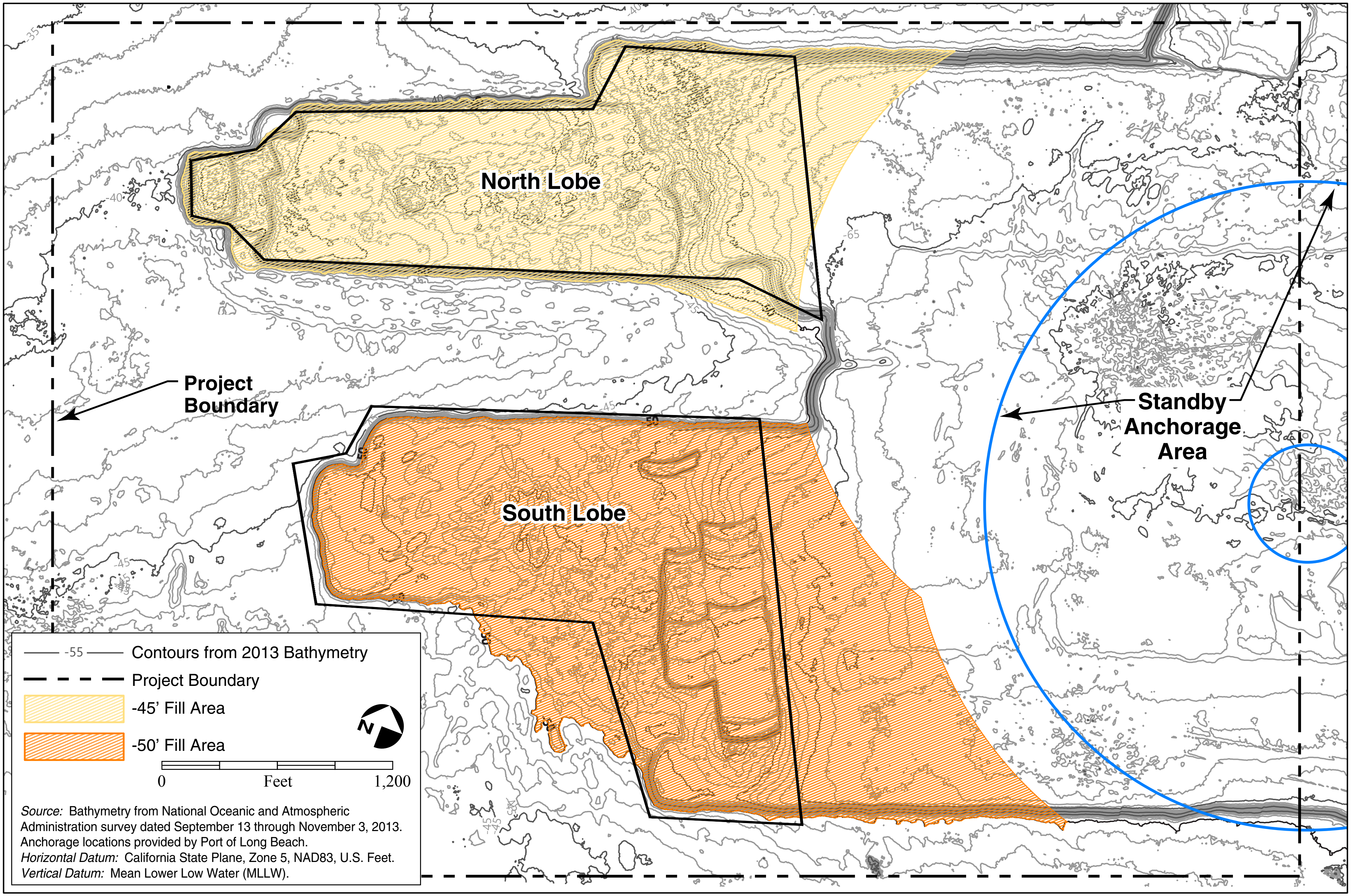

Figure 1.8-3. Proposed OHSPER Site

The Port, in coordination with Los Angeles Regional Water Quality Control Board (RWQCB), U.S. Army Corps of Engineers (USACE), and the Los Angeles Contaminated Sediment Task Force (CSTF) evaluated management alternatives for both clean and contaminated sediments within the North Lobe and the South Lobe of the WASSS and determined that developing a CAD facility to manage contaminated sediments would be consistent with the CSTF long-term management strategy; would present a feasible disposal option for clean and contaminated sediments and regional coordination of sediment management efforts; and would ensure protection of aquatic resources from the discharge of contaminated dredged materials into the water. The project site could accommodate both clean and contaminated sediments and each lobe could potentially be further subdivided to hold material for disposal or clean sediments for reuse. The available capacity to accommodate sediment at the project site is estimated to be approximately 1.6 million cubic yards (cy) for the North Lobe and 1.7 million cy for the South Lobe (Anchor QEA 2016).

The 1990 PMP as amended allows for the placement and reuse of clean sediments from within the Port boundaries into the WASSS (PMP Amendment #11, 1998). Under the Proposed Plan, the allowed usage of the WASSS would be modified to allow for the placement of contaminated sediments (i.e., sediments not suitable for unconfined aquatic disposal) at the site and the site would be renamed OHSPER.

In addition, the project includes new site maps, which re-designate and expand the existing footprint of the OHSPER site, and provides new use controls, which include requirements for handling contaminated sediments at the site (refer to the OHSPER Technical Report and Operations Management and Monitoring Plan [OMMP] in Appendix C for additional details). Requirements would include the placement of an interim clean sediment cap layer after each contaminated dredged sediment placement event into the OHSPER site. Each interim cap, when needed, would be designed and placed in such a way to confine the contaminated sediments and control the potential for future exposure of the contaminants through resuspension and/or chemical leaching. Once each lobe is filled to capacity, a final cap will be engineered. The final engineered cap will contain and isolate the contaminated material from the aquatic environment.

Once the Proposed Plan is certified by the CCC, the placement of material at the OHSPER site would need to be permitted by both USACE (Section 404 of the Clean Water Act [CWA] and Section 10 of the Rivers and Harbors Act) and RWQCB (Section 401 of the CWA) on a project-by-project basis. In addition, environmental analysis under CEQA and the National Environmental Policy Act (NEPA) for dredging and placement of material at the OHSPER site and any interim caps, and construction of the final engineered cap, would be analyzed on a project-by-project basis.

1.8.4.6 Pier B Street Support Yard

An approximately 13-acre site at 1550 Pier B Street is currently used as a temporary chassis support facility for the distribution, storage, and maintenance of chassis serving the Middle Harbor Terminal. This temporary use was analyzed under the Pacific Crane Maintenance Company Chassis Support Facility Mitigated Negative Declaration (MND), as adopted in 2015. At the time of the previous CEQA review, this site was envisioned as being operated on a short-term basis, a 7-year lease, until a permanent site within the Middle Harbor Terminal could be utilized for a chassis support facility. In the future, the anticipated use of the site will be as a support yard (chassis, empties, or peel-off) for nearby terminals.

1.8.4.7 Pier D Street Realignment

The project would realign Pier D Street, between the Middle Harbor out gate and Pico Avenue.

1.8.4.8 Pier J Terminal Redevelopment

This project would redevelop the Pier J terminal and include dredging and filling the 44-acre south slip and 22-acre triangle, cutting a 9-acre notch, and constructing a wharf extension (9-acre extension fill). The redeveloped terminal would consist of an approximately 212-acre container yard, 52-acre intermodal yard, and approximately 23 acres for a reconstructed 4,000-linear foot wharf. This project would also reconfigure the existing rail line and yard. The intermodal yard would include three working tracks.

In addition, approximately 14 acres at the tip of Pier F would be cut off to create additional water area and widen the entrance to the Southeast Basin. Existing infrastructure (buildings, wharves, utilities) and operations (e.g., break bulk terminals) within the Pier F cut area would be demolished and relocated to Pier S or other areas in the Harbor District.

1.8.4.9 Pier S Mixed Use Development

Approximately 125 acres of Pier S would be developed for non-container uses such as container/chassis storage, peel-off yards, bulk and break bulk terminals, LNG bunkering facility, auto storage, or other terminal support uses. This project could include construction of administration buildings, rail improvements, wharf construction, and other operational support infrastructure.

1.8.4.10 Pier S Shoreline Enhancement

The Port's Climate Adaptation and Coastal Resiliency Plan (CRP) (POLB 2016a) identified Pier S as a vulnerable area for flooding due to climate change. The shoreline of Piers S and T also function as pathways for floodwaters to reach adjacent low-lying areas that contain critical assets. This project would retrofit or replace the existing seawall and rock dike at Pier S as a coastal resiliency measure to strengthen the shoreline against SLR and protect vulnerable Port assets on Pier S along the Cerritos Channel. This project is in the early stages of planning and development.

1.8.4.11 Pier T Improvements

This project would extend an existing berth eastward in the area of T-130, dredge and redevelop the berth at Pier T Echo in the area of T-126/128 (5-acre extension fill), and expand the intermodal yard with approximately 65 acres of fill to provide additional storage tracks and arrival/departure tracks.

1.8.4.12 Pier W Terminal Development

This project would construct a new container terminal on approximately 100 acres of fill. Pier W would provide one berth and backland to support cargo handling operations. The project would involve extensive construction, including placement of fill; dredging to provide a deep-water berth and approach channel; and construction of rock dikes, a wharf, paved container yard, utilities, buildings, and a gate complex. Terminal activities that would have potential environmental impacts include vessel arrivals and departures, vessel loading and unloading, container handling by a variety of CHE, truck arrivals and departures, and train arrivals and departures.

1.9 ALTERNATIVES

CEQA Guidelines Section 15126.6(a) states that an EIR shall describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives. An EIR need not consider every conceivable alternative to a project. Rather, it must consider a reasonable range of potentially feasible alternatives that will foster informed decision-making and public participation. This PEIR describes the alternatives, compares their impacts, and identifies an environmentally superior alternative, as required by CEQA and the CEQA Guidelines.

CEQA Guidelines Section 15126.6(b) and (e) stipulate that an EIR alternatives analysis is required to:

- Focus on potentially feasible alternatives to the project or its location which are capable of avoiding or substantially lessening significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly;
- Identify the “environmentally superior” alternative; and
- Include analysis of the “No Project” Alternative, assuming the reasonable future use of the project site if the project was not approved. If the environmentally superior alternative is the No Project Alternative, the EIR must identify an additional “environmentally superior” choice among the other project alternatives.

The lead agency (in this case, POLB) is responsible for selecting a range of project alternatives for examination and must publicly disclose its reasoning for selecting those alternatives.

This PEIR presents a reasonable range of alternatives that are consistent with the Port’s legal mandates under the CCA and 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, environmental preservation, and public recreation. To comply with CEQA requirements, all alternatives considered in the PEIR have been evaluated in accordance with the following:

- Does the alternative accomplish all or most of the basic Proposed Plan objectives?
- Is the alternative potentially feasible (from economic, environmental, legal, social, technological standpoints)?
- Does the alternative avoid or substantially lessen any significant effects of the Proposed Plan, including consideration of whether the alternative itself could create significant effects greater than those of the Proposed Plan?

1.9.1 Alternatives Evaluated in this PEIR

This PEIR evaluates three development alternatives to the Proposed Plan, as derived from land use scenarios developed and analyzed in the land use study that informed the Proposed Plan process. Those land use scenarios evaluated various levels of future development within the Harbor District and assessed the ability of each scenario to meet the Proposed Plan objectives (Section 1.6, Plan Objectives) and maintain consistency with the Port’s legal mandates under the CCA.

The three development alternatives evaluated in this PEIR include: Alternative 1 (No Plan Alternative); Alternative 2 (No Terminal Development); and Alternative 3 (Reduced Terminal Development). Additional details on the specific projects included in each alternative are provided in Sections 1.9.1.1 through 1.9.1.3.

1.9.1.1 Alternative 1 (No Plan Alternative)

Consistent with CEQA Guidelines Section 15126.6(e)(3)(A), this alternative considers what would reasonably be expected to occur if the Port did not update the PMP. Under this alternative, the Port would continue to operate under the 1990 PMP as amended, including the continued use of the WASSS as currently permitted (i.e., placement and reuse of clean sediments). The No Plan Alternative includes projects that are consistent with the 1990 PMP as amended over time (refer to Table 1.2-6), may or may not have been evaluated in a final CEQA document, and could be implemented without approval of the Proposed Plan (Figure 1.9-1 and Table 1.9-1).

TABLE 1.9-1. ALTERNATIVE 1 (NO PLAN ALTERNATIVE) – PROJECTS

Planning District	Project
2 – Northeast	Fourth Track at Ocean Boulevard[1]
	Pier B Street Support Yard
	Pier D Street Realignment
3 – Northwest	Pier S Mixed Use Development
	Pier S Shoreline Enhancement
4 – West Basin	Pier T Echo Support Yard
5 – Southeast	Administrative Building Site Support Yard (Expansion)
7 – Queensway Bay	Ocean Boulevard Bicycle Gap Closure

Note:
[1] This project is located in Planning Districts 2 and 5.

A description of each of the No Plan Alternative projects listed above can be found in Section 1.8.4 (Proposed Plan Projects Analyzed in the PEIR), with the exception of the Pier T Echo Support Yard project discussed below.

Pier T Echo Support Yard

This project would construct a 17-acre support yard (chassis, empties, or peel-off) that would serve the Pier T container terminal. This site is currently vacant, but is sometimes used as a temporary construction staging site or storage site for the Pier T container terminal. The project would require minor construction activity, including demolition and/or construction of infrastructure (e.g., paving, lighting, and buildings).

Compared to the Pier T Improvements project that would occur under the Proposed Plan, the Pier T Echo Support Yard does not involve any dredge, fill, or redevelopment of the Pier T terminal. It would instead construct a support yard (chassis, empties, or peel-off) on Pier T Echo, adjacent to the Pier T container terminal, which could be used to serve the Pier T container terminal.

1.9.1.2 Alternative 2 (No Terminal Development Alternative)

Alternative 2 includes all projects listed under the No Plan Alternative and two other projects that would need certification under the Proposed Plan, including the Protective Boat Basin (Berth F202) and OHSPER projects (Table 1.9-2 and Figure 1.9-2). A description of the additional projects can be found in Section 1.8.4 (Proposed Plan Projects Analyzed in the PEIR). This alternative differs from the Proposed Plan in that it does not include terminal development projects at Pier T, Pier W, or Pier J.

Figure 1.9-1. Alternative 1 (No Plan Alternative) - Projects

Figure 1.9-2. Alternative 2 (No Terminal Development) - Projects

TABLE 1.9-2. ALTERNATIVE 2 (NO TERMINAL DEVELOPMENT) – ADDITIONAL PROJECTS	
Planning District	**Project[1]**
5 – Southeast	Protective Boat Basin (Berth F202)
6 – Anchorage and Open Water	OHSPER
Key: OHSPER = Outer Harbor Sediment Placement Ecosystem Restoration Note: [1]These projects are not consistent with the 1990 Port Master Plan as amended and have not undergone final project-level California Environmental Quality Act review.	

1.9.1.3 Alternative 3 (Reduced Terminal Development Alternative)

Alternative 3 includes all projects listed under Alternative 2 and adds the Pier T Improvements (described in Section 1.8.4, Proposed Plan Projects Analyzed in the PEIR) and the Pier J Reduced Development projects described below (Table 1.9-3 and Figure 1.9-3).

The Pier T Improvements and Pier J Reduced Development projects would provide the Port with additional container-handling capacity, consistent with the Proposed Plan objectives of accommodating future cargo demands. This alternative differs from the Proposed Plan in that it would involve a reduction in new container terminal development (i.e., Pier J Reduced Development project and no Pier W Terminal Development project).

TABLE 1.9-3. ALTERNATIVE 3 (REDUCED TERMINAL DEVELOPMENT) – ADDITIONAL PROJECTS	
Planning District	**Project[1]**
4 – West Basin	Pier T Improvements
5 – Southeast	Pier J Reduced Development
Note: [1] These projects are not consistent with the 1990 Port Master Plan as amended and have not undergone final project-level California Environmental Quality Act review.	

Pier J Reduced Development

This project would redevelop the Pier J terminal and include dredging and filling the 22-acre triangle, cutting a 9-acre notch, and extending the north wharf to the east. The redeveloped terminal would consist of an approximately 168-acre container yard. This project would also relocate the existing rail line and yard to Pier J South.

Compared to the Pier J Terminal Redevelopment project that would occur under the Proposed Plan, the Pier J Reduced Development project does not include dredging and filling the 44-acre Pier J South Slip, cutting off the tip of Pier F, or constructing an extension of the north wharf westward (9-acre extension fill).

1.9.1.4 Comparison of Proposed Plan and Alternatives

The components included in the Proposed Plan and alternatives are summarized in Table 1.9-4.

Figure 1.9-3. Alternative 3 (Reduced Terminal Development) - Projects

TABLE 1.9-4. COMPARISON OF PROPOSED PLAN AND ALTERNATIVES				
Proposed Plan Component	**Proposed Plan**	**Alternative 1 (No Plan Alternative)**	**Alternative 2 (No Terminal Alternative)**	**Alternative 3 (Reduced Terminal Alternative)**
Port Container Capacity[1] (million TEU/year)	16.9	14.0	14.0	15.3
New Fill Acreage	245.3	0	0.3	92.3
Port Master Plan Updates				
Changes to Land and Water Use and Planning Districts	X		X	X
Port Master Plan Projects				
Fourth Track at Ocean Boulevard	X	X	X	X
Pier B Street Support Yard	X	X	X	X
Pier D Street Realignment	X	X	X	X
Pier S Mixed Use Development	X	X	X	X
Pier S Shoreline Enhancement	X	X	X	X
Administrative Building Site Support Yard (Expansion)	X	X	X	X
Ocean Boulevard Bicycle Gap Closure	X	X	X	X
OHSPER	X		X	X
Protective Boat Basin (Berth F202)	X		X	X
Pier T Echo Support Yard		X	X	
Pier T Improvements	X			X
Pier J Reduced Development				X
Pier J Terminal Redevelopment	X			
Pier W Terminal Development	X			
Key: OHSPER = Outer Harbor Sediment Placement Ecosystem Restoration [1] Integrated Land Use Tool output				

1.9.2 Alternatives Considered but Not Carried Forward for Analysis

The screening process used in the PEIR to evaluate a reasonable range of alternatives was based on the Proposed Plan's objectives (Section 1.6, Plan Objectives). Screening criteria were also used to determine feasibility in accordance with the Port's tidelands trust responsibilities and the Long Beach City Charter.

This section discusses the alternatives considered but eliminated from further discussion, including the rationale for decisions to eliminate them from detailed analysis. These alternatives are:

- Cargo Specialization Alternative;
- Site-Specific Land Use Alternative; and
- No Further Development Alternative.

The process of screening alternatives was informed by the mandates of the CCA, which identifies the Port as one of only five locations in the state's coastal zone approved for the purposes of international maritime commerce. These mandates identify the Port and its facilities as an essential element of the national maritime industry. Pursuant to the CCA, Port activities should be water dependent and give highest priority to navigation, shipping, and necessary support facilities to accommodate the demands of waterborne commerce.

1.9.2.1 Cargo Specialization Alternative

This alternative reflects a scenario in which the Port would focus its future development to support a limited variety of cargo handling facilities (e.g., container terminals) within the Harbor District. Other primary cargoes (i.e., liquid bulk, dry bulk, and break bulk) would be phased out by restricting permissible uses of most Port land area to the preferred cargo types. Accordingly, as their leases expired, non-preferred uses would be terminated and the land converted to support the preferred uses. Many existing uses have long leases, so that implementation of this alternative would occur over several decades. The most likely outcome of this alternative would be the expansion of existing container terminals onto land currently occupied by non-preferred uses and the creation of new land for new or expanded container terminals. A number of non-cargo uses in the Port that are encouraged by the CCA (e.g., water recreation, water-dependent visitor-serving uses, and commercial fishing) would continue to be permitted in the Harbor District under this alternative.

With respect to the screening criteria set forth in Section 1.9 (Alternatives), this alternative is potentially feasible, but it is unlikely to lessen any of the significant impacts of the Proposed Plan, and it would not accomplish all of the basic Proposed Plan objectives. Specifically, this alternative would not fully accomplish Objective 1, to accommodate future cargo demand because it would only address the preferred cargo types, not the full range of cargo types currently handled. Accordingly, it would not support the future regional demand for other cargo types that might exceed the capacity of other ports in Southern California, particularly if future demands for the primary cargo were to decline. Under this alternative, existing terminals and other Port land and water areas would need to be redeveloped to focus on the preferred cargo types. That action could create additional construction-related environmental impacts beyond those of the Proposed Plan, which does not contemplate substantial reconfiguration of existing terminals.

This alternative would also not fully accomplish Objective 2, to optimize use of existing and future Port land. Focusing on a limited range of cargo types would likely result in the Port missing opportunities to accommodate important or otherwise desirable cargoes. In addition, restricting uses could result in idle land should demand for the permitted cargo types be lower than the amount of land devoted to that cargo, which would result in a sub-optimal use of land.

This alternative would likely accomplish Objective 3, to maximize terminal efficiency and on-dock rail systems because one of the permitted uses would certainly be containerized cargo. Because the movement of containerized cargo is facilitated by on-dock rail, the Port and the railroads would maximize such facilities. Furthermore, container terminals, which operate in a very competitive and low-margin industry, are typically highly motivated to maximize operational efficiency.

It is unlikely that this alternative would be consistent with Objective 4, to develop the Port in a sustainable manner and minimize environmental impacts. Converting existing terminals to a limited range of terminal types would require considerable construction. Container terminals, in particular, would require creation of substantial quantities of new land through dredge and fill operations as well as extensive demolition of existing facilities and construction of new ones. It is likely that the scale of construction would be greater than the construction needed for implementation of the Proposed Plan. Accordingly, adverse environmental impacts would not be minimized.

Finally, this alternative would likely allow the Port to accomplish Objective 5, to enhance public access and recreation in the Harbor District so long as the existing land and water areas that are devoted to those activities continue to be designated appropriately.

In summary, this alternative would be inconsistent with the screening criteria related to the objectives of the Proposed Plan and the reduction of impacts, and was eliminated from further consideration.

1.9.2.2 Site-Specific Land Use Alternative

This alternative would allocate a single allowable land use to individual parcels within the planning districts. Thus, each existing parcel in the Harbor District would be analyzed to determine the optimum use for that parcel, and other uses would not be allowed. As parcel boundaries change over time, and as existing uses lapse or are terminated, parcels would need to be re-evaluated, possibly resulting in the need for numerous PMP amendments.

This alternative is potentially feasible, but it is unclear that it would reduce any of the Proposed Plan's significant impacts and it would not accomplish all of the basic Proposed Plan objectives. Specifically, this alternative would likely not be consistent with Objective 1, to accommodate future cargo demand, since it would impede the Port's ability to respond to changes in cargo volumes by developing specific cargo facilities.

This alternative would likely not accomplish Objective 2, to optimize use of Port land, because it would require the Port to definitively predict future trends in land use demands, which could result in land use allocations that do not match actual demand for specific uses. The likely outcome of such an approach would be idle land in some areas, underutilized land in others, and congested conditions in others.

For much the same reasons, this alternative would conflict with Objective 3, to maximize terminal efficiencies and on-dock rail systems. Congested terminals, and even terminals that are underutilized, are operationally inefficient, and would thus conflict with the Port's goal of increasing terminal efficiency. This alternative could also conflict with maximizing on-dock rail systems, as it would require the Port to definitively predict future needs for on-dock rail-related facilities and designate land uses accordingly. This approach could restrict the Port's ability to respond to future changes in the demand for on-dock facilities.

This alternative would likely accomplish Objective 4, to develop the Port sustainably and minimize adverse impacts, since these priorities and any required mitigation measures would be incorporated into the environmental review process and permit requirements.

This alternative would likely accomplish Objective 5, to enhance recreation and public access, since these priorities could be incorporated into land use designations.

In summary, this alternative would be inconsistent with the screening criteria related to the objectives of the Proposed Plan and the reduction of impacts, and was eliminated from further consideration.

1.9.2.3 No Further Development Alternative

In this alternative the Proposed Plan would abandon the approved marine terminal expansion and redevelopment projects identified in the No Plan Alternative (refer to Section 1.9.1.1) and would not identify any future developments related to improving or expanding cargo handling facilities.

Port capacity would be capped at the maximum cargo volumes that existing facilities could handle in their current configurations. Future increases in cargo volumes that exceeded the Port's capacity would be handled at other ports, mostly on the West Coast but including Gulf Coast and East Coast ports in the case of much of the containerized cargo. The Proposed Plan would, instead, concentrate on developments designed to improve safety and efficiency, reduce pollution (especially related to greenhouse gases [GHGs]), and improve public access to the waterfront.

The aspects of this alternative related to future cargo volumes handling were considered in an earlier study commissioned by the Port that was designed to evaluate and screen options for constructing new container cargo terminals. That study evaluated six options, five of which are relevant to the Proposed Plan (Moffatt & Nichol 2007a). Those five scenarios fell under three basic concepts: 1) relying on other ports, either in Southern California or in North America as a whole, to handle forecasted cargo volumes; 2) constructing container-handling facilities at inland locations, either near to or remote from the Port, thereby optimizing the use of waterfront land; and 3) relying on near-dock, rather than on-dock, intermodal rail facilities in order to optimize use of waterfront land. The study evaluated the ability of each option to accommodate the Port's long-term cargo forecasts and the potential environmental consequences of that option in terms of air emissions and traffic impacts.

The study concluded that cargo diversion to other West Coast ports would likely not be feasible on a large scale because other ports would struggle to accommodate their own forecasted demands, particularly in containerized cargo, let alone additional volume diverted from Long Beach (Moffatt & Nichol 2007b). The environmental impacts of diversion would likely not be greater than if cargo continued to come to Long Beach, although the study noted that those impacts would not disappear, but rather be displaced to other communities. In addition, diversion away from Southern California ports (i.e., Hueneme, Los Angeles, and San Diego) would have a negative economic impact on Southern California in terms of jobs and tax revenues, and could result in higher prices for shippers, which would increase the cost of goods. East and Gulf Coast ports likely have, or will have, the capacity to handle POLB's additional future cargo volumes. However, that option would result in substantially increased shipping costs because of the longer voyages and additional numbers of vessels involved. In addition, per-container air emissions would be increased by the longer sea voyages, which would represent a negative impact in the area of GHGs and climate change.

The inland port concepts would have the advantages of postponing the need for new and expanded marine terminals, the opportunity to install ultra-low-emissions cargo handling technologies at the new inland ports, and retaining jobs and revenue associated with maritime commerce in Southern California. However, the option may be impractical because of:

- The lack of suitable large tracts of available land anywhere near the Port;
- The added costs of double-handling cargo and the air and traffic impacts associated with moving cargo to and from an inland port as well as local destinations and origins;
- The substantial capital costs and technological challenges involved;
- The fact that impacts would be displaced to communities already stressed by poor air quality and traffic congestion;
- The institutional challenges the Port would face implementing such a project outside of its jurisdiction; and
- The difficulty of operating such a facility under existing labor agreements.

The increased use of near-dock, rather than on-dock, railyards to handle containerized cargo destined for inland points would free up terminal space that could be devoted to cargo storage and handling, thereby increasing the efficiency of waterfront land utilization. However, near-dock yards have increased traffic and air quality impacts compared to on-dock yards because of the increased truck trips necessary to dray containers between the near-dock yard and the terminals, and the closer proximity of near-dock yards to residential areas, which creates a greater public nuisance. In addition, near-dock yards are difficult to site given the lack of large underutilized tracts of industrially-zoned land near the Port.

The POLB concludes that the No Further Development Alternative is not feasible given the economic, legal, technological, and, in some cases, social constraints involved. In addition, it is not clear that it would lessen or avoid any of the significant environmental impacts of the Proposed Plan, given that impacts would simply be displaced, rather than eliminated. While impacts might be displaced from the immediate vicinity of the Port, they would nevertheless be experienced by other communities, whether in Southern California or elsewhere in the U.S. Finally, none of the scenarios in this alternative would meet all or most of the objectives of the Proposed Plan. Specifically, this alternative:

- Would not meet Objective 1, to accommodate forecasted cargo growth, because it would not provide additional cargo handling facilities;
- Would not meet Objective 2, to optimize the use of Port land, because it would not allow the Port to redevelop its land to meet future demands;
- Would not accomplish Objective 3, to maximize operational efficiencies, because it would result in the Port losing its ability to handle future maritime commerce, including larger ships and new cargo handling technologies;
- Would likely be consistent with Objective 4, to develop the Port in a sustainable manner and minimize environmental impacts, because it would avoid the impacts associated with large-scale construction and the handling of the larger cargo volumes forecasted for the future; and
- Would likely be consistent with Objective 5, to enhance public access and recreation, because it would include the development of new recreational and public access facilities.

This alternative would also not fulfill the Port's CCA-mandated purpose of promoting coastal dependent development in designated ports. Because this alternative would have substantial feasibility challenges, cannot be shown to lessen or avoid environmental impacts, and would not meet several of the Proposed Plan's objectives it was eliminated from further consideration.

1.10 INTENDED USES OF THE PEIR

The PEIR analyzes the potential environmental impacts of implementing the Proposed Plan. The PEIR does not recommend the approval or denial of a project. The PEIR serves as a Port-wide, programmatic-level document to inform decision makers and the public of the potential significant environmental impacts of the Proposed Plan, and recommends alternatives and mitigation measures to avoid or minimize significant environmental impacts. This Draft PEIR is being provided to the public for review, comment, and participation in the planning process. After public review and comment, a Final PEIR will be prepared, including responses to comments on the Draft PEIR received from agencies, organizations, and individuals. The BHC will consider the information contained in the Draft and Final PEIR in making a decision on whether to certify the PEIR and proceed with approving the Proposed Plan.

1.10.1 Intended Uses by the Port

The Port will use the PEIR's program-scale analysis to focus later CEQA documents prepared for the projects included in the PEIR through a process known as "tiering." PRC Section 21068.5 defines tiering as "the coverage of general matters and environmental impacts in an EIR prepared for a policy, plan, program, or ordinance followed by narrower or site-specific EIRs which incorporate by reference the discussion in any prior EIR and which concentrate on the environmental impacts which: (a) are capable of being mitigated, or (b) were not analyzed as a significant impact on the environment in the prior EIR." CEQA Guidelines Section 15152(c) states that when a lead agency is using the tiering process in connection with an EIR for a large-scale planning approval, such as a general plan or component thereof, the development of detailed, site-specific information may not be feasible and can be deferred to a project-specific CEQA document.

For each anticipated project, the Port will determine the appropriate CEQA analysis (e.g., EIR, Negative Declaration, or Exemption) or, in some instances a NEPA document that would evaluate the environmental impacts of the project. Future documents analyzing the anticipated projects will incorporate the PEIR by reference and concentrate on the site-specific issues related to the particular project (CEQA Guidelines Section 15152).

This PEIR includes a project-level analysis for the OHSPER project because sufficient details are available (refer to Section 1.8.4, Proposed Plan Projects Analyzed in the PEIR).

1.10.2 Intended Uses by the CCC

A PMP amendment is subject to approval by the CCC, which operates under its own regulatory programs that replace the EIR with a comparable form of environmental review. This Draft PEIR has been prepared in accordance with the requirements of CEQA to assist the CCC in conducting mandated environmental review. The CCC will consider this document during their review of the Proposed Plan.

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CHAPTER 2 RELATED PROJECTS AND RELATIONSHIP TO LOCAL AND REGIONAL PLANS

This section describes the projects considered in the cumulative impact analysis and presents a synopsis of the local and regional plans, programs, and requirements presented in subsequent sections of this Program Environmental Impact Report (PEIR).

2.1 RELATED PROJECTS CONTRIBUTING TO CUMULATIVE EFFECTS

2.1.1 Requirements for Cumulative Impact Analysis

In accordance with the California Environmental Quality Act (CEQA) (see, e.g., CEQA Guidelines Section 15130 et seq.), this PEIR includes an analysis of cumulative impacts. Per CEQA, “cumulative impacts” refers to two or more individual effects, which are considerable when combined, or which compound or increase other environmental impacts (CEQA Guidelines Section 15355). To comply with CEQA, a cumulative scenario has been developed as part of this PEIR to identify past, present and reasonably foreseeable probable future projects producing related or cumulative impacts to the Proposed Plan. This information will be used to determine if impacts of the Proposed Plan have the potential to combine with similar impacts of the other projects, thereby resulting in cumulative impacts.

CEQA Guidelines (Section 15355) describe cumulative impacts as:

- Individual effects that may be changes resulting from a single project or a number of separate projects; and
- The cumulative impact from several projects representing the change in the environment from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects.

Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time (CEQA Guidelines Section 15355[b]). Furthermore, according to CEQA Guidelines Section 15130(a)(1): “As defined in Section 15355, a cumulative impact consists of an impact which is created as a result of the combination of the project evaluated in the Environmental Impact Report (EIR) together with other projects causing related impacts. An EIR should not discuss impacts that do not result in part from the project evaluated in the EIR.”

In addition, as stated in CEQA Guidelines Section 15064(h)(4), it should be noted that: “The mere existence of significant cumulative impacts caused by other projects alone shall not constitute substantial evidence that the proposed project’s incremental effects are cumulatively considerable.”

For this PEIR, cumulative impacts were analyzed using one of two methodologies: “List” methodology or the “projection” methodology. Most of the resource areas were analyzed using a list of past, present and reasonably foreseeable future projects that would be constructed in the Long Beach Harbor District (Harbor District) region, including the San Pedro Bay Port Complex.

Some cumulative impact analyses in this PEIR use a projection or a combined list and projection approach that was based on annual regional growth and development rates. This approach used a summary of projections contained in adopted plans that encompass the regional conditions contributing to a project’s cumulative area of influence (CEQA Guidelines Section 15130[b][1]). Regional projects have been integrated into this cumulative analysis through incorporation into regional plans (i.e., State Implementation Plan [SIP], Air Quality Management Plan [AQMP], and

Regional Transportation Plan [RTP]) projections that are used to formulate annual regional growth rates.

2.1.2 Projects Considered in the Cumulative Analysis

The projects considered as part of the cumulative scenario include past, present, and reasonably foreseeable projects associated with related or cumulative impacts, as summarized in Table 2.1-1 and shown in Figure 2.2-1. The analyses of cumulative effects for each resource area utilize this information, as appropriate, to estimate the potential for combined effects of the Proposed Plan and other projects in the vicinity. However, since the geographic scope of analysis varies for each resource area only a subset of the listed projects may be considered in the cumulative analysis for various resource areas. The geographic scope of analysis considered for each resource area is described in Chapter 3 (Environmental Setting and Plan Impacts) at the beginning of the cumulative impact sections for individual resource areas.

TABLE 2.1-1. RELATED PROJECTS

Number in Figure 2.2-1	Project Title	Project Description	Status (Project Timeframe)	Relevant Potential Cumulative Environmental Factors
Port of Long Beach				
1	Pier G Terminal Redevelopment	The project would redevelop Pier G from an existing 246-acre container terminal into a 315-acre container terminal by filling the Pier G slip, reconstructing the wharf, and reconfiguring the container yard. This project includes rail improvements such as the Double Track Access from Pier G to J.	Approved project. Construction underway.	Air Quality/GHG Emissions, Biological Resources, Geology, Groundwater and Soils, Hydrology and Water Quality, Noise, Transportation
2	Pier B On-Dock Rail Support Facility	The project would reconfigure, expand, and enhance the existing Pier B rail facility to support efficient use of on-dock rail.	Approved project.	Air Quality/GHG Emissions
3	Mitsubishi Cement Corporation Facility Modifications	The project includes facility modification, including the addition of a catalytic control system, construction of four additional cement storage silos, and upgrading existing cement unloading equipment on Pier F.	Project approved in April 2015. Project on hold.	Air Quality/GHG Emissions, Transportation
4	Toyota Logistics Services Improvement Project	The project would demolish some existing facilities and construct a new consolidated vehicle processing and distribution center, a hydrogen cell and generator facility, and a new fueling station.	Approved project. Construction underway.	Air Quality/GHG Emissions, Transportation
5	Fireboat Station No. 20	The project would construct a landside fire station and a waterside concrete wharf structure, covered boat bay structure, and floating dock at Berth D50.	Approved project. Construction has not started.	Air Quality/GHG Emissions, Biological Resources

TABLE 2.1-1. RELATED PROJECTS

Number in Figure 2.2-1	Project Title	Project Description	Status (Project Timeframe)	Relevant Potential Cumulative Environmental Factors
6	Terminal Island Wye	The project would realign existing rail track and construct approximately 9,000 feet of track (i.e., 5,000 feet of new track and two 2,000-feet siding tracks) through the south leg of the Terminal Island Wye that connects Control Point Mole to the Pier S on-dock railyard and Pier T east, leading to improved rail efficiency.	Approved project. Construction has not started.	Air Quality/GHG Emissions, Transportation
7	Administrative Building Demolition	The project would demolish the former Port Administrative Building at 925 Harbor Plaza.	Approved project. Construction has not started.	Air Quality/GHG Emissions, Transportation
8	South Waterfront/Pier J Bike and Pedestrian Path Segments 1–6	The South Waterfront/Pier J Bike and Pedestrian Path, Segment 1 begins at the Queensway Bridge, through the Maya Resort and Queen Mary area, then south to Pier J. Segments 2 through 6 will continue the path along the south waterfront at Harbor Scenic Drive and Pier J, and include roadway widening, a bio-filtration median and landscaping, retaining walls, a restroom building, bicycle racks, and two observation platforms.	Approved project. Construction underway on Segment 1. Construction has not started on Segments 2–6.	Air Quality, Transportation, Recreation
9	Fireboat Station No. 15	The project would construct a new fire station and boat bay at Pier F, Berth F202 to replace existing Fireboat Station No. 15.	Approved project. Construction has not started.	Air Quality/GHG Emissions, Biological Resources, Water and Sediment Quality
10	Port of Long Beach Deep Draft Navigation Feasibility Study and Channel Deepening Project	The project would dredge up to 10 million cubic yards of material to deepen channels, basins, and standby areas to improve waterborne transportation efficiencies and navigational safety for vessel operations. A new dredge substation may be constructed to provide electricity to dredge equipment.	Environmental Review under development.	Air Quality/GHG Emissions, Marine Biology, Marine Water and Sediment Quality
11	Southern California Edison Transmission Tower Replacement Project	The project would replace a series of transmission towers and raise approximately 5,000 feet of existing power lines that cross the Cerritos Channel in Long Beach Harbor to provide additional over-water	Approved project. Construction underway.	Air Quality/GHG Emissions, Biological Resources, Cultural Resources, Water

TABLE 2.1-1. RELATED PROJECTS				
Number in Figure 2.2-1	**Project Title**	**Project Description**	**Status (Project Timeframe)**	**Relevant Potential Cumulative Environmental Factors**
		vertical clearance. Existing underground utilities located in proximity to the existing and proposed tower locations would be removed, modified, or abandoned.		and Sediment Quality
12	Queen Mary Island	The project would redevelop a 45-acre site located at 1126 Queens Highway to include 500,000 square feet of new development to support the existing Queen Mary and Carnival Cruise Line. The new development could include renovating the Queen Mary, retail, restaurants, entertainment activities (e.g., theater, bowling alley, and golf venue), hotel, education and aquatic centers, event spaces, and marina and transportation improvements.	Environmental Review under development.	Air Quality/GHG Emissions, Biological Resources, Cultural Resources, Hydrology and Water Quality, Noise, Transportation
13	Long Beach Cruise Terminal Improvements	The project includes landside and waterside improvements to the Carnival Cruise facilities on Pier H to accommodate a new, larger class of cruise ship and improve safe mooring of the ship at the existing berth. Waterside improvements would include dredging to deepen water depths, installing mooring dolphins and catwalks, fender replacements, and extending a passenger walkway bridge. Landside improvements would include expansion of the existing parking garage and traffic lane reconfiguration.	Environmental Review under development.	Air Quality/GHG Emissions, Marine Biology, Marine Water and Sediment Quality, Transportation
Department of the Navy				
14	Defense Fuel Support Point San Pedro	The project would include entering into an outlease and assigning interests in the Navy-owned fuel pipelines to allow for renewed fueling operations for commercial purposes at Defense Fuel Support Point San Pedro, with provisions for fuel servicing of military ships on a periodic basis and via separate fuel purchase agreement. Redevelopment of facilities and infrastructure would likely be required to accommodate continued use of the site.	Environmental Review under development.	Air Quality/GHG Emissions, Hazards and Hazardous Materials, Biological Resources

TABLE 2.1-1. RELATED PROJECTS

Number in Figure 2.2-1	Project Title	Project Description	Status (Project Timeframe)	Relevant Potential Cumulative Environmental Factors
		City of Long Beach		
15	Shoreline Gateway	The project includes mixed-use development of a 35-story, 315-unit condominium tower with retail, commercial, and office uses located at 777 East Ocean Blvd. east of Alamitos Avenue.	Under construction.	Air Quality/GHG Emissions, Transportation
16	Golden Shore Master Plan	The project will provide new residential, office, retail, and potential hotel uses, along with associated parking and open space.	NOP issued in November 2008. Final EIR was released in January 2010. In process for entitlement. City of Long Beach Planning Department has no estimated construction start and completion year.	Air Quality/GHG Emissions, Transportation
17	Long Beach Civic Center	The project includes development standards and design guidelines for an expected increase in the density and intensity of existing downtown land uses by allowing up to: approximately 5,000 new residential units; 1.5 million square feet of new office, civic, cultural, and similar uses; 384,000 square feet of new retail; 96,000 square feet of restaurants; and 800 new hotel rooms.	Project approved. Construction underway.	Aesthetics, Air Quality/GHG Emissions, Cultural/Historic, Transportation
18	1235 Long Beach Blvd.	The project would construct 160 affordable multi-family residential units.	Project approved. Construction underway.	Aesthetics, Air Quality/GHG Emissions, Transportation
19	2010 East Ocean Blvd. Project	The project includes development of a 4-story, 56-unit condominium complex, 40 hotel rooms, and 168 parking spaces in a subterranean garage.	Entitlements granted. Construction timeframe to be determined.	Aesthetics, Air Quality/GHG Emissions, Transportation
20	Shoemaker Bridge Replacement, between Shoreline Drive and 9th Street	The project would replace the existing Shoemaker Bridge over the Los Angeles River with a new bridge to improve existing traffic safety and operations and increase multi-modal connectivity. The old bridge would	EIR under preparation.	Air Quality/GHG Emissions, Recreation, Transportation

TABLE 2.1-1. RELATED PROJECTS				
Number in Figure 2.2-1	**Project Title**	**Project Description**	**Status (Project Timeframe)**	**Relevant Potential Cumulative Environmental Factors**
		either be demolished or repurposed for recreational uses.		
21	600 West Broadway World Trade Center Development Project	The project would construct a 752-unit multi-family residential development and 3,500 square feet of new commercial uses.	Application submitted; undergoing environmental review under the Downtown Plan PEIR.	Air Quality/GHG Emissions, Transportation
22	444 West Ocean Blvd. (Serenade)	The project includes development of a 5-story, 95-unit residential development, 3-story parking garage, walkway paseo, and dog park on a 24,000-square-foot site.	Project approved. Under construction. Expected to be completed in spring 2019.	Aesthetics, Air Quality/GHG Emissions, Transportation
23	207 East Seaside Way (Sonata)	The project includes development of a 5-story, 113-unit residential development on 0.67-acre site.	Project approved. Under construction. Expected to be completed in 2019.	Aesthetics, Air Quality/GHG Emissions, Transportation
24	150 West Ocean Blvd. (Oceanaire)	The project will construct a 7-story, 216-unit multi-family residential development with a 3-story parking garage on a 1.76-acre site. Also included are the improvement of the Victory Park stretch along Ocean Blvd. and development of a new city park at the Seaside Way grade.	Project approved. Under construction. Expected to be completed in 2019.	Aesthetics, Air Quality/GHG Emissions, Transportation
25	100 East Ocean Blvd. Project	The project would include development of a 30-story, 429 room hotel that would include 23,512 square feet of restaurant space and 26,847 square feet of meeting and ballroom space. Additional improvements would include pedestrian walkways, landscaping, and improvements to a portion of Victory Park.	EIR under preparation. NOP/IS issued in December 2018.	Air Quality/GHG Emissions, Cultural Resources, Noise, Transportation
Port of Los Angeles				
26	Berths 226–236 (Everport) Container Terminal Improvements Project	The project will redevelop the existing container terminal, including improvements to wharves, adjacent backland, crane rails, lighting, utilities, new gate complex, and modification of adjacent roadways and railroad tracks. Project also would include demolition of two unused buildings and other small	Final EIR/EIS certified and project approved in October 2017; construction underway.	Air Quality/GHG Emissions, Biological Resources, Cultural Resources, Hazards and Hazardous Materials, Hydrology and

TABLE 2.1-1. RELATED PROJECTS

Number in Figure 2.2-1	Project Title	Project Description	Status (Project Timeframe)	Relevant Potential Cumulative Environmental Factors
		accessory structures at the former Canner's Steam Plant in the Fish Harbor area of the Port.		Water Quality, Noise, Transportation
27	Berths 97–109, China Shipping Development Project	The project would include development of the China Shipping Terminal Phase I, II, and III, including wharf construction, landfill and terminal construction, and backland development.	Recirculated Supplemental EIR under development.	Air Quality/GHG Emissions, Transportation
28	Southern California International Gateway (SCIG)	The project would construct and operate a 157-acre near-dock ICTF located approximately 4 miles from the Port of Long Beach and Port of Los Angeles. The project also involves relocation of an existing rail operation.	Project approved. On hold due to litigation.	Aesthetics, Air Quality/GHG Emissions
29	Berths 302–306 (APL) Container Terminal Improvements	The project includes improvements and expansion of the existing terminal, including the addition of cranes, modifications to the main gate, converting an existing dry container storage unit to a refrigerated unit, and the expansion of the terminal onto 41 acres adjacent to the existing terminal. Revised project includes continued operations with minor modifications to the terminal and a 15-year lease extension through 2043.	Final EIR certified in 2012 and addendum approved in 2016. Expansion project on hold, revised project ongoing.	Air Quality/GHG Emissions, Biological Resources, Transportation
30	Berths 212–224 (YTI) Container Terminal Improvements	Phase 1 consists of deepening Berths 217–220 and expanding the Terminal Island Container Transfer Facility on-dock rail by adding a single rail loading track. Phase II involves deepening Berths 214–216 and replacing four existing cranes, for a total of 14 operational cranes at full buildout. Backland improvements would occur during both phases.	Project approved in 2014. Construction expected to be completed in 2020.	Air Quality/GHG Emissions, Biological Resources, Transportation
31	Berths 121–131 (Yang Ming) Container Terminal Improvements	Proposed wharf modifications at the Yang Ming Marine Terminal Project involve wharf upgrades and backland reconfiguration, including new buildings.	NOI/NOP released in 2014. EIR/EIS under preparation.	Air Quality/GHG Emissions, Biological Resources, Transportation
32	Berths 70–71 Westway Decommissioning	The project includes decommissioning the Westway Terminal along the Main Channel (Berths 70–71). Proposed activities	Decommission-ing completed in 2013.	Air Quality/GHG Emissions

TABLE 2.1-1. RELATED PROJECTS

Number in Figure 2.2-1	Project Title	Project Description	Status (Project Timeframe)	Relevant Potential Cumulative Environmental Factors
		include decommissioning and removing 136 storage tanks with total capacity of 593,000 barrels and remediation of the site.	Remediation is in conceptual planning phase.	
33	Wilmington Waterfront Master Plan (Avalon Blvd. Corridor Project)	The project includes development intended to provide waterfront access and promote development specifically along Avalon Blvd.	EIR certified and project approved in 2009. Design to be completed 2018–2019.	Air Quality/GHG Emissions, Transportation
34	Al Larson Boat Shop Improvement Project	The project includes modernization of the existing boat yard and a 30-year lease extension.	Project approved. Construction on hold.	Biological Resources
35	City Dock No. 1 Marine Research Center Project	The project includes development of a marine research center within a 28-acre area located on the west side of the Los Angeles Harbor Main Channel. The project would adaptively reuse the transit sheds at Berths 57–60 and Berths 70–71 to provide world-class marine research facilities.	Final EIR certified in September 2012. Construction timeframe to be determined.	Air Quality/GHG Emissions, Transportation
36	Port of Los Angeles Master Plan Update	The Plan includes redevelopment of Fish Harbor, redevelopment of Terminal Island and consideration of on-dock rail expansion, and consolidation of San Pedro and Wilmington Waterfront districts.	Project approved in 2013. CCC certification in March 2014. Intermittent construction anticipated 2014–2019.	Air Quality/GHG Emissions, Hazards and Hazardous Materials, Marine Water Quality, Noise, Transportation
37	San Pedro Public Market	The project includes redevelopment of 30 acres, formerly known as the Ports O' Call Village, with up to 300,000 square feet of visitor-serving commercial uses and up to a 75,000-square-foot conference center. The project would involve changing the industrial uses along Harbor Blvd. to commercial use. The project also includes a waterfront promenade and 3 acres of open space. The project was evaluated in the San Pedro Waterfront Project EIS/EIR.	Project approved in 2009 and Addendum in 2016. Conceptual planning by private developer is ongoing. Construction anticipated to be completed in 2021.	Air Quality/GHG Emissions, Noise, Transportation
38	Wilmington Youth Sailing and Aquatic Center Project	The project includes construction of a facility that includes a sailing center and adjacent boat dock and launch ramp at Berth 204 in Wilmington.	Final IS/MND adopted in November 2012. Project on hold.	Air Quality/GHG Emissions, Biological Resources

TABLE 2.1-1. RELATED PROJECTS

Number in Figure 2.2-1	Project Title	Project Description	Status (Project Timeframe)	Relevant Potential Cumulative Environmental Factors
39	Solar Panel Installation Program	The project includes installation of 10 megawatts of solar power within the Port of Los Angeles.	Construction at some sites began in 2009. Construction ongoing.	Aesthetics, Biological Resources
40	Berth 164 (Valero) Marine Oil Terminal Wharf Improvements	The project involves demolishing the existing 19,000-square-foot timber wharf and constructing a new, steel and concrete loading platform, access trestles, mooring and berthing structures, and necessary utilities to comply with MOTEMS. The project also consists of a 30-year lease for the facility.	NOP released on July 21, 2016 and public review period closed on August 19, 2016. Draft EIS/EIR is in preparation.	Air Quality/GHG Emissions, Biological Resources, Cultural Resources, Hazards and Hazardous Materials, Hydrology and Water Quality, Noise, Transportation
41	Berths 191–194 Dry Bulk Terminal	The project would include construction and operation of a dry bulk terminal for vessel unloading; milling; and storage and trucking of ground, granulated blast furnace slag.	Conceptual planning underway.	Air Quality/GHG Emissions, Biological Resources, Cultural Resources, Hazards and Hazardous Materials, Hydrology and Water Quality, Noise, Transportation
42	Reeves Avenue Marine Services Support Yard	The project includes construction and operation of a maritime support yard to provide cargo sorting and congestion relief for all container terminals in the Port of Los Angeles and Port of Long Beach. Located at 801 Reeves Avenue on Terminal Island.	Final IS/MND adopted in January 2018. Construction timeframe to be determined.	Air Quality/GHG Emissions, Transportation
43	LAXT Loop Container Staging Yard	The project includes construction and operation of a peel-off yard (secondary cargo staging area) to provide cargo sorting and congestion relief for all container terminals in the Port of Los Angeles and Port of Long Beach. Located at the LAXT loop on Terminal Island.	EA expected to start in 2018–2019.	Air Quality/GHG Emissions, Hazards and Hazardous Materials, Noise, Transportation
44	Alternative Maritime Power (AMP™)	AMP™ systems (also known as "cold-ironing") at the Port include a shoreside power source, a conversion process to transform the	Construction completed at various terminal	Air Quality/GHG Emissions, Hazards and Hazardous Materials, Marine

TABLE 2.1-1. RELATED PROJECTS

Number in Figure 2.2-1	Project Title	Project Description	Status (Project Timeframe)	Relevant Potential Cumulative Environmental Factors
		shoreside power voltage to match the vessel power systems, and a container vessel that is fitted with the appropriate technology to utilize electrical power while at dock. AMP™ facilities are being constructed at container terminals throughout the Port of Los Angeles to support Air Resources Board regulations and Clean Air Action Plan policy.	locations; still ongoing.	Water Quality, Noise, Transportation
45	Berths 195–200A WWL Vehicle Services Cargo Terminal Project	The project includes expansion of vehicle offloading processing and operations, including cargo increases up to 220,000 vehicles per year.	Final IS/MND adopted in August 2012. Construction expected to be completed in 2019.	Air Quality/GHG Emissions, Hazards and Hazardous Materials, Marine Water Quality, Noise, Transportation
46	Maintenance Dredging	Maintenance dredging is the routine removal of accumulated sediment from channel beds to maintain the design depths of navigation channels, harbors, marinas, boat launches, and port facilities. This is conducted regularly for navigational purposes (at least once every 5 years).	Continuous, but intermittent; on average every 3 to 5 years.	Air Quality/GHG Emissions, Marine Biology, Marine Water Quality
47	Outer Harbor Cruise Terminal and Outer Harbor Park	The project includes construction of two new cruise terminals that would total up to 200,000 square feet (approximately 100,000 square feet each) and parking at Berths 45–47 and 49–50 in the Outer Harbor. The terminals would be designed to accommodate the berthing of a Freedom Class or equivalent cruise vessel (1,150 feet in length). A proposed Outer Harbor Park would encompass approximately 6 acres at the Outer Harbor. The project was evaluated in the San Pedro Waterfront Project EIS/EIR.	Project approved. Construction on hold.	Air Quality/GHG Emissions, Biological Resources, Cultural Resources, Hazards and Hazardous Materials, Hydrology and Water Quality, Noise, Transportation
48	Anchorage Road Soil Storage Site (ARSSS) Open Space	The project would create approximately 30 acres of passive open space at the ARSSS. The project may also include undergrounding utilities and roadway improvements at the Anchorage and Shore Road intersection.	On hold.	Air Quality/GHG Emissions, Biological Resources, Transportation

TABLE 2.1-1. RELATED PROJECTS

Number in Figure 2.2-1	Project Title	Project Description	Status (Project Timeframe)	Relevant Potential Cumulative Environmental Factors
49	Relocation of Jankovich Marine Fueling Station	The project would develop a new fueling station at Berth 73. The proposed improvements would include new storage tanks.	Addendum to the Final EIR for the San Pedro Waterfront Project approved in August 2017. Conceptual planning ongoing.	Air Quality/GHG Emissions, Hazards and Hazardous Materials, Hydrology and Water Quality, Noise, Transportation
50	Fish Processing in Fish Harbor	The project would include upgrades of existing facilities and construction of new facilities for fish processing operations.	Conceptual planning stage.	Air Quality/GHG Emissions, Biological Resources, Noise, Transportation
51	Berths 167–169 (Shell) Marine Oil Terminal Wharf Improvements Project	The project includes various wharf and seismic ground improvements that are required to comply with MOTEMS, as well as other elements not required by MOTEMS. Capacity of the terminal would not be increased; however, the project includes a new 30-year lease. In general, the project would demolish the existing timber wharf (with two berths) and replace it with two new loading platforms, access trestles (to the platforms), mooring dolphins, and catwalks, and provide seismic ground improvements along the northwest portion of the terminal grounds.	Final EIR certified in August 2018. Construction timeframe to be determined.	Air Quality/GHG Emissions, Biological Resources, Marine Water Quality, Hazards and Hazardous Materials, Noise, Transportation
52	Avalon and Fries Avenue Segments Closure	The project includes the physical closure of segments of Avalon Blvd. and Fries Avenue by installing street modifications that include cul-de-sacs, curbs and gutters, fencing, and signage.	On hold.	Transportation
53	Fisherman's Pride Fish Processing Facility	The project will redevelop a vacant and underutilized industrial space into a state-of-the-art commercial seafood processing facility.	Final IS/MND adopted in August 2014. Project is underway.	Air Quality/GHG Emissions, Biological Resources, Noise, Transportation
54	SR-47/Vincent Thomas Bridge and Front Street/Harbor Blvd. Interchange Reconfiguration Project	The project would reconfigure the existing interchange at SR-47/Vincent Thomas Bridge and Harbor Blvd./Front Street to improve safety and operation for vehicles exiting the highway. Improvements also include modifications of the	IS/EA public review in October 2018. Construction timeframe to be determined.	Air Quality/GHG Emissions, Noise, Transportation

TABLE 2.1-1. RELATED PROJECTS				
Number in Figure 2.2-1	**Project Title**	**Project Description**	**Status (Project Timeframe)**	**Relevant Potential Cumulative Environmental Factors**
		eastbound entrance ramps and modification of Harbor Blvd. and Front Street approaching and between the ramps.		
55	Berth 240 Transportation Vessels Manufacturing Facility	Project operations would involve development and manufacture of prototypes and first generation vessels in the proposed building.	Final IS/MND adopted in March 2018. Construction timeframe to be determined.	Air Quality/GHG Emissions, Hazards and Hazardous Materials
56	Berths 238–239 (PBF Energy) Marine Oil Terminal Wharf Improvements Project	The project includes demolishing the existing Berth 238 loading platform and constructing a new platform and associated mooring structures at Berth 238, and installation of landside improvements.	Final IS/MND adopted in June 2018. Construction timeframe to be determined.	Air Quality/GHG Emissions, Biological Resources, Noise, Transportation
57	So Cal Ship Services Permit Renewal at 971 South Seaside Avenue	The project involves tenant lease renewal and minor construction modifications.	Final IS/MND adopted in September 2018. Construction timeframe to be determined.	Air Quality/GHG Emissions, Noise, Transportation
58	Construction and Maintenance Division Renovation Project	The project involves renovations to Port of Los Angeles existing construction and maintenance yard and buildings.	Final IS/MND adopted in October 2018. Construction timeframe to be determined.	Air Quality/GHG Emissions, Noise, Transportation
59	Berths 206–209 Matson Buildings Demolition	The project would demolish four former Matson buildings at the Berths 206–209 mixed-use cargo terminal. Proposed activities also include paving up to 1 acre of land.	Final IS/MND adopted in November 2018. Construction timeframe to be determined.	Air Quality/GHG Emissions, Noise, Transportation
60	Berths 206–209 Chassis Depot and Repair Facilities	The project would renovate two former Matson buildings at Berths 206–209 mixed-use cargo terminal. The project would involve the use of two existing warehouses for chassis depot, chassis storage, and maintenance and repair.	Draft IS/MND public review in April–May 2019.	Air Quality/GHG Emissions, Noise
61	Terminal Island Railyard Enhancement Project	The project will increase storage capacity and improve yard operations at the Terminal Island (Pier 400) railyard. Proposed activities include widening the existing concrete rail bridge to fill the	Final IS/MND adopted in October 2018. Construction timeframe to be determined.	Air Quality/GHG Emissions, Noise, Transportation

TABLE 2.1-1. RELATED PROJECTS				
Number in Figure 2.2-1	**Project Title**	**Project Description**	**Status (Project Timeframe)**	**Relevant Potential Cumulative Environmental Factors**
		gap between the rail bridge and the roadway bridge on the Pier 400 transportation corridor, and accommodating five new railroad tracks as well as a new access roadway.		
62	Berth 31 Removal of Underground Storage Tanks at Cabrillo Marina	The project will remove three 10,000-gallon underground storage tanks, electrical utilities, conveyances, fuel dispensers, and all other appurtenances as well as the surrounding contaminated soils at Cabrillo Marina (Berth 31).	Final IS/MND adopted in June 2017. Construction timeframe to be determined.	Air Quality/GHG Emissions, Hazards and Hazardous Materials, Noise, Transportation
63	Pasha Stevedoring and Terminal (PST) Lease Renewal Project	The project will include renewing PST's existing lease, which currently includes the operation of Berths 174–181 for 20 years with two 5-year options to renew for a total of 30 years. The lease renewal will include the continued operation of secondary locations, Berths 206–209 and Berths 153–155, which are currently operated under separate agreements and would be incorporated into the long-term lease. No new improvements or physical modifications to the three existing terminal sites would occur as part of the project.	Final IS/MND adopted in March 2016. Construction timeframe to be determined.	Air Quality/GHG Emissions, Transportation
64	Berths 177–178 Transit Shed Demolition Project	The project will include demolition of a 135,000-square-foot transit shed at Berths 177–178, which is a part of the 40-acre omni-terminal operated by PST at Berths 174–181. No new structures would be constructed.	Final IS/MND adopted in April 2016. Construction timeframe to be determined.	Air Quality/GHG Emissions
65	U.S. Navy Commissary Building Demolition	The project would demolish the former U.S. Naval Operation Support Center's Commissary Building on Terminal Island.	Final IS/MND adopted in August 2018. Construction timeframe to be determined.	Air Quality/GHG Emissions
Community of San Pedro				
66	Pacific Corridors Redevelopment Project	The project includes development of commercial/retail, manufacturing, and residential components. Construction is underway of four housing developments and Welcome Park.	Project approved. Construction underway. Estimated 2032 completion year.	Air Quality/GHG Emissions, Transportation

TABLE 2.1-1. RELATED PROJECTS				
Number in Figure 2.2-1	**Project Title**	**Project Description**	**Status (Project Timeframe)**	**Relevant Potential Cumulative Environmental Factors**
67	319 North Harbor Blvd.	The project includes construction of 94 residential condominium units.	Construction has not started according to City of Los Angeles Planning Department.	Aesthetics, Air Quality/GHG Emissions, Noise, Transportation
68	Highpark (Ponte Vista) Housing Development	The project would construct 676 homes.	NOP released in October 2010. Grading and construction initiated in 2016–2017.	Aesthetics, Air Quality/GHG Emissions, Noise, Transportation
69	Single-Family Homes 1427 North Gaffey Street (at Basin Street)	The project includes construction of 135 single-family homes—about 2 acres.	Project approved; construction ongoing.	Aesthetics, Air Quality/GHG Emissions, Noise, Transportation
70	Palos Verdes Urban Village 550 South Palos Verdes Street	The project includes construction of 251 condominiums and 4,000 square feet of retail space. 550 South Palos Verdes Street, San Pedro.	Construction has not started.	Aesthetics, Air Quality/GHG Emissions, Noise, Transportation
71	Mixed-Use Development 281 West 8th Street	The project will construct 72 condominiums and 7,000 square feet of retail space. 281 West 8th Street (near Centre Street), San Pedro.	Under construction according to City of Los Angeles Zoning Information and Map Access System.	Aesthetics, Air Quality/GHG Emissions, Noise, Transportation
Alameda Corridor Transportation Authority and California Department of Transportation (Caltrans)				
72	Schuyler Heim Bridge Replacement and SR-47 Terminal Island Expressway	The project includes replacement of the Schuyler Heim Bridge with a fixed structure and improvement of the SR-47/Henry Ford Avenue/Alameda Street transportation corridor by constructing an elevated expressway from the Schuyler Heim Bridge to SR-1 (Pacific Coast Highway).	Final EIS/EIR approved in August 2009. Schuyler Heim Bridge Replacement under construction. SR-47 Expressway on hold pending identification of funding sources.	Air Quality/GHG Emissions, Noise, Transportation
73	Henry Ford Avenue Railroad Bridge ("Badger Bridge") Expansion	The project includes improvements to the existing railroad bridge and possible construction of a third track, which is owned by the Port of Los Angeles and operated under the jurisdiction of the U.S. Coast Guard.	Conceptual planning phase.	Air Quality/GHG Emissions, Noise, Transportation

TABLE 2.1-1. RELATED PROJECTS

Number in Figure 2.2-1	Project Title	Project Description	Status (Project Timeframe)	Relevant Potential Cumulative Environmental Factors
Los Angeles Metropolitan Transportation Authority/Caltrans/Gateway Cities Council of Governments				
74	I-710 Corridor Project	The project would develop 18 miles of I-710, between the San Pedro Bay Ports and SR-60. Early action projects include: a) Port Terminus: Reconfiguration of SR-1 (Pacific Coast Highway) and Anaheim Interchange, and expansion of the open/green space at Cesar Chavez Park; and b) Mid Corridor Interchange: Reconfigurations Project for Firestone Blvd. Interchange and Atlantic/Bandini Interchange.	Recirculated Draft EIR/EIS released in July 2017.	Air Quality/GHG Emissions, Transportation
ICTF Joint Powers Authority				
75	Intermodal Container Transfer Facility (ICTF) Modernization and Expansion	The project would modernize and expand the existing ICTF to increase capacity, and modernize existing equipment and railyard operation methods.	Draft EIR on hold.	Air Quality/GHG Emissions
Community of Wilmington				
76	WesPac Smart Energy Transport System	The project would construct a jet fuel pipeline system to support airport operations at Los Angeles International Airport and other airports in the western U.S.	Revised EIR certified in 2011. Not yet constructed.	Air Quality/GHG Emissions
City of Carson				
77	Shell Oil Products U.S. Carson Revitalization Project Specific Plan (CRPSP)	The project includes adoption and implementation of the CRPSP and expansion of Distribution Facility uses. Redevelopment of the site could result in up to approximately 83,000 square feet of retail and 1.58 million square feet of mixed industrial/business services.	Draft EIR circulated in February 2014. Final EIR under preparation.	Air Quality/GHG Emissions
South Coast Air Quality Management District				
78	Tesoro Los Angeles Refinery Integration and Compliance	The project would include integration of currently adjacent Tesoro Wilmington Operations with Tesoro Carson Operations (former BP Refinery), including modernization of equipment and existing storage units, and addition of new storage units to comply with new federal air quality requirements.	Final EIR certified in May 2017. Construction anticipated through 2021.	Air Quality/GHG Emissions, Transportation

TABLE 2.1-1. RELATED PROJECTS

Number in Figure 2.2-1	Project Title	Project Description	Status (Project Timeframe)	Relevant Potential Cumulative Environmental Factors
Key: AMP™ = Alternative Maritime Power; ARSSS = Anchorage Road Soil Storage Site; Blvd. = Boulevard; Caltrans = California Department of Transportation; CCC = California Coastal Commission; CRPSP = Carson Revitalization Project Specific Plan; EA = environmental assessment; EIR = Environmental Impact Report; EIS = Environmental Impact Statement; GHG = greenhouse gas; I = Interstate; ICTF = Intermodal Container Transfer Facility; IS = Initial Study; LAXT = Los Angeles Export Terminal; MND = Mitigated Negative Declaration; MOTEMS = Marine Oil Terminal Engineering and Maintenance Standards; No. = Number; NOI = Notice of Intent; NOP = Notice of Preparation; PEIR = Program Environmental Impact Report; POLB or Port = Port of Long Beach; PST = Pasha Stevedoring and Terminals L.P.; SCIG = Southern California International Gateway; SR = State Route; U.S. = United States; YTI = Yusen Terminals, Inc.; WWL = Wallenius Wilhelmsen Logistics				

2.2 RELATIONSHIP TO STATUTES, PLANS, AND OTHER REQUIREMENTS

One of the primary objectives of the CEQA process is to ensure that a proposed project and alternatives are consistent with applicable federal, state, and local environmental statutes, plans, policies, and other regulatory requirements. Laws and regulations applicable to the environmental resource areas specifically addressed in this PEIR are summarized in this section. Detailed discussion of these laws and regulations, including discussion of consistency with applicable laws and regulations, is provided in the resource area analysis presented in Chapter 3 (Environmental Setting and Plan Impacts).

2.2.1 Statutes

2.2.1.1 California Coastal Act

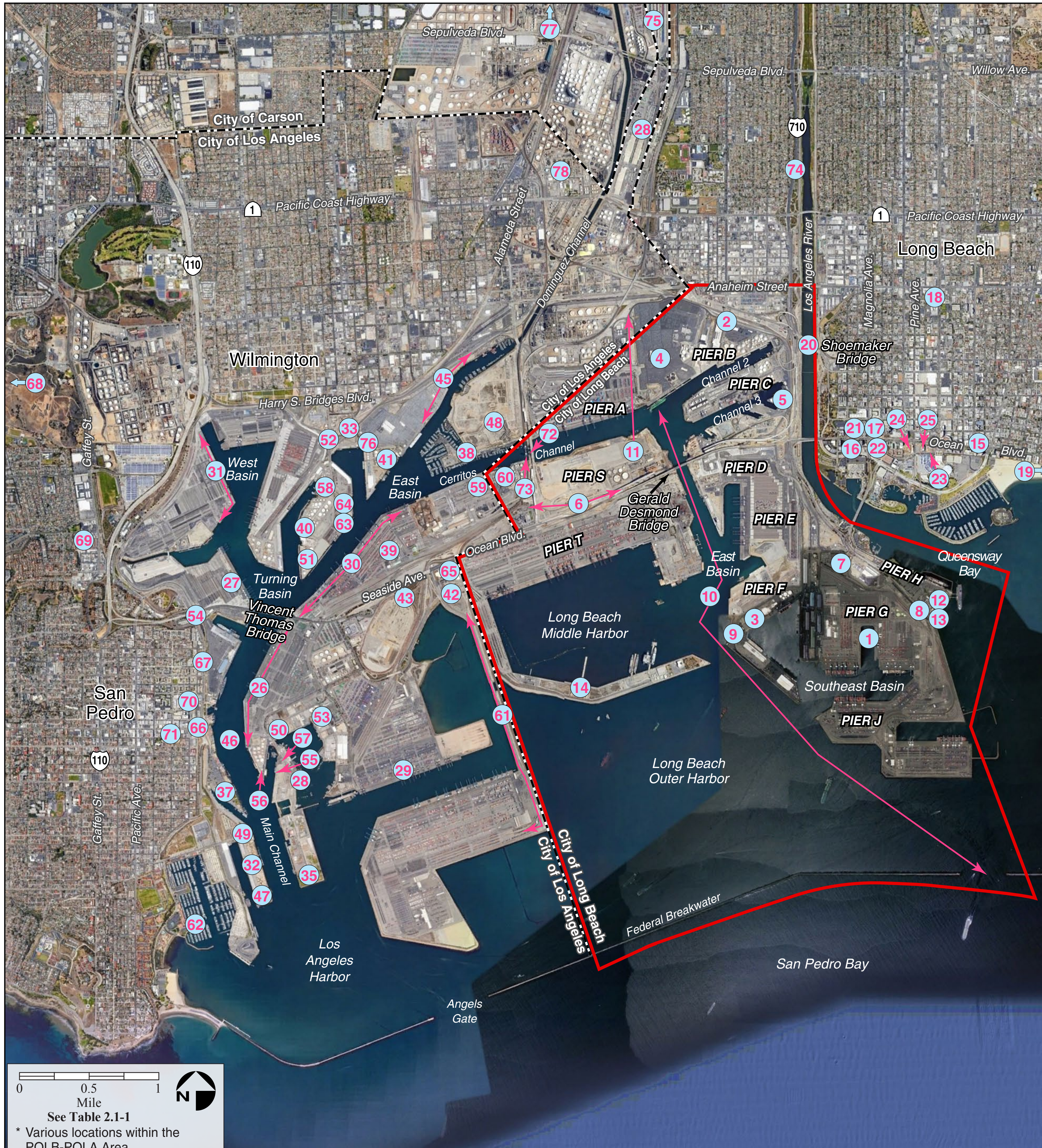
The California Coastal Act of 1976 (CCA) was enacted to establish policies and guidelines that provide direction for the conservation and development of the California coastline. The CCA established the CCC and created a state and local government partnership to ensure that public concerns regarding coastal development are addressed.

The CCA recognizes the Port of Long Beach (POLB or Port), as well as other California ports, as primary economic and coastal resources that are essential elements of the national maritime industry. Decisions to undertake specific development projects, where feasible, would be based on consideration of alternative locations and design to minimize any adverse environmental effects. Under the CCA, existing ports are encouraged to modernize and construct as necessary to minimize or eliminate the need for the creation of new ports.

2.2.1.2 California Environmental Quality Act

The purposes of CEQA are to:

- Inform agency decision makers and the public about the potential significant environmental effects of a proposed project;
- Identify ways that environmental damage can be avoided or significantly reduced;
- Prevent significant, avoidable environmental damage by requiring changes in the project through the use of alternatives or mitigation measures, when the agency finds the changes to be feasible; and
- Disclose the reasons for the governmental decision (14 California Code of Regulations [CCR] Section 15002[a]).



LEGEND

Port of Long Beach

1. Piers G Terminal Redevelopment
2. Pier B On-Dock Rail Support Facility Project
3. Mitsubishi Cement Corporation Facility Modifications
4. Toyota Logistics Services Improvement Project
5. Fireboat Station No. 20
6. Terminal Island (TI) Wye Improvements
7. Administrative Building Demolition
8. South Waterfront/Pier J Bike and Pedestrian Path Segments 1-6
9. Fireboat Station No. 15
10. POLB Deep Draft Navigation Feasibility Study and Channel Deepening Project
11. Southern California Edison Transmission Tower Replacement Project
12. Queen Mary Island
13. Long Beach Cruise Terminal Improvement Project

Department of the Navy

14. Defense Fuel Support Point San Pedro

City of Long Beach

15. Shoreline Gateway
16. Golden Shore Master Plan
17. Long Beach Civic Center
18. 1235 Long Beach Blvd.
19. 2010 E. Ocean Blvd. Project
20. Shoemaker Bridge Replacement, between Shoreline Drive and 9th Street
21. 600 W. Broadway World Trade Center Development Project
22. 444 W. Ocean Blvd. (Serenade)
23. 207 E. Seaside Way (Sonata)
24. 150 W. Ocean Blvd. (Oceanaire)
25. 100 E. Ocean Blvd. Project

Port of Los Angeles

26. Berths 226-236 (Everport) Container Terminal Improvements Project
27. Berths 97-109, China Shipping Development Project
28. Southern California International Gateway (SCIG)
29. Berths 302-306 (APL) Container Terminal Improvements
30. Berths 212-224 (YTI) Container Terminal Improvements
31. Berths 121-131 (Yang Ming) Container Terminal Improvements
32. Berths 70-71 Westway Decommissioning
33. Wilmington Waterfront Master Plan (Avalon Blvd. Corridor Project)
34. Al Larson Boat Shop Improvement Project
35. City Dock No. 1 Marine Research Center Project
36. Port of Los Angeles Master Plan Update*
37. San Pedro Public Market
38. Wilmington Youth Sailing and Aquatic Center Project
38. Solar Panel Installation Program
44. Berth 164 (Valero) Marine Oil Terminal Wharf Improvements
41. Berths 191-194 Dry Bulk Terminal
42. Reeves Avenue Marine Services Support Yard
43. LAXT Loop Container Staging Yard
44. Alternative Maritime Power (AMP™)*
45. Berths 195-200A WWL Vehicle Services Cargo Terminal Project
46. Maintenance Dredging*
47. Outer Harbor Cruise Terminal and Outer Harbor Park
48. Anchorage Road Soil Storage Site (ARSSS) Open Space
49. Relocation of Jankovich Marine Fueling Station
50. Fish Processing in Fish Harbor
51. Berths 167-169 (Shell) Marine Oil Terminal Wharf Improvements Project
52. Avalon and Fries Avenue Segments Closure
53. Fisherman's Pride Fish Processing Facility
54. ST-47/Vincent Thomas Bridge & Front Street/ Harbor Blvd. Interchange Reconfiguration Project
55. Berth 240 Transportation Vessels Manufacturing Facility
56. Berths 238-239 (PBF Energy) Marine Oil Terminal Wharf Improvements Project
57. So Cal Ship Services Permit Renewal at 971 South Seaside Avenue
58. Construction and Maintenance Division Renovation Project
59. Berths 206-209 Matson Buildings Demolition
60. Terminal Island Railroad Enhancement Project
61. Berths 206-209 Chassis Depot and Repair Facilities
62. Berth 31 Removal of Underground Storage Tanks at Cabrillo Marine
63. Pasha Stevedoring and Terminal (PST) Lease Renewal Project
64. Berths 177-178 Transit Shed Demolition Project
65. U.S. Navy Commissary Building Demolition

Community of San Pedro

66. Pacific Corridors Redevelopment Project
67. 319. N. Harbor Blvd.
68. Highpark (Ponte Vista) Housing Development
69. Single Family Homes 1427 N. Gaffey St. (at Basin St.)
70. Palos Verdes Urban Village 550 S. Palos Verdes St.
71. Mixed-Use Development, 281 W. 8th St.

Alameda Corridor Transportation Authority (ACTA) and Caltrans

72. Schuyler Heim Bridge Replacement and SR 47 Terminal Island Expressway
73. Badger Avenue Bridge Expansion

LA Metro/Caltrans/Gateway Cities Council of Governments

74. I-710 Corridor Project

ICTF Joint Powers Authority

75. Intermodal Container Transfer Facility (ITCF) Modernization and Expansion

Community of Wilmington

76. WesPac Smart Energy Transport System

City of Carson

77. Shell Oil Products U.S. Carson Revitalization Project Specific Plan (CRPSP)

South Coast Air Quality Management District

78. Tesoro Los Angeles Refinery Integration and Compliance

Figure 2.1-1. Related Projects Location Map

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A PEIR is considered the appropriate document to address the Proposed Plan because it is a type of EIR that is prepared for a series of actions that can be characterized as one large program per CEQA Guidelines Section 15168. A PEIR may serve as a first-tier document for later CEQA review of projects included within a program. A PEIR can be used to simplify the task of preparing subsequent environmental documents on later activities in the program (CEQA Guidelines Section 15168). Subsequent proposed development under the Proposed Plan must be evaluated to determine whether additional CEQA analysis is required. If a later activity under the Proposed Plan (not subject to an exemption) would have effects that were not examined in this PEIR, a new IS would need to be prepared leading to either an EIR or a Negative Declaration (CEQA Guidelines Section 15168(c)(1)). If the agency finds that any of the events detailed in Public Resource Code (PRC) Section 21166 and CEQA Guidelines Section 15162 have occurred, additional CEQA analysis would be required. For example, if “substantial changes are proposed in the project which will require major revisions of the previous EIR … due to the involvement of new significant environmental effects or a substantial increase in the severity of the previously identified significant effects…,” then additional CEQA documentation will be required (CEQA Guideline Section 15162(a)(1)).

2.2.1.3 California Tidelands Trust

The California State Lands Commission (CSLC) has authority over California’s granted public trust lands and ungranted public trust lands (i.e., tidelands, submerged lands, and navigable waters). In California, tidelands are those lands that lie between the mean high tide and mean low tide while submerged lands are those lands that lie between the mean low tide and 3-mile seaward extent of the state’s jurisdictional limit. Pursuant to the California Tidelands Trust, state and local tidelands grantees are administrators of their respective public trust lands and are required to manage tidelands in accordance with the applicable granting statutes and the Public Trust Doctrine. Public trust uses are generally limited to water dependent activities such as commerce, fisheries, navigation, ecological preservation, and recreation.

The Port is operated under the legal mandates of the California Tidelands Trust, 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. According to the California Tidelands Trust, Port-related activities should be water dependent and should give highest priority to navigation, shipping, and necessary support and access facilities to accommodate the demands of foreign and domestic waterborne commerce. The 1990 Port Master Plan (PMP) as amended provides the official planning policies, consistent with the Public Trust Doctrine, for the physical development of the tidelands and submerged lands conveyed and granted in trust to the Port.

2.2.1.4 Clean Air Act

The federal Clean Air Act (CAA) of 1970 and its subsequent amendments form the basis for the nation’s air pollution control effort. The United States (U.S.) Environmental Protection Agency (USEPA) is responsible for implementing most aspects of the CAA. Basic elements of the CAA include the National Ambient Air Quality Standards (NAAQS) for major air pollutants, hazardous air pollutant standards, attainment plans, motor vehicle emission standards, stationary source emission standards and permits, acid rain control measures, stratospheric ozone protection, and enforcement provisions.

The CAA delegates enforcement of the federal standards to the states. The California Air Resources Board (CARB) is responsible for enforcing air pollution regulations. In the South Coast Air Basin (SCAB), the South Coast Air Quality Management District (SCAQMD) has this responsibility. As the Harbor District is located within the SCAB, the Proposed Plan projects are subject to SCAQMD rules and regulations.

2.2.1.5 Coastal Zone Management Act

Section 307 of the Coastal Zone Management Act of 1972 (CZMA) requires that all federal agencies with activities directly affecting the coastal zone, or with development projects within that zone, comply with the state coastal acts (in this case, the CCA) to ensure that those activities or projects are consistent with the CZMA, to the maximum extent practicable. Accordingly, the Port is preparing a PEIR to disclose potential impacts associated with conducting in-water construction activities (e.g., dredge and fill activities, wharf construction, and wharf improvements) within the coastal zone. The CCC would use this PEIR in their federal Coastal Zone Consistency Review to determine if the Proposed Plan is in compliance with the CZMA.

2.2.1.6 Endangered Species Act

The Endangered Species Act (ESA) of 1973 (16 United States Code [U.S.C.] 1531–1543), as amended, provides for the conservation of endangered and threatened species and the ecosystems they inhabit. The U.S. Fish and Wildlife Service (USFWS) and the National Oceanic and Atmospheric Administration (NOAA) Fisheries share responsibilities for administering the federal ESA. Section 9 prohibits “take” of species federally listed as threatened or endangered. “Take” is defined as to harm, harass, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct, and includes habitat modification or degradation that could potentially kill or injure wildlife by impairing essential behavioral patterns, including breeding, feeding, or sheltering. A take incidental to otherwise lawful activities can be authorized under Section 7 when there is federal involvement and under Section 10 when there is no federal involvement.

Section 7 of the federal ESA requires federal agencies to consult with and seek the assistance of the Secretary of the Interior or Secretary of Commerce to ensure that actions authorized, funded, or carried out by federal agencies do not jeopardize the continued existence of threatened or endangered species, or result in the destruction or adverse modification of critical habitat for these species.

2.2.2 Plans, Policies, and Other Regulatory Requirements

2.2.2.1 Air Quality Management Plan

USEPA, in enforcing mandates of the federal CAA, requires each state that does not attain the NAAQS to prepare a plan detailing how these air quality standards will be attained. California requires each air quality district to prepare an AQMP specific for its region. The most recently approved applicable AQMP was adopted by the SCAQMD Governing Board of Directors on March 3, 2017.

2.2.2.2 California Toxics Rule of 2000 (40 Code of Federal Regulations Part 131)

The California Toxics Rule (CTR) establishes numeric criteria for priority toxic pollutants in inland waters and enclosed bays and estuaries to protect ambient aquatic life and human health. The toxics rule also includes provisions for compliance schedules to be issued for new or revised

National Pollutant Discharge Elimination System (NPDES) permit limits when certain conditions are met. The numeric criteria are the same as those recommended by USEPA in its Clean Water Act (CWA) Section 304(a) guidance.

2.2.2.3 City of Long Beach General Plan

In the City of Long Beach (City) General Plan, the Harbor District falls within Land Use District Twelve. This district is composed of the existing freeways, Long Beach Harbor, and Long Beach Airport. The General Plan assumes the water and land use designations within the Harbor District are separately formulated and adopted by due process as the Specific Plan of the Long Beach Harbor (also known as the 1990 PMP as amended). The General Plan indicates that the responsibilities for planning within legal boundaries of the harbor lie with the Board of Harbor Commissioners (BHC).

2.2.2.4 City of Long Beach Charter

The Long Beach City Charter is the City's foundational document that defines the organization, powers, functions, and essential procedures of the City government. The current charter (dated March 6, 2019) has been amended various times since it was first passed in 1923.

The Charter creates the Harbor Department, whose function is to promote and develop the Port, and defines the boundaries of the Port (Section 1201), as well as the powers and duties of the BHC (Section 1203). These powers and duties include, but are not limited to, the following:

- Provide for the needs of commerce, navigation, recreation, and fishery in the Harbor District; plan, promote, develop, construct, re-construct, alter, repair, maintain, equip, and operate all properties; and modify plans from time to time as the requirements of commerce, navigation, recreation, or fishery may demand, and as the BHC may deem proper and desirable in its judgment.
- Direct, control, and supervise the Harbor District, including all waterfront properties, and adjacent lands and water, which are now or may hereafter be owned or possessed by the City, both inside and outside of the Harbor District.
- Control and have jurisdiction of that part of the City defined as the "Harbor District," as said district was bounded and described on the first day of February 1979, except the BHC shall not have control or jurisdiction of those lands, or parts thereof, that may be used for or in connection with the drilling for, developing, producing, extracting, processing, taking or removing, storing and disposing of oil, gas, and other hydrocarbon substances by the City.
- Require owners of water terminal properties and facilities within the Harbor District to keep properties and facilities in proper condition, and repair and maintain them with special reference to the safety of persons and property and the reduction of fire hazards or nuisances.
- Regulate and control all public service and public utilities operated in connection with, or for the promotion and accommodation of, commerce, navigation, recreation, or fishery in the Harbor District.
- Regulate the speed, berthing, anchoring, towing, loading, unloading, and mooring of vessels within the Harbor District.

- Provide for handling, storage, and reconditioning of all commodities; and to sell or otherwise dispose of personal property within its possession or ownership.
- Lend its aid to secure the improvements of navigable tidal waters within or adjacent to the Harbor District where, in its opinion, such improvements are economically justifiable.
- Manage the business of the Port and promote the maritime and commercial interests by proper advertisement of its advantages, and by the solicitation of business, within or outside the Harbor District, within California or other states, or in foreign countries.
- Acquire in the name of the City by purchase, condemnation, gift, lease, or otherwise take over and hold all lands, property, property rights, leases, or easements, and personal property of every kind, necessary or convenient for the development and operation of the Harbor District, or for the carrying out of the powers granted to the BHC. Whenever the BHC determines that any lands owned by the City within its jurisdiction have become unnecessary for Port purposes or harbor development, it may by ordinance transfer such land to the control of the City Council, free from all restrictions, other than trust restrictions, if any.
- Enter into contracts, agreements, leases, or stipulations, germane to the scope of its powers and duties.
- Adopt and enforce such ordinances, orders, regulations, and practices as are necessary for the proper administration and discharge of its duties and powers, or for the management and government of the Harbor District and its facilities.

Section 1205 of the Charter (Control of Harbor Property) specifies that no franchise shall be granted, no property shall be acquired or sold, no street shall be opened, altered, closed, or abandoned, and no sewer, street, or other public improvement shall be located or constructed in the Harbor District by the City without the approval of the BHC.

Section 1207 of the Charter (Leasing) specifies that all tidelands and submerged lands within the Harbor District, now owned or acquired by the City, are declared to be required for use for purposes in connection with, or for the promotion and accommodation of commerce, navigation, recreation, or fishery, and shall continue to be withheld for such purposes. Notwithstanding any other provision of the Charter to the contrary, the BHC shall not be required to operate directly all of the properties, facilities, and utilities under its control or jurisdiction, and shall have the power to authorize the operation of any of such properties, facilities, and utilities by a private person, firm, association, or corporation.

Section 1208 of the Charter (Leasing and Operation of Railroad Facilities) specifies that the BHC shall have the power to contract for or permit the operation of trains and cars on the municipal terminal railroad of the City, upon such terms and conditions as it may prescribe. In order to provide for the unified or joint operation and control of railroad facilities in the Harbor District, both municipal and private, the BHC has the power to a) lease all necessary privately owned railroads, tracks, facilities, and adjuncts and to operate, or provide for operation of, the same in conjunction with the municipal terminal railroad; or b) lease the municipal terminal railroad to an association, corporation, or company for the purpose of operating the same together with all other privately owned railroads, tracks, facilities, and adjuncts in the Harbor District necessary to provide unified or joint operation and control of all such facilities.

Section 1215 of the Charter (Building Permits) specifies that no person or persons shall construct, extend, alter, improve, erect, remodel, or repair any pier, slip, basin, wharf, dock, or other harbor structure, or any building or structure within the Harbor District without first applying for and securing from the BHC a permit so to do, in accordance with the rules and regulations adopted by it. In approving or denying the right to said permit, the BHC shall consider the application for the character, nature, size, and location of the proposed improvement and exercise a reasonable and sound discretion during said consideration.

2.2.2.5 City of Long Beach Municipal Code

The City of Long Beach Municipal Code (LBMC), as amended, codifies and publishes in consolidated form those ordinances of the City governing the establishment of certain offices and boards; the conduct of City government; the organization to cope with disasters; fire prevention; police and traffic regulation; public safety; public welfare; public works; buildings and signs; prohibition of certain defined acts and punishment for violation of code provisions; regulation, control, and licensing of businesses, trades, professions, and other occupations; health and sanitation regulations; oil production; use of land in the City; municipal gas service and rates; regulation of City streets; operation of public facilities; and other matters of general interest (Ordinance C-5831 Section 1, 1982).

2.2.2.6 Green Port Policy

Adopted on January 31, 2006, the Green Port Policy formalizes five guiding principles for the Port's environmental protection efforts: 1) protect the local community and environment from harmful Port impacts; 2) employ the best available technology to minimize Port impacts and explore and advance technology solutions; 3) promote sustainability in terminal design, development, and operations; 4) distinguish the Port as a leader in environmental stewardship and regulatory compliance; and 5) engage and educate the community about Port development and environmental programs.

2.2.2.7 Los Angeles County Congestion Management Program

The Los Angeles County Congestion Management Program (CMP) was adopted by the Los Angeles County Metropolitan Transportation Authority (Metro) in 1992 and is updated biannually. The program was developed in conformance with Proposition 111, the gas tax initiative approved by California voters in 1990. The 1993 program update includes a new element called the Countywide Deficiency Plan that establishes a partnership between the 88 cities in the county and Metro. Every year, each jurisdiction is responsible for monitoring building permit activity and then deciding how to offset the potential impacts of that development by choosing from a series of transportation mitigation strategies. The CMP also includes a series of monitoring programs that measure the level of service on critical transportation systems, including major intersections, freeways, and major transit routes. Since 1994, jurisdictions have been required to track new development activity and report it to Metro. All development activity in the Port must be included in the City of Long Beach development activity report. The CMP defines a backbone highway system called the CMP system that includes all state highways and other major arterial routes as determined by the cities in conjunction with Metro.

2.2.2.8 San Pedro Bay Ports Clean Air Action Plan

As an initiative of the Green Port Policy, the Port of Long Beach, in conjunction with the Port of Los Angeles, and with the cooperation of SCAQMD, CARB, and USEPA, adopted the Clean Air

Action Plan (CAAP) on November 20, 2006. Subsequent CAAP updates were adopted in 2010, and most recently in 2017. The CAAP is designed to reduce the health risks posed by air pollution from all port-related emissions sources, including ships, trains, trucks, terminal equipment, and harbor craft. The CAAP proposes to implement near-term measures largely through new lease agreements, CEQA and National Environmental Policy Act (NEPA) processes, and tariffs. The CAAP proposes hundreds of millions of dollars in investments by the Port of Long Beach, Port of Los Angeles, SCAQMD, the state, and port-related industries to reduce port-wide emissions. The 2006 CAAP was a 5-year action plan that focused primarily on reducing health risks to local communities and reducing emissions of diesel particulate matter (DPM), nitrogen oxides (NO_x), and sulfur oxide. The 2017 CAAP aligns with the California Sustainable Freight Action Plan (CSFAP) and provides new and updated strategies and emission-reduction targets to cut emissions from sources operating in and around the San Pedro Bay Port Complex, setting the Port of Long Beach and the Port of Los Angeles firmly on the path toward zero-emissions goods movement. The 2017 CAAP contains 14 strategies to reduce emissions from sources within and surrounding the San Pedro Bay Ports, plan for zero-emissions infrastructure, encourage freight efficiency, and address energy resources. While not a specified goal of the CAAP, implementation of the CAAP will improve water quality via reductions in atmospheric deposition of air pollutants that otherwise contribute to watershed loadings of acidic and toxic compounds.

2.2.2.9 Southern California Association of Governments Regional Plans

The Southern California Association of Governments (SCAG) serves as the area-wide planning agency responsible for regional transportation planning, growth, and land use planning within Southern California, as well as for developing the growth factors used in forecasting air emissions within the SCAG. The SCAG prepares and maintains a Growth Management Plan, a Regional Housing Needs Assessment, and a Regional Mobility Plan, and contributes to the AQMP in cooperation with the SCAQMD. The SCAG developed a Regional Comprehensive Plan and Guide, the 2008 RTP, and, in cooperation with the SCAQMD, the AQMP.

2.2.2.10 Water Quality Control Policy – Enclosed Bays and Estuaries of California

In 1974, the California State Water Resources Control Board (SWRCB) adopted a water quality control policy that provides principles and guidelines to prevent degradation and to protect the beneficial uses of waters of enclosed bays and estuaries. Long Beach Harbor is considered to be an enclosed bay under this policy. Activities such as the discharge of effluent, thermal wastes, radiological waste, dredge materials, and other materials that adversely affect beneficial uses of the bay and estuarine waters are addressed. Waste discharge requirements (WDRs) developed by the Regional Water Quality Control Board (RWQCB), among other requirements, must be consistent with this policy.

2.2.2.11 Water Quality Control Plan – Los Angeles River Basin

The Water Quality Control Plan for the Los Angeles River Basin (Region 4) was adopted by the RWQCB in 1978 and updated in 1994. The plan designates beneficial uses of the water resources of the basin and describes water quality objectives, implementation plans, and surveillance programs to protect or restore designated beneficial uses.

2.2.3 Additional Regulations

Additional regulations applicable to the Proposed Plan are listed in Table 2.2-1.

TABLE 2.2-1. ADDITIONAL REGULATIONS APPLICABLE TO THE PROPOSED PLAN

Resource Area	Regulations
Air Quality	Prevention of Significant Deterioration, Titles 40 CFR Part 51.24 and 40 CFR Part 52.21; California Clean Air Act; South Coast Air Quality Management District Regulations IX (Standards of Performance for New Stationary Sources) and XIII (New Source Review); Emission Reduction Plan for Ports and Goods Movement in California.
Biological Resources	Marine Mammal Protection Act; Migratory Bird Treaty Act; Section 103 of the Marine Protection, Research, and Sanctuaries Act of 1972; California Endangered Species Act; U.S. Fish and Wildlife Act of 1965 (16 U.S.C. 742a et seq.); Fish and Wildlife Coordination Act (16 U.S.C. 661 et seq.); Magnuson-Stevens Fishery Conservation and Management Act, as amended through 1996; Executive Order 13112, Invasive Species; Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 (Public Law 101-646), as amended by the National Invasive Species Act of 1996; California Ballast Water Management for Control of Nonindigenous Species Act of 1999 (California PRC Sections 71200–71271); California Fish and Game Code.
Cultural Resources	National Historic Preservation Act of 1966, as amended, and implementing regulations (36 CFR Part 800); the Archaeological and Historical Preservation Act and Executive Order 11593 “Protection and Enhancement of the Cultural Environment”; U.S. Army Corps of Engineers Engineer Regulation 1105-2-100; Archaeological and Historic Preservation Act of 1974; California Assembly Bill 52 (2014); California Senate Bill 18 (2004); CCC Tribal Consultation Policy.
Noise	City of Long Beach Municipal Code (LBMC) Section 8.80.150 (Exterior Noise Limits) and LBMC Section 8.80.202 (Construction Noise Activity Regulations).
Transportation	California Public Utilities Commission Guidelines; Federal Railroad Administration Guidelines; Federal Highway Administration Guidelines; California Transportation Guidelines; California Administrative Code Section 65302; Federal Aid Highway Program Manual 7-7-3; National Environmental Compliance, 91-190; U.S. Coast Guard Regulations Pertaining to Navigation Safety and Waterfront Facilities; State and Federal Department of Transportation Requirements Regarding Truck and Rail Transportation of Hazardous Materials.
Hydrology and Water Quality	Rivers and Harbors Act of 1899, Section 10; Federal Water Pollution Control Act (as amended by the Clean Water Act of 1977); Sections 401, 402, and 404 of the Clean Water Act of 1977; Porter-Cologne Act; California Hazardous Waste Control Act; Rivers and Harbors Appropriations Act; Ballast Water Management Control of Nonindigenous Species Act; Water Resources Action Plan; State Water Resources Control Board Stormwater Permits; Standard Urban Stormwater Mitigation Plans.
Hazards and Hazardous Materials	Comprehensive Environmental Response, Compensation, and Liability Act; Federal Toxic Substances Control Act of 1976; Resource Conservation and Recovery Act; POLB Risk Management Plan.
Climate Change	California Senate Bill 32 (California Global Warming Solutions Act; 2016); California Assembly Bill 32 (California Global Warming Solutions Act of 2006); CCC Updated Sea Level Rise Guidance (2018).

Key: CCC = California Coastal Commission; CFR = Code of Federal Regulations; LBMC = City of Long Beach Municipal Code; POLB = Port of Long Beach; PRC = Public Resource Code; U.S. = United States; U.S.C. = United States Code

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CHAPTER 3 ENVIRONMENTAL SETTING AND PLAN IMPACTS

3.0 INTRODUCTION

This chapter describes the area of influence, setting (i.e., environmental and regulatory), methodology, potential impacts, and mitigation measures for each of the environmental resources evaluated in this Program Environmental Impact Report (PEIR). The Proposed Plan and alternatives are evaluated in the context of the California Environmental Quality Act [CEQA] requirements. For each environmental resource, the Proposed Plan and alternatives are compared to the CEQA Baseline in Sections 3.1 through 3.16. Chapter 4 (Alternatives Comparison) compares the effects of the Proposed Plan and the alternatives on environmental resources based on the anticipated impacts determined in Chapter 3 (Environmental Setting and Plan Impacts). This comparison is used to determine the environmentally preferred alternative.

3.0.1 Environmental Analysis Procedures

The content and format of this PEIR are designed to meet the requirements of the CEQA Guidelines (California Code of Regulations [CCR] Title 14, Section 15000 et seq.) and Port of Long Beach (POLB or Port) Procedures for Implementation of CEQA (Resolution No. HD-1973). The discussion and analysis of each resource provided in Sections 3.1 through 3.16 are organized as described below.

Environmental Setting subsections describe the existing conditions for each environmental resource. These subsections provide the context for assessing potential environmental impacts resulting from the Proposed Plan and alternatives.

The *Regulatory Setting* subsection describes laws, regulations, and policies that are relevant to each environmental resource.

Impacts and Mitigation Measures subsections describe the potentially significant effects or consequences resulting from implementation of the Proposed Plan and alternatives. Measures that could mitigate (e.g., minimize, reduce, or avoid) potentially significant adverse environmental effects are proposed as conditions of approval. The methodology for each impact evaluation is discussed and significance criteria are described that help evaluate the degree of significance for each potential impact. The criteria or thresholds of significance are consistent with the CEQA Guidelines, Appendix G (Environmental Checklist), and have been modified as necessary to reflect Port operations within a highly urbanized, industrial complex.

The “threshold of significance” for a given environmental effect is the level at which the Port, as the lead CEQA agency, finds the effects of the Proposed Plan or alternative to be significant. “Threshold of significance” is a quantitative, qualitative, or performance level of a particular environmental effect, noncompliance with which means the effect will normally be determined to be significant and compliance with which means the effect normally will be determined to be less than significant.

The *Impact Determination* discussions describe potential consequences to each resource that would result from implementation of the Proposed Plan and alternatives. For each impact identified in this document, a statement of the level of significance of the impact is provided. The level of significance is determined by applying the applicable threshold of significance. The following categories for impact significance are used in this analysis:

- A designation of “no impact” means there would be no adverse change in the environment.
- A “less than significant impact” means there would be no substantial or potentially substantial adverse change in the environment.
- A “significant unavoidable impact” means a substantial or potentially substantial adverse effect on the environment that cannot be feasibly mitigated or avoided.

Mitigation Measures to minimize, avoid, or reduce potentially significant impacts are presented where appropriate. Mitigation could include:

- Avoiding the impact altogether by not taking a certain action or parts of an action;
- Minimizing the impact by limiting the degree or magnitude of the action and its implementation;
- Rectifying the impact by repairing, rehabilitating, or restoring the affected environment;
- Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; or
- Compensating for the impact by replacing or providing substitute resources or environments.

Mitigation measures would be made conditions of the Proposed Plan approval. A Mitigation Monitoring Program would be adopted and implemented to ensure compliance and implementation of required mitigation measures. The environmental analysis in the PEIR provides a general programmatic level of review. Sufficient details in a first tier planning level Environmental Impact Report (EIR) are often limited. In order to formulate more site-specific environmental analysis, CEQA allows more detailed analysis and mitigation at a later date with projects that are more limited in their geographic scope, provided such a deferral does not prevent adequate identification of any potential future environmental effects that may occur (CEQA Guidelines Section 15152(c)).

Significance of Impact after Mitigation refers to the level of impact after the implementation of mitigation. Where a mitigation measure(s) would avoid or reduce a significant impact to a level that is less than significant, a determination is made that the residual impact would be less than significant. Where a mitigation measure(s) would reduce a significant impact somewhat, but not to a level that is less than significant, a determination is made that the residual impact would remain significant. This determination that the residual impact would remain significant is used to identify *Significant Unavoidable Impacts,* as required by the CEQA Guidelines (see Section 5.1, Significant Unavoidable Impacts). If a significant impact is reduced to a less than significant level by application of a mitigation measure, it is termed a *Significant but Avoidable Impact.*

The *Cumulative Impacts* discussion in each environmental issue section describes potential impacts from the Proposed Plan in combination with development of related past, present, and reasonably foreseeable future projects in the area, as described in Chapter 2 (Related Projects and Relationship to Local and Regional Plans).

3.0.2 Baseline Used in the Environmental Analysis

As discussed in Chapter 1 (Introduction and Project Description), the CEQA Baseline is generally the existing conditions as of the issuance of the Notice of Preparation [NOP], which for the Proposed Plan was August 2018. The CEQA impact analysis in this PEIR compares conditions in August 2018 (the CEQA Baseline) to projected impacts from the Proposed Plan and alternatives through the year 2040 (i.e., the Proposed Plan planning horizon). To provide a conservative assessment of "existing conditions," related projects that were analyzed previously under CEQA and permitted but for which construction either had not been started or was not near completion as of the issuance of the NOP are not included in the baseline analysis of potential impacts from the Proposed Plan and also are not analyzed as part of the Proposed Plan. Instead, the impacts of these other Port projects are analyzed and disclosed as part of the cumulative projects analysis in this PEIR. The CEQA Baseline differs from the No Plan Alternative in that the No Plan Alternative addresses projects that are likely to occur over time, including those that were previously approved and permitted at the time of the NOP but had not yet commenced construction.

3.0.3 Environmental Resources Not Affected by the Proposed Plan

The scope of this PEIR was established based on the August 2018 NOP and comments received on the NOP. In accordance with CEQA, the scoping process determined that no agricultural resources occur on or near the Harbor District. Therefore, there would be no impacts on such resources and no further evaluation of the environmental consequences of the Proposed Plan and alternatives on agricultural resources is provided in this PEIR. Table 3.0-1 presents a summary of the key comments received during the NOP public comment period and references the sections of the PEIR that address the comments.

TABLE 3.0-1. SUMMARY OF KEY NOTICE OF PREPARATION COMMENTS

Commenter	Key Issues	PEIR Sections Where Addressed
California Department of Transportation	• Provide a map depicting the locations of the proposed projects • Traffic analysis should include routes SR-1, SR-47, SR-103, and I-710 • Request to mitigate direct and cumulative impacts to a level of no significance • Caltrans permit required for use of oversized transport vehicles on state highways • Minimize impacts on stormwater runoff and incorporate green design elements into project designs	Chapter 1, Introduction and Project Description; Section 3.13, Ground Transportation; Section 3.7, Hydrology and Water Quality
Gabrieleno Band of Mission Indians – Kizh Nation	• Request that Native Monitors are present during all ground-disturbing activities	Section 3.4, Historical and Tribal Cultural Resources
Native American Heritage Commission	• Compliance with Assembly Bill 52 and Senate Bill 18 • Early consultation with California Native Tribes that are culturally affiliated with the project area • Recommendations for conducting cultural resources assessments	Section 3.4, Historical and Tribal Cultural Resources
Southern California Association of Governments	• Request to send environmental documentation for review	N/A
South Coast Air Quality Management District	• Request to send environmental documentation for review, including all appendices or technical documents related to air quality, health risk, and greenhouse gas analyses	Section 3.2, Air Quality and Health Risk; Chapter 1, Introduction and Project Description

TABLE 3.0-1. SUMMARY OF KEY NOTICE OF PREPARATION COMMENTS		
Commenter	**Key Issues**	**PEIR Sections Where Addressed**
	• Recommendations for the air quality analysis • Recommendations of sources to use to assist the Port with identifying feasible mitigation measures • Identify alternatives to avoid or minimize significant adverse air quality impacts • Identify SCAQMD as a responsible agency if a permit is required	
Tesoro SoCal Pipeline Company LLC	• The PEIR should address how the Proposed Plan will affect existing utilities and pipelines within and adjacent to the Harbor District • The PEIR should analyze the direct and cumulative environmental impacts from removal and relocation of pipelines • Evaluate the feasibility of mitigation measures that would reduce potentially significant environmental impacts of pipeline removal and relocation • The PEIR should evaluate an alternative that avoids widespread removal and relocation of utility lines	Section 3.15, Utilities, Service Systems, and Energy Conservation; Chapter 1, Introduction and Project Description
Mario Amaro	• The PEIR should address cultural resources	Section 3.4, Historical and Tribal Cultural Resources
Tom Williams	• Request clarification of CEQA documentation and project number	Chapter 1, Introduction and Project Description
Key: Caltrans = California Department of Transportation; CEQA = California Environmental Quality Act; Harbor District = Long Beach Harbor District; I = Interstate; N/A = Not Applicable; PEIR = Program Environmental Impact Report; Port = Port of Long Beach; SCAQMD = South Coast Air Quality Management District; SR = State Route		

3.1 AESTHETICS/VISUAL RESOURCES

This section describes the potential impacts on aesthetics/visual resources that could result from implementation of the Proposed Plan and its alternatives.

Visual Resources

Aesthetic and visual resources generally are defined as the natural and built features of the landscape visible from public views that contribute to an area's visual quality. The evaluation of visual resources in the context of environmental analysis typically addresses the contrast between visible landscape elements. Collectively, these elements comprise the aesthetic environment or landscape character. The landscape character is compared to the Proposed Plan's visual qualities to determine the compatibility or contrast resulting from the buildout of the proposed action.

Views are defined as visual access to, or visibility of, a natural or built landscape feature from an observer viewpoint. Views may be focal (restricted in scope to a particular object) or panoramic (encompassing a large geographic area with a wide or deep [i.e., distant] field of view). Focal views can be from a number of observer viewpoints compared to the object being viewed: from a lower elevation, at the same level, or from an elevated vantage. Panoramic views are usually associated with an elevated observer viewpoint. Scenic views or vistas are panoramic public views that include natural features such as views of the ocean, unusual topographic features, or unique urban or historic structures.

Views are characterized by their distance from the viewer: foreground, middle ground, or background. Foreground views are those immediately perceived by the viewer and include objects at close range that tend to dominate the view. Middle ground views occupy the center of the view and generally include objects that are the center of a viewer's attention (if they are sufficiently large or visually contrasting with adjacent visual features). Background views include distant objects and other objects that form the horizon. Objects perceived in the background view eventually diminish in their importance with increasing distance. In the context of the background, the skyline can be an important visual context because objects above this point are highlighted against the typically blue background.

Viewshed

A viewshed, or visible area, is the total range of views experienced from an observer's viewpoint. A viewshed is defined by landscape features that define or obstruct sightlines, or the line of sight between an observer and a viewed object. Views may be partially or entirely obstructed by topography, buildings and structures, and/or vegetation. The closer an intervening obstruction is to the observer, the more it will potentially obstruct the viewshed. Accordingly, a small physical obstruction in the foreground of a view will potentially have a more substantial effect on the viewshed compared to a relatively large obstruction perceived in the middle ground or background.

Viewer Sensitivity

Viewer sensitivity is also part of the evaluation of potential aesthetic/visual resource impacts. Sensitive viewers generally are defined as those persons for whom a substantial change from existing visual aesthetic conditions would be readily perceived and would generate a subjective response, either positive or negative. Sensitive viewers typically are also considered as having a prolonged exposure to the visual or aesthetic change. Therefore, for example, residents having a permanent view of the affected area generally are considered to have a high level of sensitivity, whereas passing motorists, who would have more transitory views, generally would be considered to have a low level of sensitivity.

Viewer sensitivity is not always related to obvious aesthetic appeal. The public may confer visual significance on landscape components and areas that would otherwise appear unexceptional (FHWA 2015). For example, unexceptional landscapes along tertiary roads may be particularly important to local residents as undesignated open spaces. Other areas may have regional or national cultural significance, but may not be especially scenic. Nonetheless, their visual character may be considered important to their cultural value (FHWA 2015). Consequently, the approach for describing the existing conditions for the visual impact analysis does not directly evaluate aesthetic appeal. Instead, the importance of the affected landscape is inferred from the indicators of sensitivity, which may or may not be a function of the aesthetic qualities of the environment.

The degree of viewer sensitivity is considered to occur at one of the following four levels.

- **High Sensitivity:** High sensitivity suggests that the majority of the public is likely to react strongly to a threat to visual quality. A highly concerned public is assumed to be more aware of any given level of adverse change and less tolerant than a public that has little concern. A small modification of the existing landscapes may be visually distracting to a highly sensitive public and represent a substantial reduction in visual quality. Additionally, high visual sensitivity is assumed to exist where landscapes, particular views, or the visual characteristics of certain features are protected through policies, goals, objectives, and design controls in public planning programs.
- **Moderate Sensitivity:** Moderate sensitivity suggests that the public would probably voice concern over substantial visual impacts. Often the affected views are secondary in importance or are similar to others commonly available to the public.
- **Low Sensitivity:** Low sensitivity is considered to prevail where the public is expected to have little concern about adverse changes in the landscape or only a small minority may be expected to voice such concern, even where the adverse change is substantial in intensity and duration.
- **No Sensitivity:** The views are not public or there are no indications of public concern over, or interest in, scenic/visual resource impacts on the affected area.

Sensitive Viewer Areas

Sensitive viewer areas generally are defined as those areas where a substantial change from existing visual aesthetic conditions would be readily perceived and generate a subjective positive or negative response. For example, an area where residents would have a permanent view of the affected area generally is considered to have a higher level of sensitivity than areas where passing motorists would have more transitory views.

Light and Glare

Light

Certain types of lighting can cause negative visual impacts when experienced during the night. Evaluation of potential night lighting effects includes assessing ambient lighting conditions within a proposed project area and the extent to which surrounding sensitive receptors would be exposed to these light intensities. Sensitive receptors include residents, public recreational facility users, and occupants of institutional facilities, such as health care facilities, who are present during evening and weekend hours. Night lighting may be generated from point sources (e.g., focused points of origin representing unshielded light sources) or from reflected light.

The effects of proposed night lighting conditions are contextual and depend on the existing lighting environment, light intensity, and proximity of the proposed light sources to sensitive viewers. Adverse lighting impacts can also occur when project-related lighting is sufficiently visually prominent to affect the character of the existing night sky. The existing community or neighborhood character also could be altered if the proposed night lighting would substantially increase the level of illumination perceived by a sensitive receptor, or if it would substantially increase existing ambient light levels in an area through unshielded spillover glare or excessive illumination of adjacent surfaces.

Glare

Glare is a high level of contrast in light level between the object being looked at (task or target) and a light source. Glare can be a dazzling light produced either directly from a light source or indirectly as a reflection off building materials. Glare can cause a negative impact during the day or night. Daytime glare typically is caused by the reflection of sunlight from highly reflective surfaces. Reflective surfaces generally are associated with buildings constructed with broad expanses of highly polished or smooth surfaces (e.g., glass or metal) or broad, light-colored paving surfaces such as concrete.

Nighttime glare can include direct, intense, focused light as well as reflected light. Glare can be caused by mobile, transitory sources such as automobile headlights or by intense stationary sources, including area or security lighting. The effect, if the glare is sufficiently prominent, can cause undesirable or hazardous conditions for drivers.

3.1.1 Environmental Setting

3.1.1.1 Area of Influence

The area of influence for consideration of the Proposed Plan’s effects on aesthetics and visual resources is that portion of the Long Beach Harbor District (Harbor District) that can be observed from public view corridors. Public views include those experienced while stationary (i.e., observed from recreational facilities such as parks, open spaces, amphitheaters, and scenic vista points), or while mobile (i.e., traveling on public roads by car, bus, or bicycle, or running or walking on sidewalks or paths).

3.1.1.2 Setting

Visual Character/Quality

The Port is a highly industrial setting consisting of artificial landforms and waterways, including breakwaters, dredged channels, open-water slips that have been filled in to create berths and terminals, and infrastructure required to support Port operations. As a result, the Harbor District represents an expansive and visually distinct industrial landscape. Major features of this landscape include piers, warehouses, stacks of shipping containers, processing plants, buildings, parking lots, and infrastructure including bridges, rail lines, oil derricks, pipelines, and gantry cranes.

The appearance of most Port facilities is functional in nature, characterized by exposed infrastructure, open storage, the use of unfinished, industrial building materials, and the use of safety-conscious, highly visible colors such as orange, red, or bright green for mobile equipment including cranes, containers, and railcars. In addition, extensive lighting on terminals and roadways for safety and visibility is required to support Port operations.

The Port's container and non-container terminals are occupied by container backlands extending from the wharves to the adjacent roadways. The backlands are used for temporary storage of offloaded (import) and loaded (export) cargo. Containers and break bulk cargo (i.e., cargo stored on pallets or in crates, boxes, and bales) are stacked at these locations and/or remain on chassis. Although average stacks are comprised of up to four containers with a total peak height of approximately 40 feet, the visual massing associated with containers and break bulk that remain on chassis is generally compatible with the height of the surrounding support structures at Port terminals. Ancillary terminal structures include a variety of structures such as administration buildings, warehouses, and maintenance buildings. Shoreside gantry cranes and booms adjacent to the berths extend up to approximately 350 feet high and are dominant visual landmarks within the Harbor District. Berthed vessels are also visible from surrounding viewing locations within and adjacent to the Harbor District.

Recent Port development has focused on consolidating berths and terminal backlands to accommodate larger cargo vessels and increased cargo throughput. As a result, longer berths and cranes with longer booms have been constructed that affect the visual character of the Port by increasing the scale of facilities visible throughout the area.

Several activities occur within the Harbor District to support the Port's maritime industry. Pier A supports container terminal operations at Berths A88-A96 and consists of an approximately 3,600-foot wharf length and a 200-acre terminal. Pier B supports non-container terminal operations, including liquid bulk (petroleum), dry bulk (gypsum), roll on/roll off (Ro/Ro) services (automobiles and light trucks), and Pacific Harbor Line on-dock rail support facilities. The northern portion of Pier B consists of older industrial buildings, vacant land, and street and highway rights-of-way. Pier C supports the Port's domestic cargo container terminal and has different operational characteristics compared to the other internal container terminals in the Harbor District (e.g., small ships, no on-dock terminal rail, and use of portions of the terminal for staging automobiles and non-container cargo). Pier D supports a dry bulk (cement) terminal and warehousing operation.

Piers D/E/F are part of the Middle Harbor Redevelopment Program, which will be known as the Long Beach Container Terminal (LBCT) when completed, and will consist of a 300-acre terminal and a wharf length of 4,250 feet. The Middle Harbor program is currently rehabilitating and modernizing aging infrastructure at these piers. Pier F also supports break bulk (automobiles and heavy equipment), liquid bulk (crude oil), and dry bulk (cement, salt, and petroleum coke) terminals. Pier G supports a container terminal that consists of 260 acres and three wharves in excess of 3,700 feet.

Pier S includes oil and gas production, a vessel repair and impound facility at Berth 100, and the Vopak Long Beach Terminal adjacent to Berth 101. There are two private terminals located on Pier S: the Plains West Coast Terminal used for the storage of petroleum products (non-cargo) and the Long Beach Generation Peaker plant facility used to support the Southern California Edison (SCE) power grid. The Southeast Resource Recovery Facility (SERRF), a "trash to energy" facility that is operated by the City of Long Beach (City), is also located on Pier S.

Pier T supports a container terminal that consists of a 385-acre terminal and 5,000-foot berth. Non-container terminals/facilities are also located on Pier T, including a liquid bulk (non-crude) facility, a scrap metal export facility, and a lumber terminal.

Pier H supports the Port's primary visitor-serving area for recreational and commercial users. Pier H provides visitor-serving commercial and recreational uses such as the Queen Mary, Carnival Cruise Terminal, hotels, and restaurants. Oil production activities also operate on Pier H.

Harbor District Visibility in Sensitive Viewing Areas

The Harbor District is visible from several surrounding public viewpoints in the vicinity, including from the City across Queensway Bay and within the Port. Important public viewpoints that encompass visual characteristics of the Harbor District include views from downtown Long Beach, along the boundary of Queensway Bay and shoreline, and along Harbor Scenic Drive (Figure 3.1-1).

Downtown Long Beach: Visitors and residents looking south and west from downtown Long Beach experience background views of industrial Port facilities within the Harbor District. Queensway Bay is prominent in the middle ground. The dominant views from this vista point are the open waters of Queensway Bay.

Queensway Bay/Shoreline: From Queensway Bay and the shoreline, foreground vistas of Queensway Bay are prominent. Middle ground and distant vistas of the Harbor District are visible from this vantage point.

Harbor Scenic Drive: Motorists traveling on Harbor Scenic Drive south of Anaheim Street experience foreground views of Port infrastructure and ancillary terminal structures within the Harbor District. Queensway Bay is visible in the middle ground and background from this vantage point.

In summary, public views that include the Harbor District are comprised primarily of more distant views in which Queensway Bay is in the middle ground and the intensive industrial Port complex is in the background, and closer views from locations adjacent to the Port boundary. For distant views, the contrast between the open waters of Queensway Bay and the highly industrialized inner Port complex in the background is the dominant visual characteristic. The combination of these features enhances the visual quality of the Harbor District. However, as the Harbor District represents an industrial Port complex, the importance of on-site visual resources is low. Given the highly industrialized nature of the Harbor District and surrounding land uses, the Port is not a component of any scenic vista from any important public roadway or viewing spot for sensitive receptors.

Light and Glare

The Port includes many facilities that are illuminated at night (Figure 3.1-2). The Port of Long Beach is contiguous with the Port of Los Angeles to the west, which has similarly illuminated facilities. The POLB is a landlord port with oversight of its tenants' facilities. As such, the Port may develop a facility's lighting program and other sight improvements to meet tenant requirements or it may review, modify, and approve terminal designs and lighting programs submitted by tenants. Lighting programs, including selection of fixtures, layout design, and hours of illuminated operations are unique to each Port facility and vary according to the type of operation (e.g., container or liquid bulk terminals) and on-site facilities (e.g., buildings, backlands, tank farms, and cranes). Terminals operate on independent schedules, with increased day and nighttime operations when a vessel is at berth (i.e., loading or unloading) or during seasonal periods of high demand. Additional lighting is located along public roadways adjacent to and throughout the Harbor District, including major highways and truck routes.

Figure 3.1-1. Public Viewpoints Surrounding the Harbor District

Figure 3.1-2. Day and Nighttime Views of the Harbor District

The overall lighting environment within the Harbor District includes two types of light sources: 1) fixed (stationary) light sources associated with terminals, including crane lights, parking lot and backland lighting fixtures, building security lighting, and terminal access road lighting; and 2) mobile light sources associated with truck, rail, and vessel traffic, cargo-moving equipment, and other vehicles on interior Port roadways.

Port operations generate varying levels of light and glare within and adjacent to the Harbor District. Existing gantry cranes along terminal wharves are generally illuminated at night if nighttime stevedoring is occurring. Crane lights may also be on during daylight hours when overcast weather reduces available natural light or if on-dock operations require extra illumination. Several pole-mounted floodlights within the Harbor District illuminate backland container storage areas. Ancillary terminal infrastructure and support yards, including warehouses, maintenance buildings, and parking areas, are illuminated for safety and inspection purposes. Mobile light sources within the Harbor District are associated with lights on trains moving along intermodal railyard tracks, on-site trucks and cars, berthed vessels, and yard equipment.

3.1.2 Regulatory Setting

The only regulations that apply to aesthetics and visual resources are state and local regulations. There are no applicable federal regulations.

3.1.2.1 State Regulations

California Department of Transportation Scenic Highways

California’s Scenic Highway Program was created to preserve and protect scenic highway corridors from change that would diminish the aesthetic value of lands adjacent to highways (Streets and Highways Code, Section 260 et seq.). There are no state-designated scenic highways within 5 miles of the Harbor District; the nearest scenic highway is located approximately 23 miles northeast of the Port, at State Route (SR)-91 east of SR-55 in the City of Anaheim.

3.1.2.2 Local Regulations

Adopted local and regional plans and policies within the City of Long Beach General Plan provide the primary regulatory guidance for maintaining aesthetic resources in the Harbor District. Areas considered to have the greatest visual sensitivity are typically located along scenic highways or in other natural areas. The primary areas of concern generally result from changes in prominent topographic features, changes in the character of an area with high visual sensitivity, removal of important vegetation, or obstructing public views of a visually sensitive landscape.

Port of Long Beach Port Master Plan

The 1990 Port Master Plan (PMP) as amended includes goals that address preserving and enhancing visual quality within the Harbor District. An underlying PMP planning principle is to maintain Queensway Bay as a buffer between the highly industrialized inner San Pedro Bay Port Complex and downtown waterfront recreational areas. The 1990 PMP as amended focuses on minimizing disruptions of significant view corridors, which includes creating and maintaining scenic views of the Queen Mary and promoting visual connectivity to downtown and the greater Long Beach area.

City of Long Beach General Plan Scenic Routes Element

The City of Long Beach General Plan Scenic Routes Element contains goals and objectives relevant to visual resources that guide private development, government actions, and programs within the City. Additionally, the Scenic Routes Element contains policies to protect the City's scenic resources. These goals, objectives, and policies are intended to serve as long-term principles and policy statements.

3.1.3 Impacts and Mitigation Measures

3.1.3.1 Significance Criteria

Criteria for determining the significance of impacts on aesthetics/visual resources are based on the 2019 CEQA Guidelines, Appendix G (Environmental Checklist), and have been modified as necessary to reflect Port operations within a highly urbanized, industrial complex. Impacts during construction or operation would be considered significant if the Proposed Plan would:

- **AES-1:** Have a substantial adverse effect on a scenic vista;
- **AES-2:** Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway;
- **AES-3:** Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area; and/or
- **AES-4:** Conflict with applicable zoning and other regulations governing scenic quality.

3.1.3.2 Assessment Methodology

The analysis of potential aesthetic effects of the Proposed Plan was conducted using the elements of the Federal Highway Administration (FHWA) and Bureau of Land Management (BLM) guidelines to determine the Proposed Plan's impacts, in compliance with the CEQA Guidelines Appendix G (Environmental Checklist). The Port includes linear and nonlinear features. Accordingly, the Port's guidelines have incorporated elements of the FHWA's and BLM's guidelines.

The 2015 FHWA guidelines require that a project be assessed as to whether it affects the overall aesthetic character of a project area, as well as the physical compatibility with the site's existing visual quality (FHWA 2015). In order to objectively assess a project's impact on visual quality, the FHWA's framework requires characterization of the existing level of visual quality associated with the project setting in terms of the following variables (i.e., evaluative criteria):

- **Compatibility of the Impact:** "Defined as the ability of [the] environment to absorb the proposed project as a result of the project and the environment having compatible visual characters" (FHWA 2015). A project is characterized as either compatible or incompatible with the environment.
- **Sensitivity of the Impact:** "Defined by the ability of viewers to see and care about a project's impacts" (FHWA 2015). A viewer's sensitivity to an impact is characterized as either sensitive or insensitive.
- **Degree of the Impact:** "Defined as either a beneficial, adverse or neutral change to visual quality" (FHWA 2015). If the project results in better views or improves the experience of the visual quality of the surroundings, then the impacts would be considered beneficial. If,

however, the project results in a degradation of visual resources or obstructs or alters the view, then the impact would be adverse.

When all three of these criteria are rated highly in a project setting, visual quality is accordingly considered to be high. However, a landscape setting that has low visual quality may still be sensitive to project-related changes.

The BLM methodology assumes that the degree to which a project affects the visual quality of a landscape depends on the degree of contrast created between a project and the existing landscape. The basic design elements of the BLM guidelines include form, line, color, and texture. BLM's general guidance for assessing contrast is defined as follows (BLM 1978):

- **Form:** Contrast in form results from changes in the shape and mass of landforms or structures. The degree of change depends on how dissimilar the introduced forms are to those that remain in the landscape.
- **Line:** Contrasts in line results from changes in edge types and interruption or introduction of edges, bands, and silhouette lines. New lines may differ in their elements (i.e., boldness, complexity, and orientation) from existing lines.
- **Color:** Changes in value and hue tend to create the greatest contrast. Other factors, such as chroma (i.e., color saturation or brilliance), reflectivity, and color temperature (e.g., red is warm, blue is cold), also increase the contrast.
- **Texture:** Noticeable contrast in texture usually stems from differences in the grain, density, and internal contrast. Other factors, such as irregularity and directional patterns of texture, may affect the rating.

3.1.3.3 Proposed Plan

Impact AES-1: Construction and operations would not have a substantial adverse effect on a scenic vista.

Impact Determination

Construction

Scenic vistas are public views of natural or unique urban or historic features from a vantage point or corridor. There are no scenic vistas of the Port because it represents an industrial Port complex and the importance of on-site visual resources is low. Furthermore, Proposed Plan projects and land use changes would be compatible with the existing industrial visual character of the Harbor District. Given the highly industrialized nature of the Harbor District and surrounding land uses, the Port is not a component of any scenic vista from any important public roadway or viewing spot for sensitive receptors.

Construction activities associated with the Administrative Building Site Support Yard (Expansion), Fourth Track at Ocean Boulevard, Ocean Boulevard Bicycle Gap Closure, Pier D Street Realignment, Pier J Terminal Redevelopment, and land use changes would occur within sensitive public views from downtown Long Beach, Queensway Bay and adjacent shoreline, and Harbor Scenic Drive (see Figure 1.8-2). Construction equipment required to realign and widen Pier D Street would be visually compatible with existing industrial activity on Pier D and surrounding Port areas (i.e., dry bulk terminal and warehousing operations). Similarly, construction of a fourth track and relocation of an existing roadway (i.e., Harbor Scenic Drive) associated with the Fourth Track at Ocean Boulevard and demolition or construction of infrastructure (e.g., buildings or trailers, utility infrastructure, gates, or other support structures) within the expanded Administrative

Building Site Support Yard would be compatible with existing industrial activity on Pier G (e.g., container and dry bulk terminal operations). The scale and type of construction equipment required to construct the Ocean Boulevard Bicycle Gap Closure Class I bike path along Ocean Boulevard across the Los Angeles River would be visually compatible with the existing transportation network and not introduce visual elements that would degrade the quality of existing views. Construction associated with these projects and land use changes would involve construction equipment that could be visible from nearby viewpoints. However, these effects would be temporary and, therefore, would not result in substantial changes in the visual quality of the project sites or surrounding areas. In addition, construction activities associated with the Proposed Plan projects and land use changes would blend with the existing industrial Port setting.

Dredging and filling the 44-acre south slip and 22-acre triangle, cutting a 9-acre notch, and removing 14 acres at the tip of Pier F to widen the entrance to the Southeast Basin associated with the Pier J Terminal Redevelopment would require the use of dredges and support equipment. Fill material also would be imported to construct a wharf extension (9-acre extension fill). Dredging vessels and barges would be active within San Pedro Bay and would be visually compatible with existing vessel activity within the Southeast Basin and Outer Harbor channels. Landside construction activities associated with demolition of existing wharf structures, backland areas, and existing facilities, and subsequent construction of new wharf structures, an intermodal yard and rail bridge, and support infrastructure would be compatible with existing Port industrial activities associated with modernizing Port infrastructure to accommodate cargo demand forecasts and changes in the global shipping industry. Additionally, demolition of existing infrastructure (buildings, wharves, and utilities) within the Pier F cut area would be visually compatible with Pier F activities, including container, break bulk (automobiles and heavy equipment), liquid bulk (crude oil), and dry bulk (cement, salt, and petroleum coke) terminal operations. Dredge and fill activities within the Southeast Basin and Outer Harbor and landside construction activities associated with the Pier J Terminal Redevelopment would occur within public views from Harbor Scenic Drive. Although construction equipment/activities would be potentially visible from Harbor Scenic Drive, these activities would be temporary and would not substantially contrast with the existing visual quality of the project area. Due to intervening Port development, construction within the Southeast Basin, Outer Harbor, Pier J, and Pier F would not be visible from any public viewpoints from downtown Long Beach and Queensway Bay.

Construction activities associated with the Protective Boat Basin (Berth F202), Pier S Mixed Use Development, Pier S Shoreline Enhancement, Pier T Improvements, and Pier W Terminal Development would not be discernable from sensitive public viewpoints from downtown Long Beach, along Queensway Bay and adjacent shoreline, and along Harbor Scenic Drive due to the distance of these viewpoints from these project areas and the intervening Port infrastructure.

Construction activities would not be required to convert the existing temporary Pier B chassis support yard to a permanent facility. Therefore, this project would not have a substantial adverse effect on a scenic resource during construction.

The Outer Harbor Sediment Placement Ecosystem Restoration (OHSPER) site is located offshore within the Outer Harbor. Implementation of the OHSPER project would not require construction as the facility is already operable in its present configuration. Therefore, there is no risk that the OHSPER project would involve construction activities that would have a substantial adverse effect on a scenic vista or cause significant environmental effects.

Overall, construction of the Proposed Plan projects would be compatible with the existing visual character of the natural, cultural, and project environment, would not substantially change the sensitivities of viewers, and would have a neutral degree of impact to visual quality of the affected area.

Operations

Terminal operations at Piers J, S, T, and W and land use changes would include the use of gantry cranes to load and unload cargo between vessels and the terminals. Yard tractors would transport the cargo to and from the storage areas within the terminals, and to and from railcars at the intermodal railyards. Offloaded (import) cargo would either be stored temporarily in terminal storage yards or immediately shipped out of the terminals via truck or rail. Loaded (export) cargo would be imported to the terminals by truck or rail; export cargo shipped via rail would either arrive directly at the intermodal railyards or would arrive at another local railyard and then be trucked to the terminal gates for receiving. Due to intervening Port infrastructure, on-site operations at Piers S, T, and W would not be visible from any public viewpoints. However, off-site trucking operations would be potentially visible from surrounding public viewpoints. Although terminal operations would increase the number of trucks serving these terminals, the trucks would use public roadways that currently handle this type of activity.

More distant public views of the Pier J container terminal, composed of expansive middle ground views of the Queensway Bay and the highly industrialized inner Port complex in the background, would not be obstructed by development of the Pier J Terminal Redevelopment project. The proposed container terminal would appear in the far background of these views, relatively subordinate to surrounding existing Port facilities. The tallest industrial infrastructure would be the additional gantry cranes. These would be visible in the background of the Port complex, but would not be substantially higher or more massive than comparable facilities, including existing gantry cranes and booms.

Closer views of the Pier J 212-acre redeveloped container terminal from adjacent roadways, including Harbor Scenic Drive, would be affected by additional container loading/offloading equipment, container stacks and chassis storage, rail infrastructure improvements (i.e., 52-acre intermodal yard), and the transitory presence of large, modern container cargo vessels. This additional Port infrastructure and container handling activity would increase the visual mass and bulk observed in the foreground and middle ground of these views. However, the overall change would be perceived as an intensification consistent with existing industrial Port activity. Existing Port infrastructure would still be visible in the background, such that proposed container terminal support structures would not contrast with the intensive industrial visual character at the site. Therefore, redevelopment of the terminal would be a visually compatible intensification of the site’s existing industrial character.

Operations and terminal improvements associated with the Pier S Mixed Use Development, Pier T Improvements, Pier W Terminal Development projects, and land use changes would not be discernable from sensitive public viewpoints from downtown Long Beach, Queensway Bay and adjacent shoreline, and Harbor Scenic Drive due to the distance of these viewpoints from these project areas and intervening Port infrastructure.

Operation of the Administrative Building Site Support Yard (Expansion), Protective Boat Basin (Berth F202), Fourth Track at Ocean Boulevard, Ocean Boulevard Bicycle Gap Closure, Pier D Street Realignment, and land use changes would involve the expansion of similar activities that currently occur at these sites. The existing Administrative Building Site Support Yard would be expanded to accommodate support yard operations (chassis, empties, or peel-off) on an additional 13 acres. Operation of the extended multi-use dock at Berth F202 on the Main Channel for Joint Command and Control Center (JCCC) small craft would involve similar activities currently required to support Jacobsen Pilots (provides ship piloting services to and from terminals) and the fireboat docks at Pier F. Operations associated with the Fourth Track at Ocean Boulevard and Harbor Scenic Drive would be the same as existing operations associated with the three tracks at this location. Recreational use of the Ocean Boulevard Bicycle Gap Closure Class I bike path, which would connect the Mark Bixby Bicycle Path to the City's bicycle network, would be similar to surrounding recreational activities on the Mark Bixby Bicycle Path and Los Angeles bike path. Vehicular activities on the Pier D Street Realignment would be consistent with existing roadway operations. Accordingly, operations associated with these Proposed Plan projects would result in an expansion of use within these industrial areas, but no change to the visual character of the sites would occur.

Operations associated with the Pier B Street Support Yard and Pier S Shoreline Enhancement would be the same as existing operations and therefore would not have an adverse effect on a scenic vista.

OHSPER operations associated with placing contaminated sediment in the Outer Harbor would include the use of dredges, scows, and tugboats and be conducted in a similar manner as sediment placed in the existing Western Anchorage Sediment Storage Site (WASSS). Proposed operations would not be discernable from sensitive public viewpoints from downtown Long Beach, Queensway Bay and adjacent shoreline, and Harbor Scenic Drive due to the distance of these viewpoints from the Outer Harbor and intervening Port infrastructure. Furthermore, the use of dredges, scows, and tugboats during operations would be visually compatible with shipping vessels and other watercraft that regularly transit the harbor in the immediate vicinity of the OHSPER site. Therefore, this project would not have a substantial adverse effect on a scenic vista or cause significant environmental effects.

Overall, operations of the Proposed Plan projects would be compatible with the existing visual character of the natural, cultural, and project environment, would not substantially change the sensitivities of viewers, and would have a neutral degree of impact to visual quality of the affected area. As construction and operations would not have a substantial adverse effect on a scenic vista, no mitigation is required. Impacts would be less than significant.

Impact AES-2: Construction and operations would not substantially damage scenic resources within a state scenic highway.

Impact Determination

The Harbor District is not located in any scenic vista that can be viewed from a state scenic route identified in the City of Long Beach General Plan Scenic Routes Element or the California Department of Transportation (Caltrans) Scenic Highway Program (Caltrans 2016). In addition, there are no designated state scenic highways within the Port or the City. The nearest state-designated state scenic highway is SR-91 beginning at SR-55 to east of the Anaheim city limit, which is more than 20 miles to the northeast of the Harbor District (Caltrans 2016). The nearest eligible state scenic highway is a segment of SR-1, located approximately 4 miles northwest of the Harbor District that follows the coastline through Orange County into Los Angeles County and terminates at SR-19 in the City. The Harbor District is not visible from either of these state scenic highways due to distance and intervening buildings and topography. Therefore, construction and operations associated with the Proposed Plan projects and land use changes would not damage scenic resources within a designated scenic route or highway.

The OHSPER site is located offshore within the Outer Harbor, and is not located near any designated scenic routes or highways. Implementation of the OHSPER project and modifying the existing use of the WASSS to allow placement of contaminated sediment in the Outer Harbor would not require construction activities. In addition, OHSPER operations associated with placing contaminated sediment in the Outer Harbor would not occur within any scenic vista that would be visible from a designated scenic route or highway. Therefore, construction and operations would not damage scenic resources within a designated scenic route or highway or cause significant environmental effects.

As construction and operations would not substantially damage scenic resources within a state scenic highway, no mitigation is required. Impacts would be less than significant.

Impact AES-3: Construction and operations would not create a new source of substantial light or glare that would adversely affect day or nighttime views in the area.

<u>Impact Determination</u>

Construction

Construction of the Proposed Plan projects (i.e., Administrative Building Site Support Yard [Expansion], Fourth Track at Ocean Boulevard, Ocean Boulevard Bicycle Gap Closure, Pier B Street Support Yard, Pier D Street Realignment, Protective Boat Basin [Berth F202], Pier S Mixed Use Development, Pier S Shoreline Enhancement, Pier T Improvements, Pier J Terminal Redevelopment, and Pier W Terminal Development) and land use changes would generally not occur during the nighttime per City of Long Beach Municipal Code (LBMC) requirements. Per LBMC Section 8.80.202, construction activities are restricted to occur only between 7:00 a.m. and 7:00 p.m. on weekdays and federal holidays, and between 9:00 a.m. and 6:00 p.m. on Saturdays; no construction activities shall occur on Sundays. The majority of construction activities associated with the Proposed Plan projects would occur during daylight hours and not require additional lighting sources. However, construction activities occurring during winter months could require the use of additional night lighting or equipment headlights to illuminate work areas. In general, construction equipment (e.g., trucks. excavators, bulldozers, vessels, and barges) would not have reflective surfaces capable of increasing sunlight glare. The intermittent use of limited lighting sources during construction activities within an existing highly illuminated Port complex would not create new sources of substantial light or glare that would adversely affect day or nighttime views in the Harbor District.

Implementation of the OHSPER project would not require construction as the facility is already operable in its present configuration. Therefore, the OHSPER project would not involve construction activities that would create a new source of substantial light or glare that would adversely affect day or nighttime views in the area or cause significant environmental effects.

Operations

Several of the Proposed Plan projects would include new or reconfiguration of existing lighting infrastructure (e.g., Administrative Building Site Support Yard [Expansion], Pier D Street Realignment, Protective Boat Basin [Berth F202], Pier S Mixed Use Development, Pier T Improvements, Pier J Terminal Redevelopment, Pier W Terminal Development). Proposed container and non-container terminal developments would require lighting on ship unloading facilities, including navigation lighting on the berths/docks; lighting on cargo loading/offloading equipment, truck loading facilities, and cargo storage facilities; and safety lighting for terminal and support yard buildings and facilities. Additional lighting infrastructure or modifications to existing lighting would also be required to support operations and maintenance activities associated with the Administrative Building Site Support Yard (Expansion), Pier D Street Realignment, Protective Boat Basin (Berth F202) projects, and land use changes. Consequently, the number of lighting fixtures within the Harbor District would be increased as a result of the need for illumination of proposed structures and exterior areas and for nighttime maintenance or operations associated with these Proposed Plan projects.

Although the number of lighting fixtures would be increased within the Harbor District, replacing older, traditional lighting fixtures with improved controlled fixtures (e.g., low energy fixtures regulated by timers and light spillover reduction features) would likely diminish the overall level of night glare affecting the surrounding environment off site. A quantitative assessment of this effect is not feasible at this time until the precise number of new lighting fixtures, their illumination, and location are determined for the Proposed Plan projects. It is reasonable to expect, however, that the effect of additional modern, regulated light fixtures throughout the Harbor District would be less than substantial when compared to existing conditions.

All new buildings would be subject to the provisions stipulated in the Port's Sustainable Design Guidelines and City's Green Building Policy that require implementation of Leadership in Energy and Environmental Design (LEED) design standards. These "green building" guidelines encourage the use of solar energy, such as using photovoltaic cells. As photovoltaic cells are intended to collect solar energy rather than reflect it, their surfaces would not create additional daytime on-site glare. Additionally, they generally are placed on the roofs of facilities such that they would not be visible from public view corridors. Consequently, no increase in daytime glare would be perceived from public view corridors. Furthermore, extensive use of glass or brushed metal surfaces on proposed industrial facilities capable of reflecting substantial daytime glare would not occur. Therefore, any increase in potential daytime glare resulting from increased massing of terminal structures and containers within the Harbor District would not be substantial.

New lighting infrastructure would not be required to support the Pier S Shoreline Enhancement project.

OHSPER operations associated with placing contaminated sediment in the Outer Harbor would include the use of dredges, scows, and tugboats. However, the vessels and in-water equipment that would be used to support OHSPER operations are already operating within the Port and within the immediate vicinity of the OHSPER site. As such, while ships with lighting may occur within the OHSPER site to deposit sediments, no additional nighttime lighting or sources of glare would be introduced as a result of the project. Therefore, project operations would not create a new source of substantial light or glare that would adversely affect day or nighttime views in the area or cause significant environmental effects.

As construction and operations would not create a new source of substantial light or glare that would adversely affect day or nighttime views in the area, no mitigation is required. Impacts would be less than significant.

Impact AES-4: Construction and operations would not conflict with applicable zoning and other regulations governing scenic quality.

<u>Impact Determination</u>

Construction and operation of the Proposed Plan projects (i.e., Administrative Building Site Support Yard [Expansion], Fourth Track at Ocean Boulevard, Ocean Boulevard Bicycle Gap Closure, Pier B Street Support Yard, Pier D Street Realignment, Protective Boat Basin [Berth F202], Pier S Mixed Use Development, Pier S Shoreline Enhancement, Pier T Improvements, Pier J Terminal Redevelopment, Pier W Terminal Development) and land use changes would occur on sites zoned as Port Industrial (IP). The IP zone is characterized predominantly by maritime industry and marine resources. Uses in this district are primarily Port-related or water dependent, but may include water-oriented commercial and recreational facilities. There are no regulations that govern scenic resources or quality in the IP zone. No construction or operations would occur within the Queensway Bay Planned Development District (PD-21), which includes specific development standards (e.g., setbacks, heights, and parking and design standards) for areas on Pier H, east of Harbor Scenic Drive, that are zoned for visitor-serving and recreational uses. Therefore, the Proposed Plan would not conflict with applicable zoning and other regulations governing scenic quality.

Implementation of the OHSPER project would not require construction as the facility is already operable in its present configuration. OHSPER operations associated with placing contaminated sediment in the Outer Harbor would occur within the IP zone, which does not include specific regulations pertaining to scenic quality. Therefore, the OHSPER project would not conflict with applicable zoning and other regulations governing scenic quality or cause significant environmental effects.

As construction and operations would not conflict with applicable zoning and other regulations governing scenic quality, no mitigation is required. Impacts would be less than significant.

3.1.3.4 Alternative 1 (No Plan Alternative)

Alternative 1 (No Plan Alternative) considers what would reasonably occur if the Port did not update the 1990 PMP as amended to include updates to the planning districts and allowable land and water use designations within the Harbor District. Alternative 1 includes projects that are 1) consistent with the 1990 PMP as amended, 2) may or may not have been evaluated in a final CEQA document, and/or 3) could be implemented without approval of the Proposed Plan. Alternative 1 includes the following projects: Administrative Building Site Support Yard (Expansion), Fourth Track at Ocean Boulevard, Ocean Boulevard Bicycle Gap Closure, Pier B Street Support Yard, Pier D Street Realignment, Pier S Mixed Use Development, and Pier S Shoreline Enhancement. This alternative also includes the Pier T Echo Support Yard project, which would construct a 17-acre support yard (chassis, empties, or peel-off) that would serve the Pier T container terminal. In addition, use of the WASSS would continue as currently permitted (i.e., placement and reuse of clean sediments).

Impact Determination

Impacts on aesthetics/visual resources from construction and operation of Alternative 1 projects would be similar but less than those identified under the Proposed Plan because the extent of construction activity and new structures and infrastructure would be reduced with elimination of container terminal development on Piers T, W, and J, and the Protective Boat Basin (Berth F202). As with the Proposed Plan, implementation of Alternative 1 would result in less than significant impacts and no mitigation is required. Even though the impacts from both Alternative 1 and the Proposed Plan would be less than significant, from a programmatic perspective, the impacts from Alternative 1 would be comparatively less in magnitude due to the reduced construction and operational activities. Overall, construction and operation of Alternative 1 projects would be compatible with the existing visual character of the natural, cultural, and project environment, would not substantially change the sensitivities of viewers, and would have a neutral degree of impact to visual quality of the affected area.

Under Alternative 1, continued use of the WASSS as currently permitted would result in similar visual quality as the OHSPER project under the Proposed Plan. As impacts would be less than significant, no mitigation is required.

3.1.3.5 Alternative 2 (No Terminal Development)

Alternative 2 (No Terminal Development) is similar to the Proposed Plan and would include updates to the planning districts and allowable land and water use designations in the Harbor

District. However, Alternative 2 would not include terminal development projects at Pier T, Pier W, or Pier J. Alternative 2 would include the following projects: Administrative Building Site Support Yard (Expansion), Protective Boat Basin (Berth F202), OHSPER, Fourth Track at Ocean Boulevard, Ocean Boulevard Bicycle Gap Closure, Pier B Street Support Yard, Pier D Street Realignment, Pier T Echo Support Yard, Pier S Mixed Use Development, Pier S Shoreline Enhancement, and land use changes.

<u>Impact Determination</u>

Impacts on aesthetics/visual resources from construction and operation of Alternative 2 projects and land use changes would be similar but less than those identified under the Proposed Plan because the extent of construction activity and new structures and infrastructure would be reduced with the elimination of container terminal development on Piers T, W, and Pier J. Even though the impacts from both Alternative 2 and the Proposed Plan would be less than significant, from a programmatic perspective, the impacts from Alternative 2 would be comparatively less in magnitude than the Proposed Plan due to the differences in construction and operational activities. Overall, construction and operation of Alternative 2 projects would be compatible with the existing visual character of the natural, cultural, and project environment, would not substantially change the sensitivities of viewers, and would have a neutral degree of impact to visual quality of the affected area. As with the Proposed Plan, implementation of Alternative 2 would result in less than significant impacts and no mitigation is required.

Under Alternative 2, operations associated with the OHSPER project would result in similar visual quality as the OHSPER project under the Proposed Plan. As impacts would be less than significant, no mitigation is required.

3.1.3.6 Alternative 3 (Reduced Terminal Development)

Alternative 3 (Reduced Terminal Development) is similar to the Proposed Plan and would include updates to the planning districts and allowable land and water use designations in the Harbor District. Under Alternative 3, development of the Pier J terminal would be reduced compared to the Pier J Terminal Redevelopment under the Proposed Plan. The Pier J Reduced Development would include dredging and filling the 22-acre triangle, cutting a 9-acre notch, extending the north wharf to the east, and relocating the existing rail line and yard to Pier J South. No development of a new Pier W terminal would occur. Alternative 3 would include the following projects: Administrative Building Site Support Yard (Expansion), Protective Boat Basin (Berth F202), OHSPER, Fourth Track at Ocean Boulevard, Ocean Boulevard Bicycle Gap Closure, Pier B Street Support Yard, Pier D Street Realignment, Pier S Mixed Use Development, Pier S Shoreline Enhancement, Pier T Improvements, Pier J Reduced Development, and land use changes.

<u>Impact Determination</u>

Impacts on aesthetics/visual resources from construction and operation of Alternative 3 projects and land use changes would be similar but less than those identified under the Proposed Plan because the extent of construction activity and new structures and infrastructure would be reduced with the elimination of the Pier W container terminal and reduced development on Pier J. Overall, construction and operation of Alternative 3 projects would be compatible with the existing visual character of the natural, cultural, and project environment, would not substantially change the sensitivities of viewers, and would have a neutral degree of impact to visual quality of the affected area. As with the Proposed Plan, implementation of Alternative 3 would result in less than significant impacts and no mitigation is required.

Under Alternative 3, operations associated with the OHSPER project would result in similar visual quality as the OHSPER project under the Proposed Plan. As impacts would be less than significant, no mitigation is required.

3.1.4 Cumulative Impacts

This section evaluates the potential for the Proposed Plan projects, together with other past, present, and reasonably foreseeable future projects, to make a cumulatively considerable contribution to a significant cumulative impact on aesthetics/visual resources. The region of influence for cumulative impacts on aesthetics/visual resources is the same as the analysis presented in Section 3.1.1.1 (Area of Influence), which includes portions of the Harbor District that can be observed from public view corridors. The significance criteria used for the cumulative analysis are the same as those used for the Proposed Plan in Section 3.1.3.1 (Significance Criteria).

- **AES-1: Have a substantial adverse effect on a scenic vista.**

As illustrated in Table 2.1-1, reasonably foreseeable related projects contributing to cumulative impacts on aesthetics/visual resources are located within the Port of Long Beach and Port of Los Angeles. In this area, the construction of breakwaters, dredging of channels, filling for creation of berths and terminals, and construction of the infrastructure required to support San Pedro Bay Port Complex operations have transformed the original natural setting. The resulting landscape is highly industrial and is characterized by large-scale infrastructure. Cumulative buildout within the San Pedro Bay Port Complex would be visible from numerous public view corridors in adjacent residential communities, and in particular, from roadways, bridges, and overpasses traversing the region. Several of these projects would result in the intensification and/or expansion of industrial maritime activity, including vessel, truck, and rail traffic. Although the increased infrastructure massing and container traffic would be cumulatively significant in terms of size and number of units handled, all of this proposed development would occur within the visual context of a highly industrialized Port complex. The related projects would not likely result in the introduction of development that would be visually incompatible with, and/or in contrast to, existing Port industrial uses. The potential obstruction or degradation of a scenic view is unlikely, given the general compromised character of industrial development within the San Pedro Bay Port Complex. Cumulative impacts on scenic vistas associated with buildout of the reasonably foreseeable related projects would be less than significant.

The Proposed Plan's contribution to this cumulative impact would be negligible because buildout of the Proposed Plan projects and land use changes would not have a substantial adverse effect on a scenic resource during construction or operations. Construction and operation of the Proposed Plan would be compatible with the existing visual character of the natural, cultural, and project environment, would not substantially change the sensitivities of viewers, and would have a neutral degree of impact to visual quality of the affected area. Therefore, the Proposed Plan's contribution to cumulative impacts on aesthetics/visual resources would be less than significant.

- **AES-2: Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway.**

Construction and operation of the reasonably foreseeable related projects could potentially damage scenic resources within a designated scenic route or highway. However, the majority of these projects would occur within the San Pedro Bay Port Complex and are not located within any scenic vista that could be viewed from a designated state scenic highway or route. Therefore, cumulative impacts associated with buildout of the reasonably foreseeable related projects would be less than significant. The Proposed Plan would not contribute to this cumulative impact because all construction and operations associated with Proposed Plan projects and land use changes would not occur within any scenic vista that can be viewed from a designated scenic route or highway identified in the City of Long Beach General Plan Scenic Routes Element or Caltrans Scenic Highway Program. Construction and operation of the Proposed Plan would be compatible with the existing visual character of the natural, cultural, and project environment, would not substantially change the sensitivities of viewers, and would have a neutral degree of impact to visual quality of the affected area. Therefore, the Proposed Plan's contribution to cumulative impacts on aesthetics/visual resources would be less than significant.

- **AES-3: Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area.**

Construction and operation of the reasonably foreseeable related projects within the San Pedro Bay Port Complex would increase overall night lighting and glare. However, the majority of new development would be required to implement standard measures to reduce potential night illumination and avoid the use of structural surfaces capable of reflecting daylight glare. Therefore, cumulative impacts associated with substantial light or glare from buildout of the reasonably foreseeable related projects would be less than significant.

Although the Proposed Plan would increase the number of lighting fixtures within the Harbor District, Proposed Plan projects would replace older, traditional lighting fixtures with improved controlled fixtures (e.g., low energy fixtures regulated by timers and light spillover reduction features). In addition, all new building would be designed consistent with the Port's Sustainable Design Guidelines and City's Green Building Policy, which would minimize the potential for daytime glare resulting from increased massing of terminal structures and containers within the Harbor District. The Proposed Plan's contribution to this cumulative impact would be negligible because Proposed Plan projects and land use changes would implement modern lighting fixtures and sustainable design standards that would minimize the extent to which new development would adversely affect day or nighttime views in the Harbor District. Construction and operation of the Proposed Plan would be compatible with the existing visual character of the natural, cultural, and project environment, would not substantially change the sensitivities of viewers, and would have a neutral degree of impact to visual quality of the affected area. Therefore, the Proposed Plan's contribution to cumulative impacts on aesthetics/visual resources would be less than significant.

- **AES-4: Conflict with applicable zoning and other regulations governing scenic quality.**

Cumulative buildout of the reasonably foreseeable related projects could potentially conflict with applicable zoning and other regulations governing scenic quality. However, the applicable zoning regulations governing development within the San Pedro Bay Port Complex minimize the potential for cumulative impacts on scenic quality. In addition, reasonably foreseeable related projects within the San Pedro Bay Port Complex have been developed to ensure proposed projects are consistent with zoning and other regulations governing scenic quality. Furthermore, construction and operations of foreseeable related projects have been and will continue to be modified during the project review process to ensure consistency with applicable zoning regulations. Therefore, cumulative impacts associated with regulations governing scenic quality from buildout of the reasonably foreseeable related projects would be less than significant. The Proposed Plan would not contribute to this cumulative impact because all construction and operations associated with Proposed Plan projects would occur on lands zoned IP; this zoning designation does not include specific regulations pertaining to scenic quality. Construction and operation of the Proposed Plan would be compatible with the existing visual character of the natural, cultural, and project environment, would not substantially change the sensitivities of viewers, and would have a neutral degree of impact to visual quality of the affected area. Therefore, the Proposed Plan's contribution to cumulative impacts on aesthetics/visual resources would be less than significant.

3.1.5 Mitigation Monitoring Program

As no mitigation measures are required to address impacts on aesthetics/visual resources, no mitigation monitoring program is required.

3.2 AIR QUALITY AND HEALTH RISK

This section addresses the potential impacts on air quality and human health that could result from implementation of the Proposed Plan and its alternatives.

3.2.1 Environmental Setting

This section describes the Port's area of influence, climate, ambient air quality and emissions, and sensitive receptors within the Harbor District.

3.2.1.1 Area of Influence

The POLB is located in the southwest coastal area of the South Coast Air Basin (SCAB). The air quality area of influence for the Proposed Plan consists of the SCAB, which includes the urbanized areas of Los Angeles, Riverside, San Bernardino, and Orange Counties (an area of approximately 6,000 square miles) (Figure 3.2-1).

3.2.1.2 Setting

Regional Climate and Meteorology

The climate of the Proposed Plan region is classified as Mediterranean, which is characterized by warm summers with very little precipitation and mild winters with moderate precipitation. The major influences on the regional climate are the Eastern Pacific High, a strong, persistent high-pressure system, and the moderating effects of the Pacific Ocean. Seasonal variations in the position and strength of the Eastern Pacific High are key factors in the weather changes in the area.

The Eastern Pacific High attains its greatest strength and most northerly position during the summer, when it is centered west of northern California. In this location, this high effectively shelters Southern California from the effects of polar storm systems. Large-scale atmospheric subsidence associated with the high produces an elevated temperature inversion along the West Coast. The base of this subsidence inversion is generally 1,000 to 2,500 feet above sea level during the summer. Vertical mixing is often limited to the base of the inversion and air pollutants are trapped in the lower atmosphere.

The mountain ranges that surround the SCAB constrain the horizontal movement of air and inhibit the dispersion of air pollutants out of the region. These two factors, combined with the air pollution sources from more than 15 million residents plus businesses and industries, are responsible for the elevated pollutant conditions that can occur in the SCAB.

Marine air trapped below the base of the subsidence inversion is often condensed into fog and stratus clouds by the cool Pacific Ocean. This is a typical weather condition in the San Pedro Bay region during the warmer months of the year. Stratus clouds usually form offshore and move into the coastal plains and valleys during the evening hours. Clouds burn off at the immediate coastline when the land temperature increases the following morning, but they often reform again the following evening.

The proximity of the Eastern Pacific High and a thermal low-pressure system in the desert interior to the east produces a sea breeze regime that prevails within the Harbor District for most of the year, particularly during the spring and summer months. Sea breezes at the Port typically increase during the morning hours from the south. They reach a peak in the afternoon as they blow from the southwest and then generally subside after sundown. During the warmest months of the year,

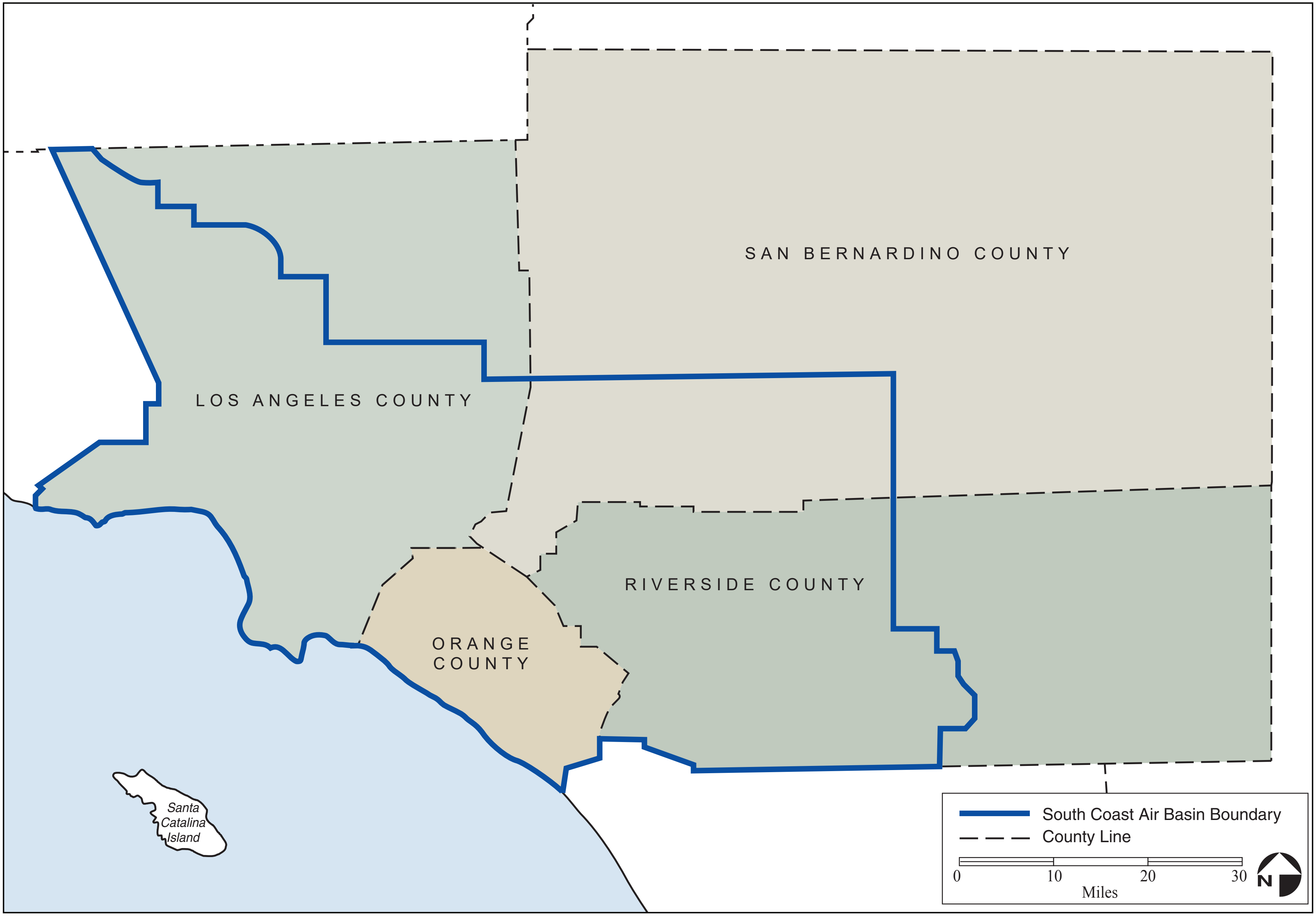

Figure 3.2-1. South Coast Air Basin

however, sea breezes can persist well into the night. Conversely, during the colder months of the year, northerly land breezes increase by sunset and into the evening. Sea breezes transport air pollutants away from the coast and toward the interior regions in the afternoon hours for most of the year.

The Palos Verdes Hills have a major influence on wind flow in the San Pedro Bay (SCAQMD 1977). For example, during afternoon southwest sea breeze conditions, the Palos Verdes Hills often block this flow and create a zone of lighter winds in the Inner Harbor area of the Port. During strong sea breezes, this flow can bend around the north side of the Palos Verdes Hills and end up as a northwest breeze in the Inner Harbor area. This topographic feature also deflects northeasterly land breezes that flow from the coastal plains to a more northerly direction through the Port.

During the fall and winter months, the Eastern Pacific High can combine with high pressure over the land to produce light winds and extended inversion conditions in the region. These stagnant atmospheric conditions often result in elevated pollutant concentrations in the SCAB. Excessive buildup of high pressure in the desert interior can produce a “Santa Ana” condition, which is characterized by warm, dry, northeast winds in the basin and offshore regions. Santa Ana winds often help clear the SCAB of air pollutants.

As winter approaches, the Eastern Pacific High begins to weaken and shift to the south, allowing storm systems to pass through the region. The number of days with precipitation varies substantially from year to year, which produces wide variability in annual precipitation totals. The annual precipitation at Long Beach Airport, about 6 miles northeast of the Harbor District, ranged from 2.6 to 27.7 inches from 1949 through 2018, with an average of 11.3 inches (Western Regional Climate Center 2019). Approximately 93 percent of the annual rainfall occurs from November through April and a monthly average maximum of 2.8 inches occurs in January. This wet-dry seasonal pattern is characteristic of most of California. Infrequent precipitation during the summer months usually occurs from tropical air masses that originate from continental Mexico or tropical storms off the West Coast of Mexico.

Meteorological data, including temperatures and surface winds, are measured at meteorological stations operated by the National Weather Service. The average high and low air temperatures at Long Beach Airport (the closest National Weather Service station to the project site that has a long-term record) in August are 83 degrees Fahrenheit (°F) and 65°F, respectively. December average high and low temperatures are 67°F and 46°F, respectively. Extreme high and low temperatures recorded from 1949 through 2018 were 111°F and 25°F, respectively (Western Regional Climate Center 2019). Temperatures in the San Pedro Bay Harbor Complex area are generally less extreme than inland regions due to the moderating effect of the ocean.

Ambient Air Quality

Air pollutants are defined as two general types: 1) criteria pollutants, representing pollutants for which the United States (U.S.) Environmental Protection Agency (USEPA) and California Air Resources Board (CARB) have set national and state ambient air quality standards, respectively and 2) toxic air contaminants (TACs), which may lead to serious illness or increased mortality even when present at relatively low concentrations. Generally, TACs do not have ambient air quality standards. There are three TACs that have ambient air quality standards: lead, vinyl chloride, and hydrogen sulfide. The Office of Environmental Health Hazard Assessment (OEHHA) is the lead state agency for the assessment of health risks posed by environmental contaminants such as TACs.

Criteria Pollutants

Air quality at a given location can be described by the concentrations of various air pollutants in the atmosphere near ground level. The significance of a pollutant concentration is determined by comparing the pollutant's concentration to an appropriate national and/or state ambient air quality standard. These standards represent the allowable atmospheric concentrations at which the public health and welfare are protected and include a reasonable margin of safety to protect the more sensitive individuals in the population.

Regional Air Pollutant Levels

USEPA and CARB classify an area as attainment, unclassified, or nonattainment depending on whether monitored ambient air quality data show compliance, lack of data, or noncompliance with an ambient air quality standard, respectively. The National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) are provided in Table 3.2-1. Table 3.2-2 summarizes the attainment status of each NAAQS and CAAQS in the SCAB. These data show that the SCAB is presently nonattainment of the NAAQS for ozone (O_3), particulate matter (PM) less than 2.5 microns in diameter ($PM_{2.5}$, also called "respirable" PM), and lead (Los Angeles County only) (USEPA 2019a). The SCAB also is nonattainment of the CAAQS for O_3, PM less than 10 microns in diameter (PM_{10}, also called "fine" PM), and $PM_{2.5}$ (CARB 2018a).

Air quality within the SCAB has improved substantially since the inception of air pollutant monitoring by the South Coast Air Quality Management District (SCAQMD) in 1976. This improvement is due in large part to the implementation of stationary source emission-reduction strategies by the SCAQMD and lower-polluting on-road motor vehicles. This trend toward cleaner air has occurred despite continued population growth. For example, while the SCAB exceeded the current national 8-hour O_3 standard on 233 days in 1977, the number of O_3 exceedance days reached a minimum of 113 in 2015 (CARB 2019a).

The criteria pollutants of primary concern that are assessed in this PEIR are O_3, PM_{10}, $PM_{2.5}$, carbon monoxide (CO), nitrogen dioxide (NO_2), and sulfur dioxide (SO_2). Of the criteria pollutants of concern, O_3 is unique because it is not directly emitted from sources. Rather, O_3 is a secondary pollutant, formed from precursor pollutants volatile organic compounds (VOCs) and nitrogen oxides (NO_x), which react to form O_3 in the presence of sunlight through a complex series of photochemical reactions. As a result, unlike inert pollutants, O_3 levels usually peak several hours after the precursors are emitted and many miles downwind of the source. O_3 concentrations are highest during the warmer months of the year and coincide with the time of year of peak insolation.

Because of the complexity and uncertainty in predicting photochemical pollutant concentrations, O_3 impacts are indirectly addressed by comparing emissions of VOCs and NO_x from the Proposed Plan to daily emission thresholds set by the SCAQMD. These emission thresholds are discussed in Section 3.2.3.1 (Significance Criteria). Since most of the emission sources associated with the Proposed Plan are diesel-powered, diesel particulate matter (DPM) is a key pollutant evaluated in this analysis. DPM is one of the components of ambient PM_{10} and $PM_{2.5}$. DPM also is classified as a TAC by CARB. Therefore, DPM is evaluated in this study as a TAC (for cancer and noncancer health effects) and as a component of criteria pollutants PM_{10} and $PM_{2.5}$.

TABLE 3.2-1. NATIONAL AND CALIFORNIA AMBIENT AIR QUALITY STANDARDS

Pollutant	Averaging Time	California Standards	National Standards		Health Effects
			Primary	Secondary	
Ozone (O_3)	1-hour	0.09 ppm	---	Same as primary	Breathing difficulties, lung tissue damage
	8-hour	0.070 ppm	0.070 ppm (1)		
Carbon Monoxide (CO)	1-hour	20 ppm	35 ppm	---	Chest pain in heart patients, headaches, reduced mental alertness
	8-hour	9.0 ppm	9 ppm	---	
Nitrogen Dioxide (NO_2)	1-hour	0.18 ppm	100 ppb (2)	---	Lung irritation and damage
	Annual	0.030 ppm	0.053 ppm	Same as primary	
Sulfur Dioxide (SO_2)	1-hour	0.25 ppm	75 ppb (2)	---	Increases lung disease and breathing problems for asthmatics
	3 Hour	---	---	0.5 ppm	
	24-hour	0.04 ppm	---	---	
Respirable Particulate Matter (PM_{10})	24-hour	50 µg/m^3	150 µg/m^3	Same as primary	Increased respiratory disease, lung damage, cancer, premature death
	Annual	20 µg/m^3	---		
Fine Particulate Matter ($PM_{2.5}$)	24-hour	---	35 µg/m^3 (3)	Same as primary	Increased respiratory disease, lung damage, cancer, premature death
	Annual	12 µg/m^3	12 µg/m^3	15 µg/m^3	
Lead	30-Day Average	1.5 µg/m^3	---	---	Increased body burden, impairment of blood formation and nerve conduction and neurotoxin
	Rolling 3-Month Average	---	0.15 µg/m^3	Same as primary	
Hydrogen Sulfide (H_2S)	1-hour	0.03 ppm	---	---	Nuisance odor (rotten egg smell); at high concentrations, headache and breathing difficulties
Sulfates	24-hour	25 µg/m^3	---	---	Decrease in ventilator function; aggravation of asthmatic symptoms; aggravation of cardiopulmonary disease
Vinyl Chloride	24-hour	0.01 ppm	---	---	Central nervous system effects, such as dizziness, drowsiness and headaches; long-term exposure, liver damage and cancer

Sources: (CARB 2016a, USEPA 2016a)

Key: --- = no standards; µg/m^3 = micrograms per cubic meter; NO_2 = nitrogen dioxide; O_3 = ozone; $PM_{2.5}$ = particulate matter less than 2.5 microns in diameter; ppb = parts per billion; ppm = parts per million; SO_2 = sulfur dioxide

Notes:

1 The national 8-hour O_3 standard is based on the annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years.

2 The national 1-hour NO_2 and SO_2 standards are based on the 3-year average of the 98th and 99th percentile, respectively, of the annual distributions of daily maximum 1-hour concentrations.

3 The national 24-hour $PM_{2.5}$ standard is based on the 3-year average of the 98th percentile of the daily values.

TABLE 3.2-2. SOUTH COAST AIR BASIN AIR POLLUTANT ATTAINMENT STATUS

Pollutant	Attainment Status	
	CAAQS	**NAAQS**
O_3	Nonattainment	Extreme Nonattainment
CO	Attainment	Attainment (Maintenance)
NO_2	Attainment	Attainment
SO_2	Attainment	Attainment
PM_{10}	Nonattainment	Attainment (Maintenance)
$PM_{2.5}$	Nonattainment	Moderate Nonattainment
Lead	Attainment	Nonattainment (Only Los Angeles County)
H_2S	Unclassified	---[1]
Sulfates	Attainment	---[1]
Vinyl Chloride	Attainment	---[1]

Key: CO = carbon monoxide; H_2S = hydrogen sulfide; NO_2 = nitrogen dioxide; O_3 = ozone; $PM_{2.5}$ = particulate matter less than 2.5 microns in diameter; PM_{10} = particulate matter less than 10 microns in diameter; SO_2 = sulfur dioxide
Note:
[1] No national standard exists for this pollutant.

Local Air Pollutant Levels

The POLB initiated operation of two air monitoring sites in September 2006 to collect ambient air pollutant and meteorological data within the Port region (POLB 2019c). The POLB air monitoring stations are located in the Inner Harbor area near the intersection of Canal Avenue and 12^{th} Street (Superblock site) and in the Outer Harbor area at the end of Navy Mole Road (Gull Park site).

The SCAQMD maintains a network of monitoring stations throughout the SCAB that measure ambient concentrations of air pollutants. The nearest SCAQMD air monitoring stations to the POLB are the 1) Webster School station, which is located 1.5 miles north of the POLB Superblock station and measures the same gaseous pollutants as the POLB stations and 2) South Long Beach station, which is located 2.3 miles north-northeast of the POLB Superblock station and measures both PM_{10} and $PM_{2.5}$. Data from these stations are representative of air quality conditions immediately inland of the POLB.

Table 3.2-3 presents the maximum pollutant levels measured at the two POLB monitoring stations and the SCAQMD Webster station from 2016 through 2018. These data show that 1) the state 24-hour and annual PM_{10} standards were exceeded at all three stations in all 3 years and 2) the Gull Park station exceeded the state and national annual $PM_{2.5}$ standards in all 3 years. All other national and state standards were met during this 3-year monitoring period.

TABLE 3.2-3. MAXIMUM ANNUAL AIR POLLUTANT CONCENTRATIONS MEASURED WITHIN THE PROPOSED PLAN REGION

Pollutant	Averaging Period	Monitoring Station	Highest Monitored Concentration[1]			AAQS
			2016	**2017**	**2018**	
O_3 (ppm)	1-hour – State	Gull Park Outer Harbor	0.071	0.081	0.075	0.09
		Superblock Inner Harbor	0.077	0.084	0.075	0.09
		Webster School Site	0.076	0.085	0.074	0.09
	8-hour – National[2]	Gull Park Outer Harbor	0.056	0.054	0.052	0.07
		Superblock Inner Harbor	0.053	0.053	0.056	0.07
		Webster School Site	0.058	0.059	0.058	0.07

TABLE 3.2-3. MAXIMUM ANNUAL AIR POLLUTANT CONCENTRATIONS MEASURED WITHIN THE PROPOSED PLAN REGION

Pollutant	Averaging Period	Monitoring Station	Highest Monitored Concentration[1]			AAQS
			2016	2017	2018	
	8-hour – State	Gull Park Outer Harbor	0.062	0.058	0.054	0.07
		Superblock Inner Harbor	0.056	0.064	0.063	0.07
		Webster School Site	0.058	0.069	0.064	0.07
PM_{10} (µg/m^3)	24-hour – National[3]	Gull Park Outer Harbor	51.2	66.4	48.6	150
		Superblock Inner Harbor	78.3	85.5	89.4	150
		South Long Beach	52	52	41	150
	24-hour – State[4]	Gull Park Outer Harbor	**59.3**	**84.0**	**56.1**	50
		Superblock Inner Harbor	**87.0**	**102.3**	**93.1**	50
		South Long Beach	**56.0**	**52.0**	**55.0**	50
	Annual – State	Gull Park Outer Harbor	**25.3**	**27.2**	**24.4**	20
		Superblock Inner Harbor	**37.4**	**37.4**	**40.4**	20
		South Long Beach	**28.0**	**21.4**	**22.3**	20
$PM_{2.5}$ (µg/m^3)	24-hour – National[5]	Gull Park Outer Harbor	29.9	30.4	30.7	35
		Superblock Inner Harbor	22.8	22.6	27.2	35
		South Long Beach	28.1	29.8	24.7	35
	Annual – State/ National	Gull Park Outer Harbor[6]	**15.0**	**15.8**	**14.1**	12/12
		Superblock Inner Harbor	8.7	9.3	9.5	12/12
		South Long Beach	9.7	9.5	11.1	12/12
CO (ppm)	1-hour – State/ National	Gull Park Outer Harbor	2.0	2.1	1.9	20/35
		Superblock Inner Harbor	3.2	5.4	6.2	20/35
		Webster School Site	3.3	3.9	4.7	20/35
	8-hour – National and State	Gull Park Outer Harbor	1.7	1.7	1.5	9
		Superblock Inner Harbor	2.5	4.7	2.5	9
		Webster School Site	2.2	2.6	2.1	9
NO_2 (ppm)	1-hour – National[7]	Gull Park Outer Harbor	0.078	0.077	0.075	0.10
		Superblock Inner Harbor	0.088	0.087	0.086	0.10
		Webster School Site	0.071	0.064	0.064	0.10
	1-hour – State	Gull Park Outer Harbor	0.086	0.096	0.083	0.18
		Superblock Inner Harbor	0.115	0.179	0.091	0.18
		Webster School Site	0.076	0.069	0.085	0.18
	Annual – State/ National	Gull Park Outer Harbor	0.018	0.018	0.017	0.030/0.053
		Superblock Inner Harbor	0.022	0.024	0.021	0.030/0.053
		Webster School Site	0.018	0.010	0.017	0.030/0.053
SO_2 (ppm)	1-hour – National[8]	Gull Park Outer Harbor	0.013	0.011	0.009	0.075
		Superblock Inner Harbor	0.016	0.017	0.016	0.075
		Webster School Site	0.010	0.011	0.011	0.075
	1-hour – State	Gull Park Outer Harbor	0.012	0.012	0.011	0.25
		Superblock Inner Harbor	0.068	0.025	0.041	0.25
		Webster School Site	0.018	0.016	0.011	0.25
	24-hour – State	Gull Park Outer Harbor	0.003	0.005	0.004	0.04
		Superblock Inner Harbor	0.007	0.006	0.005	0.04
		Webster School Site	0.004	0.003	0.002	0.04

TABLE 3.2-3. MAXIMUM ANNUAL AIR POLLUTANT CONCENTRATIONS MEASURED WITHIN THE PROPOSED PLAN REGION

Pollutant	Averaging Period	Monitoring Station	Highest Monitored Concentration[1]			AAQS
			2016	2017	2018	

Sources: (CARB 2019a, POLB 2019c)

Key: μg/m^3 = micrograms per cubic meter; AAQS = Ambient Air Quality Standards; CAAQS = California Ambient Air Quality Standards; CO = carbon monoxide; NAAQS = National Ambient Air Quality Standards; NO_2 = nitrogen dioxide; O_3 = ozone; ppm = parts per million; $PM_{2.5}$ = particulate matter less than 2.5 microns in diameter; PM_{10} = particulate matter less than 10 microns in diameter; POLB = Port of Long Beach; SO_2 = sulfur dioxide

Notes:

[1] Concentrations exceeding the most restrictive relevant AAQS are **bolded**.

[2] 8-hour O_3 NAAQS is determined by the 3-year average of fourth-highest daily maximum 8-hour O_3 concentrations, as presented here.

[3] 24-hour PM_{10} NAAQS is determined using the second-highest PM_{10} 24-hour concentration each year, as presented here.

[4] 24-hour $PM_{2.5}$ CAAQS exceeded during 2016, 2017, and 2018 at Gull Park Outer Harbor 1, 5, and 3 times; at Super Block Inner Harbor 11, 13, and 12 times; and at the South Long Beach Site 1, 2, and 3 times, respectively.

[5] 24-hour $PM_{2.5}$ NAAQS is determined using the 98th percentile of daily maximum 24-hour $PM_{2.5}$ concentrations averaged over 3 years, as presented here.

[6] Gull Park $PM_{2.5}$ concentrations shown here are measured with a Federally Equivalent Method Beta Attenuation Monitor, which is known to yield higher concentrations than the filter-based Federally Referenced Method used at the other sites and is subsequently exempted by the U.S. Environmental Protection Agency for NAAQS determinations.

[7] 1-hour NO_2 NAAQS is determined by the 3-year average of the 98th percentile of daily maximum 1-hour average NO_2 values, as presented here.

[8] 1-hour SO_2 NAAQS is determined by the 3-year average of the 99th percentile of the daily maximum 1-hour average SO_2 values, as presented here.

Port-wide Emissions

Emission sources associated with the movement of goods at the Port include ocean-going vessels (OGVs), tugboats, cargo handling equipment (CHE), on-road trucks, and locomotives. Other emission sources associated with Port operations include automobile trips made by employees, delivery vehicles, and Port visitors, and transport refrigeration unit (TRU) generation sets used to cool refrigerated containers (reefers) when mounted on trucks and railcars. Table 3.2-4 summarizes the peak daily criteria pollutant emissions estimated for these operations at the POLB in year 2017. These emissions occurred within the Port area and extended to the boundaries of the SCAB for OGVs, trucks, and trains. The emissions data for the goods movement-related sources were developed through the POLB annual emissions inventory process (Starcrest Consulting Group, LLC 2018). To facilitate the comparison of emissions under the Proposed Plan to the SCAQMD significance thresholds, the year-2017 emissions were converted from annual to peak daily emissions. The peak day factors vary by emission source category and range from 11 to 64 percent higher than average daily emissions. Appendix E (Air Emission Calculations) contains a description of the emission sources, discussion of the emission calculation methodology and peak day factors, and emission calculation tables. Appendix E also presents the annual emissions from which the peak day emissions were derived.

Table 3.2-4 shows that OGVs were the largest source contributor to 2017 Port operational emissions for all pollutants except CO. For CO, the largest source contributor was CHE. The 2017 emission estimates for OGV transit reflect a Vessel Speed Reduction (VSR) compliance rate of 97 percent within 20 nautical miles (nm) of Point Fermin (which is 4 miles southwest of the Port) and 91 percent between 20 and 40 nm of Point Fermin (Starcrest Consulting Group, LLC 2018). VSR involves limiting the vessel speed to an average of 12 knots over the VSR areas, which for the faster OGVs, produces substantial emission reductions due to less propulsion engine work and therefore less fuel usage.

The at-berth OGV emissions reflect that in 2017, an average of 39 percent of all vessel calls (72 percent of container vessels, 95 percent of cruise vessels, 4 percent of tankers, 100 percent of Ro/Ro off vessels, and 0 percent of all other vessels) used shore power; and 1 percent used the Advanced Maritime Emission Control System (AMECS) (Starcrest Consulting Group, LLC 2018). Shore power enables vessels to turn off their diesel auxiliary engines while at berth, thereby reducing diesel exhaust emissions. The AMECS, approved by CARB for container vessels, is a barge-based control technology alternative to electric grid-based shoreside power. The AMECS can reduce NO_x and PM emissions from at-berth auxiliary engines by an average of 72 and 76 percent, respectively (Starcrest Consulting Group, LLC 2019a). The actual AMECS reductions depend on various factors, including the number of stacks on the ship, vessel engine tier level, and AMECS system characteristics.

The Proposed Plan would affect goods movement activities throughout the Harbor District. Therefore, the Port-wide air emissions estimated for calendar year 2017 in Table 3.2-4 are used as the 2017 Baseline emission conditions for the Proposed Plan alternatives. Calendar year 2017 data were used for the baseline as it is the most recent Port-wide air emission data available.

TABLE 3.2-4. PEAK DAY CRITERIA POLLUTANT OPERATIONAL EMISSIONS; 2017 BASELINE

Emission Source	Peak Day Emissions (lb/day)[1]					
	VOC	CO	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Ocean-Going Vessels						
OGVs in Transit[2]	956	1,978	26,881	898	422	397
OGVs at Berth[3]	398	980	10,094	941	309	291
Harbor Craft[4]	188	1,192	1,695	2	60	56
Cargo Handling Equipment	285	4,171	2,668	11	32	29
Locomotives						
Switchers On-Port	7	54	129	0	1	1
Line Haul Locomotives On-Port	49	207	872	1	32	29
Line Haul Locomotives Off-Port[5]	162	679	2,865	3	106	96
Heavy-Duty Vehicles						
HDVs On-Terminal Exhaust[6]	65	551	923	2	2	1
HDVs On-Terminal Tire and Brake Wear	0	0	0	0	2	1
HDVs On-Terminal Road Dust	0	0	0	0	74	11
HDVs Off-Terminal Exhaust[7]	155	549	8,035	25	55	53
HDVs Off-Terminal Tire and Brake Wear	0	0	0	0	143	52
HDVs Off-Terminal Road Dust	0	0	0	0	105	16
Automobiles						
Auto Exhaust	31	1,176	109	3	1	1
Auto Tire and Brake Wear	0	0	0	0	36	14
Auto Road Dust	0	0	0	0	55	8
Transport Refrigeration Unit Gensets[8]	6	95	91	0	2	2
Total, 2017 Baseline	**2,303**	**11,633**	**54,361**	**1,883**	**1,438**	**1,058**

TABLE 3.2-4. PEAK DAY CRITERIA POLLUTANT OPERATIONAL EMISSIONS; 2017 BASELINE
Key: CO = carbon monoxide; Gensets = generation sets; HDVs = Heavy-Duty Vehicles; lb/day = pounds per day; nm = nautical miles; NO_x = nitrogen oxides; OGVs = Ocean-Going Vessels; PM_{10} = particulate matter less than 10 microns in diameter; $PM_{2.5}$ = particulate matter less than 2.5 microns in diameter; Port = Port of Long Beach; SCAB = South Coast Air Basin; SO_x = sulfur oxides; TRU = Transport Refrigeration Unit; VOC = volatile organic compounds; VSR = vessel speed reduction Notes: [1] The emissions domain for criteria pollutants is the SCAB. [2] OGV transit emissions include transit between the berth and the SCAB over-water boundary, and anchoring in the harbor while waiting for an available berth. The emissions reflect that, in 2017, 97 percent of all calls used VSR (maximum 12 knots) within 20 nm of Point Fermin, and 91 percent of all calls used VSR between 20 and 40 nm of Point Fermin. [3] OGV at-berth emissions reflect that, in 2017, an average of 39 percent of all calls (72 percent of container vessels, 95 percent of cruise vessels, 4 percent of tankers, 100 percent of roll on/roll off vessels, and 0 percent of all other vessels) used shore power; and 1 percent of all calls used an Advanced Maritime Emission Control System. [4] Harbor craft emissions are from assist tugboats only. All other harbor craft activity is not directly related to cargo throughput and, therefore, is not expected to substantially increase in the future as a result of the Proposed Plan. [5] Off-port line haul locomotive emissions include trains that originate/terminate at the Port and trains carrying Port containers that originate/terminate at off-dock rail yards within the SCAB (calculated as the equivalent number of trains needed to carry only the Port-related cargo). [6] On-terminal HDV emissions include queuing at terminal entry gates, travel and idling within the terminals, and queuing at the terminal exit gates. [7] Off-terminal HDV emissions represent trips between the Port and the first point of rest or SCAB boundary, whichever comes first. [8] TRU genset emissions are quantified for the time they spend at the Port.

Toxic Air Contaminants

TACs are airborne compounds that are known or suspected to cause adverse human health effects after long-term (i.e., chronic) and/or short-term (i.e., acute) exposure. Cancer risk can result from chronic exposure and noncancer health effects can result from either chronic or acute exposure. Examples of TAC sources in the SCAB include diesel- and gasoline-powered internal combustion engines in mobile sources; industrial processes and stationary sources, such as dry cleaners, gasoline stations, and paint and solvent operations; and stationary fossil fuel-burning combustion sources, such as power plants.

The SCAQMD estimated in the Multiple Air Toxics Exposure Study (MATES)-III, a monitoring and TAC risk evaluation study, that over 80 percent of the background airborne air toxics risk in the SCAB was due to diesel exhaust (SCAQMD 2008a) and the subsequent MATES-IV study estimated that diesel exhaust contributed about 68 percent of the total airborne air toxics risk in the SCAB (SCAQMD 2015a). The air toxics cancer risk estimated for the MATES-IV monitoring study period (2012 to 2013) was 57 percent lower than the risk estimated for the MATES-III monitoring study period (2005). The MATES-IV study also indicated that regulations had a noticeable effect in reducing diesel emissions and resulting cancer risks from 2005 to 2012. Due to the prevalence of diesel-powered sources that operate at the Port of Long Beach and Port of Los Angeles (San Pedro Bay Ports), MATES-IV identified the area as having the highest air toxics cancer risks within the SCAB, with an average individual cancer risk of 480 chances per million. By comparison, MATES-IV estimated the average air toxics cancer risk within the entire SCAB to be 367 chances per million.

Table 3.2-5 presents the annual DPM emissions associated with Port operations in the 2017 baseline year. Recent Port CEQA documents have demonstrated that DPM contributes nearly all of the cancer risk associated with Port-related TAC emissions. The table shows that OGVs were the largest source contributor to 2017 Port operational DPM emissions, contributing approximately 61 percent of the total emissions.

TABLE 3.2-5. ANNUAL DPM OPERATIONAL EMISSIONS; 2017 BASELINE

Emission Source	Annual DPM Emissions (ton/yr)[1]
Ocean-Going Vessels	
OGVs in Transit[2]	42.5
OGVs at Berth[3]	21.2
Harbor Craft[4]	6.7
Cargo Handling Equipment	3.5
Locomotives	
Switchers On-Port	0.2
Line Haul Locomotives On-Port	5.3
Line Haul Locomotives Off-Port[5]	17.5
Heavy-Duty Vehicles[6]	
HDVs On-Terminal Exhaust[7]	0.2
HDVs Off-Terminal Exhaust[8]	6.7
Automobiles	0.0
Transport Refrigeration Unit Gensets[9]	0.2
Total, 2017 Baseline	**104.0**

Key: DPM = diesel particulate matter; Gensets = generation sets; HDVs = Heavy-Duty Vehicles; nm = nautical miles; OGVs = Ocean-Going Vessels; Port = Port of Long Beach; SCAB = South Coast Air Basin; ton/yr = tons per year; TRU = Transport Refrigeration Unit; VSR = vessel speed reduction

Notes:

[1] The emissions domain is the SCAB.

[2] OGV transit emissions include transit between the berth and the SCAB over-water boundary, and anchoring in the harbor while waiting for an available berth. The emissions reflect that, in 2017, 97 percent of all calls used VSR (maximum 12 knots) within 20 nm of Point Fermin, and 91 percent of all calls used VSR between 20 and 40 nm of Point Fermin.

[3] OGV at-berth emissions reflect that, in 2017, an average of 39 percent of all calls (72 percent of container vessels, 95 percent of cruise vessels, 4 percent of tankers, 100 percent of roll on/roll off vessels, and 0 percent of all other vessels) used shore power; and 1 percent of all calls used an Advanced Maritime Emission Control System.

[4] Harbor craft emissions are from assist tugboats only. All other harbor craft activity is not directly related to cargo throughput and, therefore, is not expected to substantially increase in the future as a result of the Proposed Plan.

[5] Off-port line haul locomotive emissions include trains that originate/terminate at the Port and trains carrying Port containers that originate/terminate at off-dock rail yards within the SCAB (calculated as the equivalent number of trains needed to carry only the Port-related cargo).

[6] HDV emissions reflect 4 percent of the fleet using liquefied natural gas instead of diesel fuel.

[7] On-terminal HDV emissions include queuing at terminal entry gates, travel and idling within the terminals, and queuing at the terminal exit gates.

[8] Off-terminal HDV emissions represent trips between the Port and the first point of rest or SCAB boundary, whichever comes first.

[9] TRU genset emissions are quantified for the time they spend at the Port.

Ultrafine Particles

Traditionally, health concerns and air quality standards for particulates have focused on PM_{10} and $PM_{2.5}$. However, the smallest size fraction of PM, referred to as ultrafine particles (UFP), is also of concern for the following reasons: 1) studies have shown that smaller particles, which tend to absorb higher fractions of trace metals and organic compounds because of their relatively high surface area to mass ratio, can be inhaled and deposited deeper into the lungs than larger particles and 2) UFP can be more easily transported from the lungs into the body potentially increasing exposure to these particles and contaminants adsorbed on the particles. UFP continue to be an area of active research.

UFP are generally defined as ambient air particles less than or equal to 0.1 microns in diameter. Due to their small size and cumulative mass, UFP generally contribute a small fraction to ambient concentrations of either PM_{10} or $PM_{2.5}$. It takes approximately 15,000 UFP to equal the mass of a single $PM_{2.5}$ particle, and 1 million UFP to equal the mass of a single PM_{10} particle. UFP are very numerous, particularly in urban atmospheres. For example, typical urban air contains 10,000 to 40,000 UFP per cubic centimeter, while near highways there can be between 40,000 and 1 million UFP per cubic centimeter. UFP are not routinely measured in the U.S. and there are no regulatory standards that address this category. The 2012 Air Quality Management Plan (AQMP) recommends that UFP issues be considered in the region's PM and air toxics control strategies and recommends possible control strategies (SCAQMD 2012).

In the urban environment, motor vehicle exhaust is a major source of UFP, and for that reason, UFP is found in high numbers near highways. Measurements have shown that there is a sharp drop in UFP within 300 meters downwind of freeways due to particle growth and accumulation processes in the atmosphere after they have been emitted from vehicles, although higher concentrations can persist during nighttime hours and conditions of atmospheric stability (SCAQMD 2012). Consequently, high particle concentrations are localized and tend to exhibit large geographical and temporal variations. Current research is underway to better characterize emissions and ambient levels of UFP in the environment. Other categories of internal combustion engines used in Port operations, such as trains and ships, may also be significant sources of UFP.

Secondary $PM_{2.5}$ Formation

Primary $PM_{2.5}$ is emitted directly into the atmosphere by fossil fuel combustion sources, windblown soil and dust, and sea spray. Secondary $PM_{2.5}$ forms in the atmosphere by reactions of precursor emissions of gaseous pollutants, such as NO_x, sulfur oxides (SO_x), VOCs, and ammonia. Secondary $PM_{2.5}$ includes sulfates, nitrates, and complex carbon compounds. Emissions of NO_x, SO_x, and VOCs generated from the Proposed Plan would contribute to secondary $PM_{2.5}$ formation at some distance downwind of the emission sources. However, since it is difficult to predict secondary $PM_{2.5}$ formation from an individual project, the air quality analysis in this PEIR focuses on the effects of direct $PM_{2.5}$ emissions generated by the Proposed Plan. This approach is consistent with the recommendations of the SCAQMD (SCAQMD 2006).

Atmospheric Deposition

The fallout of air pollutants to the surface of the earth is known as atmospheric deposition. Atmospheric deposition occurs in both a wet and dry form. Wet deposition occurs in the form of precipitation and is associated with the conversion in the atmosphere of directly emitted pollutants into secondary pollutants such as acids. Dry deposition occurs in the form of directly emitted pollutants or the conversion of gaseous pollutants into secondary PM. Atmospheric deposition can produce watershed acidification, aquatic toxic pollutant loading, deforestation, damage to building materials, and respiratory problems.

Sensitive Receptors

The impact of air emissions on sensitive members of the population is a special concern. Sensitive receptor groups include children and infants, pregnant women, the elderly, and the acutely and chronically ill. According to SCAQMD guidance, sensitive receptor locations typically include schools, child care centers, elder care facilities, hospitals, and other locations where sensitive persons could be regularly exposed. Sensitive individuals could also be present at any residence (including live aboard vessels in Port marinas).

Table 3.2-6 provides a listing of the known sensitive receptors (i.e., schools, child care centers, hospitals, and elder care facilities) identified within approximately 1 mile of the Harbor District. Outdoor recreational areas such as public parks are also listed since they are locations where children congregate. Individual residences are not listed in the table. The locations of the sensitive receptors, identified by receptor number in the table, are shown in Figure 3.2-2.

TABLE 3.2-6. DESCRIPTIONS OF SENSITIVE RECEPTORS IN PROXIMITY TO THE HARBOR DISTRICT

Receptor No.[1]	Receptor Description[2]	Category	Street Address	City
1	12th Street Head Start	Child Care	1212 Long Beach Boulevard	Long Beach
2	8th Street Early Head Start	Child Care	820 Long Beach Boulevard	Long Beach
3	A Love 4 Learning Academy	Child Care	306 Elm Avenue	Long Beach
4	ABC 123 Long Beach Learning Center	Child Care	909 Pine Avenue	Long Beach
5	Agu Family Child Care	Child Care	4400 Boyar Avenue	Long Beach
6	Aspiranet Foster Family Agency	Child Care	1043 Pine Avenue	Long Beach
7	Atlantic Headstart	Child Care	1862 Atlantic Avenue	Long Beach
8	Benford Family Child Care	Child Care	530 East 8th Street	Long Beach
9	Briggs Family Child Care	Child Care	Golden Avenue	Long Beach
10	Brown Family Child Care	Child Care	1831 West Jeanette Place	Long Beach
11	Cabrillo Child Development Center	Child Care	2205 San Gabriel Avenue	Long Beach
12	Carol Daycare	Child Care	2842 Easy Avenue	Long Beach
13	Century Villages at Cabrillo Homeless Housing Community	Child Care	2001 River Avenue	Long Beach
14	Child Care Center At St Mary Medical Center	Child Care	930 Elm Avenue	Long Beach
15	Childtime Learning Center	Child Care	1 World Trade Center # 199	Long Beach
16	Comprehensive Child Development	Child Care	2565 Pacific Avenue	Long Beach
17	Costa Family Child Care	Child Care	2085 Easy Avenue	Long Beach
18	Edison Child Development Center	Child Care	640 West 7th Street	Long Beach
19	Elm Street Head Start	Child Care	1425 and 1429 Elm Avenue	Long Beach
20	Fords Family Day Care	Child Care	2726 San Francisco Avenue	Long Beach
21	Franklin Day Care Center	Child Care	2333 Fashion Avenue	Carson
22	Gallegos Family Child Care	Child Care	2024 Adriatic Avenue	Long Beach
23	Garfield Head Start	Child Care	2240 Baltic Avenue	Long Beach
24	Garibay Family Child Care	Child Care	2172 Lime Avenue	Long Beach
25	Hernandez Family Child Care	Child Care	2200 Golden Avenue	Long Beach
26	Hernandez Family Child Care	Child Care	5322 Elm Avenue	Long Beach
27	Herrera Family Child Care	Child Care	737 West Hill Street	Long Beach
28	Job Corp Head Start	Child Care	1903 Santa Fe Avenue	Long Beach
29	Jones Family Child Care	Child Care	2275 Baltic Avenue	Long Beach
30	Kelly's Care	Child Care	943 North Washington Place	Long Beach
31	Kelly's Kids Daycare Center	Child Care	855 West Willow Street	Long Beach

TABLE 3.2-6. DESCRIPTIONS OF SENSITIVE RECEPTORS IN PROXIMITY TO THE HARBOR DISTRICT

Receptor No.[1]	Receptor Description[2]	Category	Street Address	City
32	Kim Family Child Care	Child Care	2035 Linden Avenue	Long Beach
33	Lara Family Day Care	Child Care	1303 West 253rd Street	Harbor City
34	Lil Cowpoke Preschool	Child Care	445 North Avalon Boulevard	Wilmington
35	Little Lighthouse Educational Childcare Center	Child Care	911 Pine Avenue	Long Beach
36	Long Beach Boulevard Head Start	Child Care	2236 Long Beach Boulevard	Long Beach
37	Long Beach Center for Child Development	Child Care	622 East Hill Street	Long Beach
38	Long Beach Child Development Center	Child Care	2222 Olive Avenue	Long Beach
39	Long Beach Day Nursery - West Branch	Child Care	1548 Chestnut Avenue	Long Beach
40	Loves Family Child Care	Child Care	527 Daisy Avenue	Long Beach
41	Lucy's Baby Care	Child Care	940 Maine Avenue	Long Beach
42	Montessori On Elm Preschool + Kindergarten	Child Care	930 Elm Avenue	Long Beach
43	N2 Lil Folkz	Child Care	1624 Chestnut Avenue	Long Beach
44	Oakwood Children's Center	Child Care	2650 Pacific Avenue	Long Beach
45	P.A.L. Family Day Care	Child Care	1980 Daisy Avenue	Long Beach
46	Pacific Head Start	Child Care	2179 Pacific Avenue	Long Beach
47	Patterson Family Child Care	Child Care	2133 Canal Avenue	Long Beach
48	Pine Head Start	Child Care	927 Pine Avenue	Long Beach
49	Poole Family Child Care	Child Care	2002 Lime Avenue	Long Beach
50	Progressive Steps Children Center	Child Care	911 Pine Avenue	Long Beach
51	Ruiz Family Daycare	Child Care	2670 Daisy Avenue	Long Beach
52	Sandford Family Child Care	Child Care	215 East Burnett Street	Long Beach
53	Sar Family Child Care	Child Care	2171 Pasadena Avenue	Long Beach
54	Smart & Manageable	Child Care	2054 Myrtle Avenue	Long Beach
55	Un Mundo De Amigos Preschool	Child Care	1480 Long Beach Boulevard	Long Beach
56	West Anaheim Child Care Center	Child Care	440 West Anaheim Street	Long Beach
57	West Child Development Center/Westside Neighborhood Clinic	Child Care	2125 Santa Fe Avenue	Long Beach
58	Wilmington Park Children's Center	Child Care	1419 East Young Street	Wilmington
59	YMCA GLB Fairfield 3rd Street Preschool	Child Care	607 East 3rd Street	Long Beach
60	YMCA Play & Learn Preschool	Child Care	2179 Pacific Avenue	Long Beach
61	Young Horizons Child Development Center	Child Care	1840 Pacific Avenue	Long Beach
62	Young Horizons Child Development Center	Child Care	2418 Pacific Avenue	Long Beach

TABLE 3.2-6. DESCRIPTIONS OF SENSITIVE RECEPTORS IN PROXIMITY TO THE HARBOR DISTRICT				
Receptor No.[1]	Receptor Description[2]	Category	Street Address	City
63	Young Horizons Child Development Center	Child Care	501 Atlantic Avenue	Long Beach
64	Young Horizons/El Jardin de la Felicidad	Child Care	507 Pacific Avenue	Long Beach
65	Zarate Family Child Care	Child Care	2496 Oregon Avenue	Long Beach
66	Akin's Post Acute Rehab Hospital; Atlantic Memorial Healthcare Center	Elder Care	2750 Atlantic Avenue	Long Beach
67	American AAA Health Care Center	Elder Care	629 North Avalon Boulevard	Wilmington
68	Aquarius Home	Elder Care	1765 Aquarius Street	Long Beach
69	Bay Breeze Care	Elder Care	1653 Santa Fe Avenue	Long Beach
70	Breakers of Long Beach, The	Elder Care	210 East Ocean Boulevard	Long Beach
71	Burnett Home Care	Elder Care	1740 West Burnett Street	Long Beach
72	Caruthers Royale Care	Elder Care	2204 Lime Avenue	Long Beach
73	Deluxe Guest Home	Elder Care	3260 Pine Avenue	Long Beach
74	Deluxe Guest Home II	Elder Care	3266 Pine Avenue	Long Beach
75	Garden, The	Elder Care	2485 Cedar Avenue	Long Beach
76	Harbor View Rehabilitation Center	Elder Care	490 West 14th Street	Long Beach
77	Hayes Home	Elder Care	2470 Hayes Avenue	Long Beach
78	Healthview Pine Villa Assisted Living	Elder Care	117 East 8th Street	Long Beach
79	Heritage Board & Care #2	Elder Care	1509 East 4th Street	Long Beach
80	Loram Manor	Elder Care	1925 Gemini Street	Long Beach
81	Olive Tree Home	Elder Care	1035 Olive Street	Long Beach
82	Padua House	Elder Care	940 Atlantic Avenue	Long Beach
83	Pioneer Homes Of California	Elder Care	2041 West Carolyn Place	Long Beach
84	Reliable Residential Care	Elder Care	1840 Aquarius Street	Long Beach
85	Right At Home	Elder Care	2245 Elm Avenue	Long Beach
86	Royal Care Skilled Nursing Center	Elder Care	2725 Pacific Avenue	Long Beach
87	Serra Project Long Beach	Elder Care	1043 Elm Avenue	Long Beach
88	Villa Maria Care Center	Elder Care	723 East 9th Street	Long Beach
89	Earl & Lorraine Miller Children's Hospital; Long Beach Memorial Medical Center and Hospital	Hospital	2801 Atlantic Avenue	Long Beach
90	Long Beach Doctors Hospital	Hospital	1725 Pacific Avenue	Long Beach
91	Pacific Hospital of Long Beach (Hospital and Convalescent/Nursing Home)	Hospital	2776 Pacific Avenue	Long Beach
92	St. Mary Medical Center	Hospital	1050 Linden Avenue	Long Beach
93	Tom Redgate Memorial Hospital	Hospital	1775 Chestnut Avenue	Long Beach
94	Admiral Kidd Park	Recreational	2125 Santa Fe Avenue	Long Beach

TABLE 3.2-6. DESCRIPTIONS OF SENSITIVE RECEPTORS IN PROXIMITY TO THE HARBOR DISTRICT

Receptor No.[1]	Receptor Description[2]	Category	Street Address	City
95	Cesar Chavez Park	Recreational	401 Golden Avenue	Long Beach
96	City of Long Beach Multi-Service Center	Recreational	1301 West 12th Street	Long Beach
97	Harbor Japanese Community Cultural Center	Recreational	1766 Seabright Avenue	Long Beach
98	Hudson Park	Recreational	2335 Webster Avenue	Long Beach
99	Khemara Buddhikaram Cambodian Buddhist Temple	Recreational	2100 West Willow Street	Long Beach
100	Pramuan Simsriwatna Place of Worship	Recreational	2015 West Hill Street	Long Beach
101	VA Long Beach Clinic and Veterans Support Services	Recreational	2001 River Avenue, Building 28	Long Beach
102	Wilmington Waterfront Park	Recreational	South C Street	Wilmington
103	Wilmington Waterfront Promenade	Recreational	Water Street	Wilmington
104	Apostolic Faith Center/Apostolic Faith Academy	School	1530 East Robidoux Street	Wilmington
105	Artesia Well Preparatory Academy	School	1235 Pacific Avenue	Long Beach
106	Bethune School/Program for the Homeless	School	2101 San Gabriel Avenue	Long Beach
107	Burnett Elementary	School	565 East Hill Street	Long Beach
108	Cabrillo High School	School	2001 Santa Fe Avenue	Long Beach
109	Cambodian Christian	School	2474 Pacific Avenue	Long Beach
110	Cesar Chavez Elementary	School	730 West 3rd Street	Long Beach
111	Colegio New City	School	1637 Long Beach Boulevard	Long Beach
112	Constellation Community Charter Middle	School	620 Olive Avenue	Long Beach
113	Edison Elementary	School	625 Maine Avenue	Long Beach
114	Elizabeth Hudson Elementary School and Development Center Daycare	School	2335 Webster Avenue	Long Beach
115	First Baptist Church School	School	1000 Pine Avenue	Long Beach
116	First Lutheran Day Care, Preschool and Elementary School	School	946 Linden Avenue	Long Beach
117	Gang Alternative Program	School	231 Island Avenue	Wilmington
118	George de la Torre Jr. Elementary School	School	500 Island Avenue	Wilmington
119	George Washington Middle School	School	1450 Cedar Avenue	Long Beach
120	Holy Family Preschool and Elementary School	School	1122 East Robidoux Street	Wilmington
121	Holy Innocents Elementary School	School	2500 Pacific Avenue	Long Beach

TABLE 3.2-6. DESCRIPTIONS OF SENSITIVE RECEPTORS IN PROXIMITY TO THE HARBOR DISTRICT

Receptor No.[1]	Receptor Description[2]	Category	Street Address	City
122	Hudson Development Center Daycare and Elementary School	School	2335 Webster Avenue	Long Beach
123	International Elementary	School	700 Locust Avenue	Long Beach
124	Jackie Robinson Academy	School	2750 Pine Avenue	Long Beach
125	James Garfield Elementary School / LBUSD Child Development Center	School	2240 Baltic Avenue	Long Beach
126	Juan Rodriguez Cabrillo High School	School	2001 Santa Fe Avenue	Long Beach
127	Lafayette Elementary School	School	2445 Chestnut Avenue	Long Beach
128	Long Beach Montessori School	School	525 East 7th Street	Long Beach
129	Polytechnic High School	School	1600 Atlantic Avenue	Long Beach
130	Regency High School	School	490 West 14th Street	Long Beach
131	Reid Continuation High School	School	2153 West Hill Street	Long Beach
132	Renaissance High School for the Arts	School	235 East 8th Street	Long Beach
133	Roosevelt Elementary	School	1574 Linden Avenue	Long Beach
134	Saint Anthony High School	School	620 Olive Avenue	Long Beach
135	Saint Anthony Preschool / Elementary	School	855 East 5th Street	Long Beach
136	Saint Lucy School	School	2320 Cota Avenue	Long Beach
137	Savannah Academy	School	2152 Hill Street	Long Beach
138	Select Community Day School	School	5869 Atlantic Avenue	Long Beach
139	St. Anthony High School/Constellation Community Charter Middle	School	620 Olive Avenue	Long Beach
140	Stephens Middle School	School	1830 West Columbia Street	Long Beach
141	Stevenson Elementary; Stevenson Child Development Centers/Preschool	School	515 Lime Avenue	Long Beach
142	The New City School	School	1230 Pine Avenue	Long Beach
143	True Social Justice Academy	School	630 Magnolia Avenue	Long Beach
144	William Logan Stephens Middle School	School	1830 West Columbia Street	Long Beach
145	Wilmington Park Elementary School/Mahar House	School	1140 Mahar Avenue	Wilmington

Key: LBUSD = Long Beach Unified School District; VA = United States Department of Veterans Affairs
Notes:
[1] The receptor locations by Receptor Number are shown in Figure 3.2-2.
[2] Individual residences are not included in the table and accompanying figure.

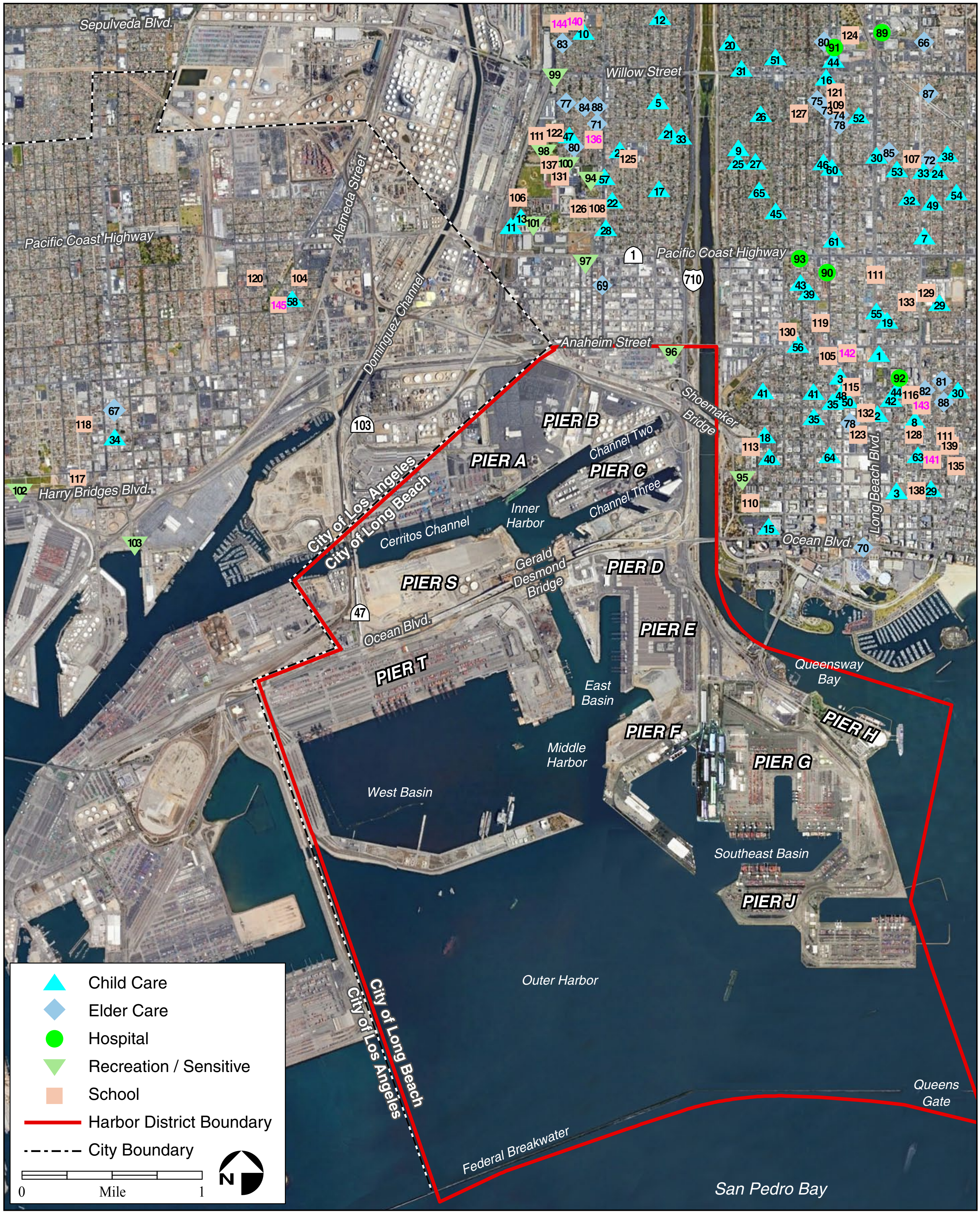

Figure 3.2-2. Location of Sensitive Receptors in Proximity to the POLB

3.2.2 Regulatory Setting

Sources of air emissions in the SCAB are regulated by USEPA, CARB, and SCAQMD. In addition, regional and local jurisdictions play a role in air quality management. The existing rules, regulations, and policies that potentially apply to the Proposed Plan and alternatives are discussed below.

3.2.2.1 International Regulations

International Maritime Organization International Convention for the Prevention of Pollution from Ships Annex VI

The International Maritime Organization's (IMO's) International Convention for the Prevention of Pollution from Ships, 1973 as modified by the Protocol of 1978 (MARPOL) is the main international convention covering prevention of pollution of the marine environment by ships from operational or accidental causes. MARPOL Annex VI, which came into force in May 2005, set new international NO_x emission limits on marine engines over 130 kilowatts (kW) installed on new vessels retroactive to year 2000 (Tier I). In October 2008, the IMO adopted the following amendments under MARPOL Annex VI for global limits on fuel sulfur content and engine NO_x emissions: 1) fuel sulfur content of 3.5 percent by 2012 and 0.5 percent by 2020 (finalized in 2016) and 2) Tier II NO_x emission standards for vessels built beginning in 2011 that are 15 percent lower compared to Tier I levels (IMO 2008).

On March 26, 2010, the IMO amended MARPOL Annex VI by designating the waters of the U.S., Canada, and portions of Europe as an Emission Control Area (ECA) for NO_x and/or SO_x (IMO 2019a). The West Coast portions of the North American NO_x and SO_x ECAs extend about 200 nm offshore from the Mexican border to southern Alaska. The NO_x and SO_x emissions requirements within ECAs include the following:

- Fuel sulfur content lowered from 1.0 to 0.1 percent beginning in 2015. The emission estimates for the Proposed Plan operations assume that all ships calling at the Port would comply with this sulfur fuel limit.
- Tier III NO_x emission standards for vessels built beginning in 2016 that are 76 percent lower than the Tier II NO_x levels. The air quality analysis assumes that a substantial amount of the OGV fleets in year 2040 would have Tier III engines.

3.2.2.2 Federal Regulations

Clean Air Act

The federal Clean Air Act (CAA) of 1963 and its subsequent amendments form the basis for the nation's air pollution control effort. USEPA is responsible for implementing most aspects of the CAA. Basic elements of the act include the NAAQS for criteria air pollutants, hazardous air pollutant standards, attainment plans, motor vehicle emission standards, stationary source emission standards and permits, acid rain control measures, stratospheric O_3 protection, and enforcement provisions.

The CAA delegates enforcement of the federal standards to the states. In California, CARB is responsible for enforcing air pollution regulations. CARB, in turn, delegates the responsibility of regulating stationary emission sources to local air agencies. In the SCAB, SCAQMD has this responsibility.

State Implementation Plan

For areas that do not attain a NAAQS, the CAA requires preparation of a State Implementation Plan (SIP), detailing how the state will attain the NAAQS within mandated timeframes. In response to this requirement, the SCAQMD and Southern California Association of Governments (SCAG) periodically prepare an AQMP. Once approved by CARB, the AQMP is incorporated into the SIP and then submitted by CARB to USEPA for final approval.

The SCAQMD developed AQMPs in 2003, 2007, and 2012 (SCAQMD 2003, SCAQMD 2007, SCAQMD 2012). The focus of these AQMPs was to demonstrate attainment of the national PM_{10}, $PM_{2.5}$, and O_3 standards, while making progress toward attainment of the state ambient standards. The most recent AQMP (2016) was approved by the SCAQMD Governing Board in March 2017 and CARB approved and submitted it to USEPA for approval as the SIP for the SCAB in April 2017 (SCAQMD 2017). This 2016 AQMP focuses on attainment of the O_3 and $PM_{2.5}$ NAAQS through reductions of the O_3 and $PM_{2.5}$ precursor NO_x, as well as through direct control of $PM_{2.5}$. The 2016 AQMP identifies control measures and strategies to demonstrate that the SCAB will attain the revoked 1997 8-hour O_3 NAAQS (80 parts per billion [ppb]) by 2024; the 2008 8-hour O_3 standard (75 ppb) by 2032; the 2012 annual $PM_{2.5}$ standard (12 micrograms per cubic meter [$\mu g/m^3$]) by 2025; the 2006 24-hour $PM_{2.5}$ standard (35 $\mu g/m^3$) by 2019; and the revoked 1979 1-hour O_3 standard (120 ppb) by 2023.

The 2016 AQMP reported that, although population in the SCAG region has increased by more than 20 percent since 1990, air quality has improved due to air quality control projects at the local, state, and federal levels. In particular, 8-hour O_3 levels have been reduced by more than 40 percent, 1-hour O_3 levels by close to 60 percent, and annual $PM_{2.5}$ levels by about 55 percent since 1990.

Control of Emissions from New Marine Compression-Ignition Engines at or above 30 Liters per Cylinder

In December 2009, USEPA adopted revisions to the CAA engine program to include two additional tiers of NO_x standards for new Category 3 marine diesel engines installed on vessels flagged or registered in the U.S. (Federal Register Vol. 75, No. 83 [April 30, 2010]: 2010-2534). Category 3 engines are used for propulsion in OGVs. The final near-term Tier 2 standards for newly built engines took effect in 2011 and require more efficient uses of current engine technologies, including engine timing, engine cooling, and advanced computer controls. The Tier 2 standards result in a 15 to 25 percent NO_x reduction compared to the Tier 1 levels established in 2003. The final Tier 3 standards for newly built engines took effect in 2016 and require the use of high-efficiency emission control technology, such as selective catalytic reduction, to achieve NO_x reductions of 80 percent below Tier 2 levels. These Tier 2 and 3 engine standards are equivalent to those in MARPOL Annex VI Regulation 13 for NO_x.

In addition to the NO_x emission limits, USEPA adopted standards for emissions of hydrocarbons and CO from new Category 3 engines. USEPA did not adopt a standard for PM emissions for Category 3 engines. However, significant PM emissions benefits indirectly will occur through implementation of the ECA fuel sulfur requirements for OGV that operate adjacent to U.S. shores. USEPA also required engine manufacturers to measure and to report PM emissions.

USEPA also finalized a change to the diesel fuel program, consistent with MARPOL Annex VI, which allows for the production and sale of 0.1 percent sulfur fuel for use in Category 3 marine vessels. In addition, these new fuel requirements, approved in 2010, forbid the production and sale of marine fuel oil above 0.1 percent sulfur for use in most U.S. waters, unless the vessel employs alternative devices, procedures, or compliance methods that achieve equivalent emission reductions.

Emission Standards for Marine Diesel Engines

In March 2008, USEPA adopted new Tier 3 and Tier 4 emission standards that apply to both new and remanufactured marine diesel engines (USEPA 2008). To reduce emissions from Category 1 (at least 50 horsepower [hp] but less than 7 liters per cylinder displacement) and Category 2 (7 to 30 liters per cylinder displacement) marine diesel engines, USEPA established Tier 2 standards that were phased in from 2004 to 2007 (year of manufacture), depending on the engine size. Tier 3 standards apply to new engines used in commercial, recreational, and auxiliary marine power applications beginning in 2009 for Category 1 engines and in 2013 for Category 2 engines. Tier 4 standards apply to new Category 1 and 2 engines above 600 kW on commercial vessels beginning in 2014. For remanufactured engines, standards apply only to commercial marine diesel engines above 600 kW when the engines are remanufactured and as soon as certified systems are available. The Tier 4 standards will reduce emissions of DPM by 90 percent and NO_x by 80 percent compared to marine engines with Tier 2 standards. The air quality analysis in this PEIR assumes that this rule would affect the Port harbor craft but not OGV auxiliary engines, as the latter are generally manufactured overseas and therefore would be exempt from the rule.

Emission Standards for Nonroad Diesel Engines

USEPA established a series of progressively cleaner emission standards for new off-road (USEPA uses the term nonroad for this source group) diesel engines. Tier 1 standards were phased in from 1996 to 2000; Tier 2 standards were phased in from 2001 to 2006; Tier 3 standards were phased in from 2006 to 2008; and Tier 4 standards, which require add-on emission control equipment, were phased in from 2008 to 2015. For each Tier category, the phase-in schedule is driven by engine size.

The Tier 4 standards complement the 2007 and later on-road heavy-duty engine standards by requiring an additional 90 percent reduction in PM and NO_x compared to Tier 3 standards. To enable sulfur-sensitive control technologies in Tier 4 engines, USEPA mandated reductions in the sulfur content of nonroad diesel fuels to 15 parts per million (ppm) (also known as ultra-low sulfur diesel) effective 2010. This action brought the federal fuel standard in line with the California standard, which required 15 ppm sulfur starting in 2006.

These standards apply to construction, terminal, and railyard equipment, but not locomotives or marine vessels, with the exception of marine diesel engines below 50 hp.

Nonroad Diesel Fuel Rule

In May 2004, USEPA set sulfur content limits for nonroad diesel fuel, including locomotives and marine vessels (excluding marine residual fuel used by OGVs). For the Proposed Plan, this rule affects line haul locomotives, as the California Diesel Fuel Regulations (described below) generally preempt this rule for other sources such as yard locomotives, construction equipment, terminal equipment, and harbor craft. Under this rule, the sulfur content of diesel fuel used by line haul locomotives was limited to 500 ppm in 2007 and was lowered to 15 ppm starting 2012 (USEPA 2016b).

Emission Standards for Locomotives

In 1997, USEPA adopted Tier 0, Tier 1, and Tier 2 emission standards for switching and line haul locomotives (40 Code of Federal Regulations [CFR] Parts 85, 89 and 92). The rule, which became effective in 2000, applies to locomotive engines originally manufactured or remanufactured after 1972. Tier 0 standards apply to locomotive engines originally manufactured between 1973 and 2001, Tier 1 standards apply to those originally manufactured between 2002 and 2004, and Tier 2 standards apply to those originally manufactured after 2005. These standards are met through engine design methods, without the use of exhaust gas after treatment.

In March 2008, USEPA strengthened the Tier 0 through Tier 2 standards, introduced more stringent Tier 3 and Tier 4 emission requirements, and introduced new idling reduction requirements for newly built and remanufactured locomotives (USEPA 2016c). Tier 3 standards are met through new engine design methods and became effective in 2012. Tier 4 standards necessitate the use of exhaust gas after-treatment technologies and became effective in 2015.

Emission Standards for On-Road Trucks

To reduce emissions from on-road, heavy-duty diesel trucks, USEPA established a series of progressively cleaner emission standards for new engines starting in 1988. These emission standards have been revised over time and generally apply to engines installed in vehicles with a gross vehicle weight rating (GVWR) above 14,000 pounds. The latest regulation, the 2007 Heavy-Duty Highway Rule, requires further reductions of PM, NO_x, and non-methane (non-CH_4) hydrocarbon emissions. The PM standard took full effect in 2007 and the NO_x and non-CH_4 hydrocarbon standards were phased in from 2007 through 2010 (USEPA 2000).To enable sulfur-sensitive control technologies in newer engines, USEPA limited the sulfur content of on-road diesel fuels to 15 ppm (ultra-low sulfur diesel) effective June 2006 (known as the 2007 Highway Rule) (USEPA 2001).

3.2.2.3 State Regulations

California Clean Air Act

In California, CARB is designated as the state agency responsible for all air quality regulations. CARB, which became part of the California Environmental Protection Agency (CalEPA) in 1991, is responsible for implementing the requirements of the federal CAA, regulating emissions from motor vehicles and consumer products, and implementing the California CAA of 1988 and its amendments. The California CAA of 1988 and its amendments outline a program to attain the CAAQS for O_3, NO_2, SO_2, and CO by the earliest practical date. Since the CAAQS are often more stringent than the NAAQS, attainment of the CAAQS requires greater emission reductions than what is required to show attainment of the NAAQS. Similar to the federal system, the state requirements and compliance dates are based on the severity of the ambient air quality standard violation within a region.

At-Berth Ocean-Going Vessels

In December 2007, CARB approved the California Port Regulations for At-Berth Ocean-Going Vessels (CCR Title 13, Section 2299.3), which require operators of container, passenger, and refrigerated cargo vessels meeting specified criteria to turn off diesel-powered auxiliary power engines for most of their stay in port and to replace this power with shore power from the electrical grid. The regulations required ship fleets to reduce NO_x and PM emissions from auxiliary engines while at berth by 50 percent compared to baseline power generation starting January 1, 2014, 70 percent in 2017, and 80 percent starting January 1, 2020 (CARB 2008a). Vessel operators may use emission-reduction techniques other than shore power to achieve equivalent emission reductions. The effects of this regulation are assumed in the unmitigated emission calculations for future container operations under the Proposed Plan.

Regulation to Reduce Emissions from Diesel Engines on Commercial Harbor Craft

In June 2011, CARB amended the Commercial Harbor Craft Regulation (CCR Title 13, Section 2299.5) to further reduce DPM, NO_x, and Reactive Organic Gases emissions from diesel engines used in new and in-use commercial harbor craft (CARB 2011a). Under the regulation, commercial harbor craft include tug boats, tow boats, ferries, excursion vessels, work boats, crew/supply vessels, fishing vessels, barges, and dredges. The regulation requires that beginning in year 2009, all in-use, newly purchased, or replacement engines meet USEPA's Tier 2 or greater emission standards per a compliance schedule set forth by CARB. For harbor craft with home ports in the SCAB, the compliance schedule is accelerated by 2 years, as compared to statewide requirements.

CARB In-Use Off-Road Diesel-Fueled Fleets Regulation

This regulation, as amended in 2011 (CCR Title 13, Section 2449 et seq.), requires owners of off-road mobile equipment powered by diesel engines 25 hp or larger to meet fleet average or best available control technology (BACT) requirements for NO_x and PM emissions by March 1 of each year (CARB 2011b). The regulation is structured by fleet size: large, medium, and small. The main tactic to reduce fleet emissions under the regulation is to replace older vehicles with new and cleaner emission standards. The target emission rates for these fleets are reduced annually over time. Enforcement of fleet average requirements for large fleets (greater than 5,000 total fleet hp) began in July 2014. The regulation also limits equipment idling. The regulation mainly would apply to off-road equipment fleets needed for construction activities under the Proposed Plan.

Regulation for Mobile Cargo Handling Equipment at Ports and Intermodal Rail Yards

This regulation, adopted by CARB in December 2005 and as amended in September 2011 (CCR Title 13, Section 2479), requires the use of BACT to reduce DPM and NO_x emissions from mobile CHE at ports and intermodal railyards. Beginning in 2007, the regulation requires that newly purchased, leased, or rented CHE for yard tractors be equipped with either a 2007 or newer on-road engine, a Tier 4 off-road engine, or the cleanest verified emissions control system that reduces DPM by 90 percent and NO_x by at least 70 percent. For non-yard tractor CHE, the requirements include currently verified technologies that reduce DPM by 85 percent. The regulation also imposes retrofit, operational, emission standards, and compliance requirements (CARB 2011c).

CARB Emission Standards and Test Procedures – Off-road Large Spark Ignition Engines

Since 2007, CARB has promulgated progressively more stringent emissions standards for combined hydrocarbon and NO_x (hydrocarbons + NO_x) emissions and test procedures. The engine emission standards and test procedures were implemented in two phases. The first phase was implemented for engines built between January 2007 and December 2009. The second, more stringent, phase was implemented for engines built starting in January 2010. The regulation was amended in 2010 to establish fleet average emissions requirements for existing engines (CARB 2010a). A 2016 amendment requires operators of in-use fleets to report and label large spark ignition equipment, and continue existing record keeping requirements that were previously set to expire on June 30, 2016.

1998 South Coast Locomotive Emissions Agreement

To accelerate introduction of Tier 2 locomotive engines into the SCAB, CARB and USEPA entered into an enforceable Memorandum of Understanding (MOU) in 1998 with the two major Class 1 freight railroads in California: Union Pacific Railroad (UPRR) and Burlington Northern Santa Fe (BNSF). This MOU required UPRR and BNSF to accelerate the introduction of locomotives with Tier 2 standard engines into the SCAB fleet and to achieve average emissions equivalent to the Tier 2 NO_x standard (5.5 grams per brake hp-hour) by 2010. This program achieved a 65 percent reduction in NO_x emissions by 2010. The MOU applies to both line haul (freight) and switch locomotives operated by these railroads (CARB 2019b). The 2016 compliance rate for the combined UPRR and BNSF locomotive fleets was estimated to be 5.4 grams of NO_x per brake hp-hour, or slightly below the compliance level of the MOU. It is expected that the emissions from these locomotive fleets will continue to decrease in future years due to their turnover to newer and lower-emitting units (Starcrest Consulting Group, LLC 2018).

2005 CARB/Railroad Statewide Agreement

UPRR and BNSF entered into a voluntary agreement with CARB, which became effective June 30, 2005. The Agreement obligated UPRR and BNSF to reduce locomotive and associated DPM emissions in and around California's railyards by 1) phasing out nonessential idling and installing idling reduction devices, 2) identifying and expeditiously repairing locomotives that smoke excessively, and 3) maximizing the use of 15 ppm sulfur diesel fuel. The 2005 Statewide Railyard Agreement was completed in 2015 (CARB 2019b).

CARB Drayage Truck Regulation

On December 17, 2010, CARB approved amendments to the original 2007 regulation (CCR Title 13, Section 2027) to reduce emissions from heavy-duty drayage trucks (i.e., trucks committed to container cargo transport) at ports and intermodal railyards. The regulation requires truck owners to register their trucks through the state-administered Drayage Truck Registry and it phases out older trucks from the existing class 8 drayage truck fleet (GVWR greater than 33,000 pounds) according to the following schedule (CARB 2018b):

- By December 31, 2009, pre-1994 model year engines were banned. In addition, all drayage trucks with 1994 to 2003 model year engines were required to achieve an 85 percent PM emission reduction through the use of a CARB-approved Level 3-verified diesel emission control.
- By December 31, 2013, all drayage trucks were required to comply with 2007 and newer on-road heavy-duty engine standards.
- Starting January 1, 2023, all drayage trucks must have 2010 or newer model year engines.

The 2010 amendments expanded the regulation to include smaller class 7 drayage trucks (GVWR from 26,001 to 33,000 pounds) that operate at off-port or intermodal railyard properties and transport marine or rail cargoes.

Heavy-Duty In-Use Vehicle Regulation (Statewide Truck and Bus Regulations)

In December 2011, CARB amended the 2008 Statewide Truck and Bus Regulation (CCR Title 13, Section 2025) to require existing heavy-duty trucks that operate throughout the state to be replaced with trucks meeting the latest NO_x and PM BACT or to be retrofitted to meet these levels. Trucks with GVWR greater than 26,000 (such as drayage trucks) must meet PM BACT and must upgrade to a 2010 or newer model year emissions equivalent engine pursuant to the compliance schedule set forth by the rule. By January 1, 2023, all model year 2007 class 8 drayage trucks are required to meet NO_x and PM BACT (i.e., Federal Register Vol. 75, No. 83 [April 30, 2010]: 2010-2534 or newer standards) (CARB 2011d). Trucks with GVWR less than 26,000 (such as construction trucks) are required to replace engines with 2010 or newer engines, or equivalent, by January 2023.

Amendments made to the Truck and Bus Regulation in 2014 became effective on December 31, 2014. However, in 2018, due to the California Court of Appeal's ruling in *John R. Lawson Rock & Oil, Inc. v. State Air Resources Board*, No. F074003, the 2014 amendments were voided (CARB 2019c). At this time, the Truck and Bus Regulation is being implemented concurrently with the Drayage Truck Regulation. The requirements of both became consistent in 2017 and the Truck and Bus Regulation has effectively replaced the Drayage Truck Regulation.

CARB Airborne Toxic Control Measure for Diesel-Fueled Transport Refrigeration Units, Generator Sets, and Facilities Where Transport Refrigeration Units Operate

In 2011, CARB amended the 2004 rule designed to reduce DPM emissions from in-use TRU and TRU generator set engines (CCR Title 13, Section 2477). Under the rule, TRU engines are required to meet in-use performance standards by installing the required level of verified diesel emission control strategy or using an alternative technology. Compliance may also be achieved by replacing the engine with a cleaner new or rebuilt engine. The in-use performance standards have two levels of stringency (Low Emission and Ultra Low Emission in-use performance standards) that are phased in per the compliance scheduled set forth in the rule.

Heavy-Duty Diesel Truck Idling Regulations

This CARB air toxic control measure rule became effective in February 2005 and was last revised in 2013 (CARB 2013). This rule prohibits heavy-duty diesel trucks from idling their main engines or auxiliary power system engines for longer than 5 minutes at a time, unless they are queuing, and provided the queue is located beyond 100 feet from any restricted areas. Restricted areas are defined as any real property zoned for individual or multi-family housing units, schools, hotels, motels, hospitals, or senior or child care facilities.

Assembly Bill 2650

Assembly Bill (AB) 2650 (Lowenthal) became effective in January 2003. Under AB 2650, shipping terminal operators are required to limit truck-waiting times to no more than 30 minutes at the Port of Long Beach, Port of Los Angeles, and Port of Oakland, or face fines of $250 per violation. Collected fines are used to provide grants to truck drivers to replace and retrofit their vehicles with cleaner engines and pollution control devices. A companion piece of legislation (AB 1971) was passed in September 2004 to ensure that the intent of AB 2650 is not circumvented by allowing trucks with appointments to wait inside terminal gates.

California Diesel Fuel Regulations

In 2004, CARB set limits on the sulfur content of diesel fuel sold in California for use in on-road and off-road vehicles. Harbor craft and intrastate locomotives were originally excluded from the rule, but were later included by a rule amendment that was adopted in 2005. Under this rule, diesel fuel used in vehicles, except harbor craft and intrastate locomotives, was limited to 500 ppm sulfur since 1993. The sulfur limit was reduced to 15 ppm beginning September 1, 2006. Diesel fuel used in harbor craft in the SCAB also was limited to 500 ppm sulfur starting January 1, 2006 and it was lowered to 15 ppm sulfur September 1, 2006. Diesel fuel used in intrastate locomotives (switch locomotives) was limited to 15 ppm sulfur effective January 1, 2007 (CARB 2008b).

Emission Reduction Plan for Ports and Goods Movements in California

In April 2006, CARB approved the Emission Reduction Plan for Ports and Goods Movement in California (CARB 2006a). The Goods Movement Plan proposed measures to reduce emissions from the main sources associated with port cargo handling activities, including ships, harbor craft, terminal equipment, trucks, and locomotives. This effort was a step in implementing the Goods Movement Action Plan developed by the California Business, Transportation, and Housing Agency and CalEPA. The final Goods Movement Action Plan was released on January 11, 2007, and includes measures to address the various conduits of the goods movement system throughout the state, including freeways, rail, and ports.

Statewide Portable Equipment Registration Program

The Statewide Portable Equipment Registration Program (PERP) establishes a uniform program to regulate portable engines and portable engine-driven equipment units (CARB 2016b). Once registered in the PERP, engines and equipment units may operate throughout California without the need to obtain individual permits from local air districts, as long as the equipment is located at a single location for no more than 12 months. The PERP generally would apply to construction-related equipment (e.g., dredging and barge equipment).

3.2.2.4 Local Regulations

SCAQMD Rules

The SCAQMD is primarily responsible for planning, implementing, and enforcing national and state ambient air quality standards within the SCAB. As part of its planning responsibilities, SCAQMD prepares AQMPs according to the attainment status of ambient air quality standards within the air basin. The SCAQMD also is responsible for permitting and controlling stationary sources of criteria and air toxic pollutants, as delegated by the CARB and USEPA.

Through the attainment-planning process, SCAQMD develops the SCAQMD Rules and Regulations to regulate sources of air pollution in the SCAB (SCAQMD 2019a). The SCAQMD rules that are applicable to the Proposed Plan are listed below.

SCAQMD Rule 402 – Nuisance

This rule prohibits discharge of air contaminants or other materials that cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public; or that endanger the comfort, repose, health, or safety of any such persons or the public; or that cause, or have a natural tendency to cause, injury or damage to business or property.

SCAQMD Rule 403 – Fugitive Dust

The purpose of this rule is to control the amount of PM entrained in the atmosphere from man-made sources of fugitive dust. The rule prohibits emissions of fugitive dust from any active operation, open storage pile, or disturbed surface area to be visible beyond the property line of an emissions source. Construction and operational sources of fugitive dust are subject to this rule.

For construction activities that would occur under the Proposed Plan, best available control measures identified in the rule would be required to minimize fugitive dust emissions from earthmoving and grading activities. These measures would include site watering as necessary to maintain sufficient soil moisture content. Additional requirements apply to operations on a property with 1) 50 or more acres of disturbed surface area or 2) a daily earthmoving throughput volume of 5,000 cubic yards (cy) or more that occurs at least three times during the most recent 365-day period.

SCAQMD Rule 1113 – Architectural Coatings

This rule limits the VOC content of architectural coatings used within the SCAB.

SCAQMD Rule 1166 – VOC Emissions from Decommissioning of Soils

This rule sets requirements to control emissions from excavating, grading, handling, and treating VOC-contaminated soils that may be encountered during construction activities.

SCAQMD Rule 1403 – Asbestos Emissions from Demolition/Renovation Activities

The purpose of this rule is to limit emissions of asbestos, which is a TAC, from demolition/renovation activities. The rule requires SCAQMD to be notified of proposed demolition/renovation activities and to survey these structures for the presence of asbestos containing materials (ACM). The rule also includes notification requirements for any intent to disturb ACM; emission control measures; and ACM removal, handling, and disposal techniques.

SCAQMD Rule 3502 – Minimization of Emissions from Locomotive Idling

This purpose of this rule is to minimize emissions from unnecessary idling of locomotives and applies to Class I freight railroads and switching and terminal freight railroads operating in the SCAB.

Port of Long Beach Green Port Policy

The Green Port Policy, which was approved by the Board of Harbor Commissioners (BHC) in January 2005, serves as a guide for decision-making and establishes a framework for reducing environmental impacts associated with Port operations. It formalizes five guiding principles for the Port's environmental protection efforts: 1) protect the local community and environment from harmful Port impacts; 2) employ the best available technology to minimize Port impacts and explore and advance technology solutions; 3) promote sustainability in terminal design, development, and operations; 4) distinguish the Port as a leader in environmental stewardship and regulatory compliance; and 5) engage and educate the community about Port development and environmental programs. The goal of the air quality program element of the Green Port Policy is to reduce harmful air emissions from Port activities (Long Beach Harbor Department 2005).

San Pedro Bay Ports Clean Air Action Plan

As a means to implement the Green Port Policy, the Port of Long Beach, in conjunction with the Port of Los Angeles, and with the cooperation of SCAQMD, CARB, and USEPA, adopted the San Pedro Bay Ports Clean Air Action Plan (CAAP) on November 20, 2006, and adopted an updated CAAP in November 2010 (POLA and POLB 2006, POLA and POLB 2010). The CAAP is a sweeping plan designed to reduce the health risks posed by air pollution from all port-related emissions sources, including ships, trains, trucks, terminal equipment, and harbor craft. In addition, a major goal of the CAAP is to ensure that port-related sources provide a "fair share" of regional emission reductions to enable the SCAB to attain state ambient air quality standards and NAAQS.

The CAAP proposed to implement emission control measures largely through new lease agreements and the CEQA approval process for new projects. To encourage implementation of these measures for terminals that do not undergo lease negotiations, Port of Los Angeles and

Port of Long Beach proposed strategies such as incentive funding and tariff changes. The CAAP identified source-specific emission control measures and also included a Project Specific Health Risk Standard, whereby new projects had to meet a 10 in one million cancer risk threshold.

The 2010 CAAP Update identified three categories of major enhancements: 1) updates to emission control measures; 2) adoption of the San Pedro Bay Standards (SPBS); and 3) CAAP progress tracking. The SPBS includes a health risk reduction standard with the goal of reducing the population-weighted cancer risk of port-related DPM emissions by 85 percent in highly impacted communities located proximate to Port sources and throughout residential areas in the POLB region. The SPBS also includes an emission-reduction standard for Port-related sources relative to 2005 emission levels: 1) by 2014, reduce emissions of NO_x, SO_x, and DPM by 22, 93, and 72 percent, respectively and 2) by 2023, reduce emissions of NO_x, SO_x, and DPM by 59, 93, and 77 percent, respectively.

The progress and effectiveness of the CAAP are measured against attaining the SPBS health risk and emission-reduction standards, as compared to operations associated with the 2005 annual San Pedro Bay Ports emissions inventories. For example, as a result of the implementation of CAAP measures and agency air regulations, the 2017 annual POLB emissions 1) already have met the 2023 San Pedro Bay Ports emission-reduction standards for SO_x and DPM and 2) nearly have met the 2023 standard for NO_x (56 percent reduction compared to 2005 levels) (Starcrest Consulting Group, LLC 2018). The Port also evaluates annual air quality trends based on data gathered from their ambient air monitoring network to assess progress of the CAAP. These efforts allow the Port, the community, and regulators to determine the best use of resources for addressing air quality problems.

2017 CAAP Update

In November 2017 the Port of Los Angeles and Port of Long Beach adopted the 2017 CAAP Update (POLA and POLB 2017a). This plan includes new strategies that will reduce emissions from sources in and around the San Pedro Bay Ports while maintaining the San Pedro Bay Ports' competitive position in the global economy. These strategies have been guided by ongoing regional air quality compliance efforts, and notably, the goals of the California Sustainable Freight Action Plan (CSFAP) (see PEIR Section 3.16.2.2, State Regulations). As articulated in the CSFAP, to support the ultimate goal of zero-emissions goods movement, the San Pedro Bay Ports must develop strategies that include the introduction of clean vehicles and equipment, infrastructure, freight efficiency, and energy planning. As a result, the initiatives in the 2017 CAAP Update are broader in scope than in the previous CAAPs.

The 2017 CAAP Update continues the health risk and emission-reduction targets set in the 2010 CAAP Update and it promotes two new greenhouse gas (GHG) emission-reduction targets. The 2017 CAAP Update also incorporates the recent commitment by the mayors of Los Angeles and Long Beach to move toward zero emissions at the Ports, including setting goals of zero-emissions CHE by 2030 and zero-emissions drayage trucks by 2035.

The new emission-reduction strategies span both near-term and long-term implementation periods: 1) near-term actions will produce air quality improvements within the next 5 years and will rely on accelerating the adoption of commercially available cleaner engine technologies and operational changes and 2) in parallel, long-term actions are being evaluated to be implemented over the next two decades as a series of interim steps to achieve the goals of zero emissions and the reduction of the San Pedro Bay Ports' carbon footprint. These strategies are both source-specific and programmatic in nature and include flexibilities on how operators can best achieve these goals. **Mitigation Measure AQ-8** would require projects to implement all applicable and commercially available source-specific clean engine technologies and fuels for purposes of meeting the goals identified in the 2017 CAAP Update.

The CAAP process is one of the strategies that implements the POLB Green Port Policy. The Proposed Plan proposes to support implementation of the Green Port Policy initiatives through Development Goal 3 (see PEIR Section 1.8.1, Development Goals). Therefore, the Proposed Plan would directly implement the CAAP and emission-reduction initiatives identified in the 2010 and 2017 CAAP Updates.

Port of Long Beach Community Grants Program

In 2009, the Port launched its Community Mitigation Grant Programs to address cumulative air and health impacts arising from new development projects. Since establishing the Community Mitigation Grant Programs, the Port has provided $17.4 million in funding for nearly 120 community-based mitigation projects.

In 2016, the Port created a new updated program, the Community Grants Program, which allocates $46.4 million over the next 12 to 15 years in three categories: Community Health, Facility Improvements, and Community Infrastructure. The Port developed a Community Impact Study in 2016 to identify both the direct impacts of Port-related operations on the local community and community-based mitigation measures to relieve these impacts (POLB 2016d). The Community Grants Program and Investment Plan provide guidance for spending and managing mitigation funds in order to most effectively address community impacts while conforming to a state requirement that stringently governs the use of Port dollars (POLB 2016b).

3.2.3 Impacts and Mitigation Measures

The following section evaluates air quality and health risk impacts that would occur from the Proposed Plan and its alternatives. Implementation of the Proposed Plan and alternatives would result in a variety of construction and operational activities that would affect air quality within the Harbor District and surrounding region. The following analysis compares potential air quality and health risk impacts from the Proposed Plan and alternatives to criteria developed by the SCAQMD, as presented below in Section 3.2.3.1 (Significance Criteria), to determine their significance.

3.2.3.1 Significance Criteria

Criteria for determining the significance of impacts on air quality are based on the 2019 CEQA Guidelines, Appendix G (Environmental Checklist), and have been modified as necessary to reflect Port operations within a highly urbanized, industrial complex. Consistent with CEQA, significance criteria established by an applicable air quality management district or air pollution control district may be relied on to determine the significance of air quality impacts. Therefore, the following thresholds developed by the SCAQMD are used in this PEIR to determine the significance of air quality impacts of the Proposed Plan and its alternatives (SCAQMD 2019b). These thresholds usually pertain to the significance of air quality impacts from individual projects and proposed developments. Use of these thresholds to evaluate several combined actions under the Proposed Plan and alternatives is therefore a more conservative approach. Impacts during construction or operation would be considered significant if the Proposed Plan would:

- **AQ-1:** Produce emissions that would exceed any of the SCAQMD daily thresholds of significance in Table 3.2-7.

TABLE 3.2-7. SCAQMD DAILY EMISSION THRESHOLDS

Air Pollutant	Emission Threshold (Pounds/Day)	
	Construction	Operational
VOC	75	55
CO	550	550
NO_x	100	55
SO_x	150	150
PM_{10}	150	150
$PM_{2.5}$	55	55

Source: (SCAQMD 2019b)
Key: CO = carbon monoxide; NO_x = nitrogen oxides; PM_{10} = particulate matter less than 10 microns in diameter; $PM_{2.5}$ = particulate matter less than 10 microns in diameter; SCAQMD = South Coast Air Quality Management District; SO_x = sulfur oxides; VOC = volatile organic compounds

- **AQ-2:** Result in off-site ambient air pollutant concentrations that exceed any of the SCAQMD thresholds of significance shown in Table 3.2-8 (the analysis also evaluates compliance with the federal 1-hour NO_2 standard, which SCAQMD does not list as one of its thresholds).

TABLE 3.2-8. SCAQMD THRESHOLDS FOR AMBIENT AIR POLLUTANT CONCENTRATIONS

Air Pollutant	Ambient Concentration Threshold
NO_2	
1-hour average (state)	0.18 ppm (339 $\mu g/m^3$)
1-hour average (federal)	0.100 ppm (188 $\mu g/m^3$)
Annual average (state)	0.030 (57 $\mu g/m^3$)
Annual average (federal)	0.0534 (100 $\mu g/m^3$)
CO	
1-hour average	20 ppm (23,000 $\mu g/m^3$)
8-hour average	9.0 ppm (10,000 $\mu g/m^3$)
PM_{10}	
24-hour average (construction)	10.4 $\mu g/m^3$
24-hour average (operation)	2.5 $\mu g/m^3$
Annual average	1.0 $\mu g/m^3$
$PM_{2.5}$	
24-hour average (construction)	10.4 $\mu g/m^3$
24-hour average (operation)	2.5 $\mu g/m^3$

Source: (SCAQMD 2019b)
Key: $\mu g/m^3$ = micrograms per cubic meter; CO = carbon monoxide; NO_2 = nitrogen dioxide; PEIR = Program Environmental Impact Report; PM_{10} = particulate matter less than 10 microns in diameter; $PM_{2.5}$ = particulate matter less than 2.5 microns in diameter; ppm = parts per million; SCAQMD = South Coast Air Quality Management District; SO_2 = sulfur dioxide
Notes:
The SCAQMD also has established concentration thresholds for SO_2, sulfates, and lead; but potential emissions of these pollutants indicate that concentration standards would not be exceeded.
[1] The NO_2 and CO thresholds are absolute concentration thresholds, meaning that the maximum predicted project concentration is added to the background concentration for a project vicinity, and the total concentration is compared to the threshold.
[2] The federal 1-hour NO_2 standard of 0.100 ppm (188 $\mu g/m^3$) is used as a significance threshold in this PEIR even though SCAQMD does not list it as one of its Air Quality Significance Thresholds. This standard applies to the 3-year average of the annual 98th percentile of the daily maximum 1-hour concentration.
[3] The PM_{10} and $PM_{2.5}$ thresholds are incremental concentration thresholds, meaning that the maximum predicted project incremental concentration (Proposed Plan minus 2017 Baseline) is directly compared to the threshold without adding a background concentration.

- **AQ-3:** Create an objectionable odor at the nearest sensitive receptor pursuant to SCAQMD Rule 402.
- **AQ-4:** Produce emissions that would expose the public to significant levels of TACs. The determination of significance is based on the following:
    - Maximum incremental cancer risk greater than or equal to 10 in one million (10×10^{-6});
    - Noncancer (chronic or acute) hazard index greater than or equal to 1.0 (Project increment); or
    - Population cancer burden greater than 0.5 excess cancer cases in areas equal to or exceeding 1 in one million (1×10^{-6}) cancer risk.
- **AQ-5:** Conflict with or obstruct implementation of an applicable AQMP or would not conform to the most recently adopted SIP.

3.2.3.2 Assessment Methodology

The Proposed Plan and its alternatives would result in a variety of construction and operational activities that would affect air quality within the Harbor District and surrounding region. The timing and specific details of many of these activities are somewhat uncertain, as the Proposed Plan planning horizon extends out to the distant year of 2040. However, reasonable assumptions regarding these activities were made to enable an adequate level of impact quantification for this PEIR.

This PEIR presents original estimates of operational emissions for the Proposed Plan and alternatives, based on planning metrics developed for full build-out conditions in year 2040. However, the estimation of construction air emissions and construction and operational pollutant concentration impacts from Proposed Plan activities was not feasible due to the lack of necessary detail at this planning stage. Therefore, this PEIR relies on previous analyses conducted for activities that are similar to those identified for the Proposed Plan and alternatives and found in the most recent Port of Long Beach and Port of Los Angeles project-level CEQA/National Environmental Policy Act (NEPA) documents. This surrogate approach is deemed adequate for defining program-level air quality impacts in this PEIR. Future project-level CEQA documentation for individual actions included in the Proposed Plan and alternatives will provide detailed analyses, as appropriate, of project-specific air quality impacts.

Because this PEIR evaluates construction emission impacts and construction and operational pollutant concentration impacts by considering prior CEQA/NEPA documents, the numerical values for these impacts presented in this PEIR are not intended to be precise estimates. The emissions and concentrations from prior CEQA documents were calculated under different assumptions regarding analysis years, equipment usage, and spatial configuration. They were also calculated using emission factors, methodologies, and dispersion models that are periodically updated and revised by regulatory agencies. Therefore, the construction emissions and construction and operational pollutant concentrations presented in this PEIR are intended only to provide order-of-magnitude estimates for the Proposed Plan and alternatives and indicate the likelihood for impacts to be significant.

The following section describes the methods used to evaluate air quality impacts from the Proposed Plan and alternatives. To determine their significance, potential emissions and impacts predicted to occur from each alternative were evaluated in comparison to the significance criteria presented above in Section 3.2.3.1 (Significance Criteria).

Construction Emissions

The Proposed Plan and alternatives would include a variety of construction activities that would require the use of off-road construction equipment (including landside construction equipment and in-water equipment such as dredges and barges), on-road trucks, and tugboats. These sources primarily would use diesel fuel and would generate combustive emissions. In addition, off-road construction equipment that operate on unpaved surfaces and perform earthmoving activities would generate fugitive dust in the form of PM_{10} and $PM_{2.5}$. Worker commuter vehicles also would generate exhaust and paved road dust emissions.

The construction impact analyses focus on the largest activities that would occur under the Proposed Plan (Major Activities) to enable identification of potential maximum impacts. These activities, as described in Section 1.8.4 (Proposed Plan Projects Analyzed in the PEIR) of this PEIR, include 1) dredging, diking, and landfilling, 2) wharf construction, 3) terminal backlands improvements, and 4) railyard construction. These activities were chosen for analysis since they would produce the highest amounts of daily emissions from the proposed construction activities. Analyses of the significance of construction emissions typically focus on a peak day to ensure identification of a maximum emissions scenario for comparison to the SCAQMD daily significance thresholds. Therefore, the analysis assumes that several of these large activities would occur during a peak day. Emissions from lesser construction activities would be much smaller in comparison to these Major Activities. Therefore, these lesser activities were not included in the analysis as they would not affect the significance findings.

The POLB Pier S Marine Terminal + Back Channel Improvements Project Final EIS/Final EIR evaluated construction of a new 160-acre container terminal with 3,200 feet of concrete pile-supported wharf, terminal buildings, truck gates, utilities, a 17-acre intermodal railyard with supporting rail tracks, installation of container cranes and other CHE, dredging of up to 881,000 cy of materials, and realignment of the existing dike (POLB 2012). In addition, the POLB Pier B On-Dock Rail Support Facility Project (Pier B Project) Final EIR evaluated expansion of an existing railyard from 82 to 182 acres (POLB 2018c). Therefore, this PEIR analysis assumes that the peak daily emissions estimated for Major Activities in these prior documents also would occur from the Proposed Plan. The environmental documents relied on to provide surrogate estimates for peak daily emissions for Major Activities are as follows:

- Dredging/diking/landfilling: *Pier S Final EIS/Final EIR*;
- Wharf construction: *Pier S Final EIS/Final EIR*;
- Backlands improvements: *Pier S Final EIS/Final EIR*; and
- Railyard construction: *Pier B Final EIR*.

The analysis describes the applicability of these daily emissions estimates to the Proposed Plan by comparing the level of construction efforts associated with the previously approved projects to those proposed under the Proposed Plan. The analysis of the alternatives focuses on whether they propose the Major Activities. If not, then the analysis makes qualitative conclusions regarding the potential for an alternative to result in significant construction emissions.

Construction Ambient Pollutant Impact Analysis

This PEIR uses the results of the dispersion modeling analyses conducted for construction activities in the Pier S Project Final EIS/Final EIR as indicators of ambient pollutant concentration impacts that could occur from a wide range of construction activities proposed under the Proposed Plan and alternatives. The Pier S Project Final EIS/Final EIR evaluated the combined impacts from 1) dredging, diking, and landfilling, 2) wharf construction, 3) terminal backlands improvements, and 4) railyard construction activities. This PEIR also presents the results of the dispersion modeling analysis conducted for construction activities in the POLB Pier B Project Final EIR as indicators of ambient pollutant impacts that could occur from emissions due to construction of a large railyard. The analysis qualitatively analyzes how these impact analyses relate to the Proposed Plan and alternatives by taking into consideration the level of emission strengths associated with these previously approved activities and those proposed under each Plan alternative.

This PEIR presents the mitigation scenarios from the Pier S Project Final EIS/Final EIR and Pier B Project Final EIR (where those mitigation measures would apply to the Proposed Plan and alternatives) and qualitatively supplements these analyses with updated approaches to mitigation.

Operational Emissions

Operation of the Proposed Plan and alternatives would involve all of the goods movement activities that currently exist at the Port. Emission sources associated with these operations include OGVs, tugboats, CHE, trucks, and locomotives. These sources primarily would use diesel fuel and would generate combustive emissions. In addition, vehicles and equipment that operate on paved surfaces would generate fugitive dust in the form of PM_{10} and $PM_{2.5}$. Worker commuter vehicles also would generate exhaust and paved road dust emissions. TRU generation sets would generate diesel exhaust emissions.

The Integrated Land Use Tool and Port Terminal Capacity Model (collectively referred to as the ILUT) developed for the POLB Land Use Study (WSP 2017) were used to estimate operational emissions from the Proposed Plan and alternatives. The ILUT is described in Appendix B. In addition, supplemental calculations were made to adjust these estimates to ensure consistency of the source categories and geographical domains between the Proposed Plan alternatives and 2017 Baseline. The analysis presents emissions from Port operations in year 2040 under full build-out conditions for the Proposed Plan and each alternative. Appendix E (Air Emission Calculations) presents details of the methods used to estimate operational emissions for the Proposed Plan and alternatives.

The analysis provides estimates of emissions for activities under the Proposed Plan and alternatives that would extend throughout the SCAB and its associated offshore waters. This geographic scope is consistent with the application of significance thresholds established by the SCAQMD for its jurisdiction. The analysis estimates the net change in peak daily emissions between the Proposed Plan and alternatives and the 2017 Baseline scenario to determine the significance of proposed emissions. The peak daily emissions were scaled from the estimated annual emissions by applying peak day factors. The factors developed for the 2017 Baseline were assumed to also be representative of 2040 conditions. The peak day factors vary by emission source category and range from 11 to 64 percent higher than average daily emissions. Appendix E (Air Emission Calculations) describes the derivation of the peak day factors and presents the annual emissions.

In analyzing impacts prior to mitigation (i.e., unmitigated scenarios), this PEIR assumes implementation of current regulations that apply to the main emission source categories that operate at the Port. By year 2040, these requirements generally equal or exceed those identified as source-specific control measures in the 2010 CAAP Update. These existing regulations and CAAP measures are described in Section 3.2.2 (Regulatory Setting). Because strategies in the 2017 CAAP Update would be subject to further study, public participation, and outreach prior to their implementation in the future, the PEIR analysis assumes in the unmitigated scenarios that none of the emission-reduction strategies proposed in the 2017 CAAP Update would be implemented above existing practice or above what would be required by existing regulations. In analyzing impacts with mitigation incorporated (i.e., the mitigated scenarios), the analysis discusses how emission-reduction strategies proposed in the 2017 CAAP Update (as **Mitigation Measure AQ-8**) and future regulations could mitigate significant emissions.

Following the identification of construction and operational emissions impacts and the assignment of mitigation measures, this PEIR includes a discussion of the potential human health effects associated with significant emissions impacts. The discussion is in response to the outcome of *Sierra Club v. County of Fresno* (2018), in which the California Supreme Court ruled that an EIR for a proposed master-planned, mixed-use development in Fresno County known as Friant Ranch did not adequately relate the expected adverse air quality impacts to likely health consequences or explain in meaningful detail why it was not feasible at the time of drafting to provide such an analysis. The discussion pertains to the criteria pollutant impacts of the Proposed Plan and therefore is different from the health risk assessment (HRA) of TACs, discussed below.

Some portions of the Harbor District either would not be affected by the Proposed Plan and alternatives or would be modified in accordance with prior certified CEQA documents. For example, the Pier B On-Dock Rail Support Facility project has been approved by the Port through a certified Final EIR. The emissions associated with these prior projects are not required to be included in this PEIR because they have already been approved through the CEQA process. However, the Port determined that it would be very difficult to exclude the operational emissions associated with these projects from the Port-wide emission calculations prepared for this PEIR because of the interrelated nature of Port operations. Therefore, for the 2017 Baseline and 2040 Proposed Plan and alternatives scenarios, all Port operations were conservatively included in the emission calculations for this PEIR except for several stationary industrial sources not related to the Port's goods movement activities. Stationary sources excluded from the emission calculations include Harbor Cogeneration, SERRF, Tidelands Oil Production Company, THUMS Oil Operations, and Long Beach Generation. These stationary sources are regulated by the SCAQMD and their operations would not change as a result of the Proposed Plan or alternatives. The exclusion of these stationary sources is also consistent with the POLB 2017 Air Emissions Inventory.

Operational Ambient Pollutant Impact Analysis

This PEIR uses the results of the dispersion modeling analyses conducted for operational activities in recently certified POLB CEQA documents as indicators of ambient pollutant concentration impacts that could occur from the following operations under the Proposed Plan and alternatives: 1) for a cargo handling terminal and a container handling terminal, the Pier S Project Final EIS/Final EIR modeling was used, and 2) for a railyard, the POLB Pier B Project Final EIR modeling was used. The analysis herein assesses how the prior impact analyses relate to impacts from the Proposed Plan and alternatives by taking into consideration the levels of emission strengths associated with the previously approved activities and those proposed under the Proposed Plan and alternatives. The ambient concentration analysis focuses on container terminal operations, as those operations would generate the highest impacts of any cargo activity at the Port and other operations would contribute *de minimis*[6] impacts.

The analysis presents the mitigated analyses for the Pier S and Pier B projects in this PEIR (assuming the implemented mitigations also would apply to the Proposed Plan and alternatives). As noted above, due to the uncertainty of how and when the Port would implement the 2017 CAAP Update measures in the future, the PEIR discusses rather than quantifies how the emission-reduction strategies (as **Mitigation Measure AQ-8**) could mitigate significant impacts.

Following the identification of construction and operational ambient pollutant concentration impacts and the assignment of mitigation measures, this PEIR includes a discussion of the potential human health effects associated with the significant concentration impacts. The discussion is in response to the outcome of *Sierra Club v. County of Fresno* (2018). The discussion pertains to the criteria pollutant impacts of the Proposed Plan and therefore is different from the HRA of TACs, discussed below.

Health Risk Assessment of Toxic Air Contaminant Emissions

To evaluate potential public health effects of proposed construction and operational emissions of TACs, this PEIR presents both regional and localized impact analyses. Regional impacts would occur within the SCAB as a result of proposed TAC emissions generated on-Port as well as along the ship, truck, and train transit corridors. Local impacts would occur in the communities adjacent to the Port as a result of proposed TAC emissions generated primarily within the Port.

For regional health impacts, the analysis focuses on the net change in annual DPM emissions that would occur with the Proposed Plan and alternatives relative to the 2017 Baseline. If a net change in DPM emissions is positive, then the analysis concludes that a Proposed Plan or alternative would likely produce an increase in the regional cancer risks, which would be a significant regional impact. Likewise, if a net change in DPM emissions is negative, then the analysis concludes that a Proposed Plan or alternative would likely produce a decrease in the regional cancer risks, which would be a less than significant regional impact.

For localized health effects, HRAs depend on the evaluation of specific project scheduling and configurations and resulting proximities to nearby residential, sensitive, and workplace receptors. An HRA uses dispersion modeling to predict ambient TAC concentrations which are then used in the calculation of health impacts. Dispersion models require precise source emission rates and spatial characteristics and receptor locations to predict reliable concentrations at receptors in close proximity to the sources. The details for such an analysis are not known sufficiently at the program level. As a result, it would be too speculative to perform a formal HRA to estimate potential health effects from individual or multiple projects under a Plan alternative. Therefore, the analysis relies on the results of HRAs conducted for activities that are similar to those in the Proposed Plan and alternatives and evaluated in recently certified San Pedro Bay Ports CEQA documents for use as general indicators of health effects that could occur from the Proposed Plan and alternatives.

Because the California OEHHA issued a major update to its HRA guidelines in 2015, this PEIR only considers HRAs that followed the 2015 guidelines. In the Port's judgment, the use of earlier

[6] 40 CFR 93 section 153 defines *de minimis* levels as the minimum threshold for which a conformity determination must be performed, for various criteria pollutants in various areas. [https://www.epa.gov/general-conformity/de-minimis-emission-levels]

HRAs conducted under older guidelines is too uncertain given the complexities associated with adjusting prior results while at the same time accounting for the health risk increment relative to baseline. The health risk increment is often small relative to the absolute project and baseline health risks, which means that slight deviations in adjusting the old results can lead to large distortions in the incremental health risks. The selected HRAs conducted under the 2015 guidelines include the Port of Long Beach Pier B Final EIR and the Port of Los Angeles Berths 226–236 (Everport) Container Terminal Improvements Project Final EIS/Final EIR (POLA 2017). These HRAs evaluated emissions of TACs from construction and operational sources to quantify individual lifetime cancer risks, cancer burden, and chronic and acute noncancer health effects. The main sources of TACs evaluated in these HRAs would be nearly identical to those associated with the Proposed Plan and alternatives, including construction equipment, OGVs, tugboats, terminal equipment, locomotives, and trucks. This qualitative approach focuses more on the significance and less on the numerical value of a potential health impact that could occur from the Proposed Plan and alternatives. This PEIR does not evaluate cancer burden effects, as that analysis is dependent on the specific locations of TAC emission sources relative to nearby residential areas.

This PEIR considers both the unmitigated and mitigated scenarios of the HRAs identified above. In addition, the PEIR discusses how emission control measures in the 2010 CAAP Update and emission-reduction strategies in the 2017 CAAP Update could mitigate potential health impacts.

Particulate Matter Morbidity and Mortality Considerations

Numerous studies have been published over the years that have established a strong correlation between the inhalation of ambient PM and mortality (premature death) and morbidity (illness) (POLB 2018c, pages 3.2-60 and 3.2-61). These respirable particles (PM_{10} and $PM_{2.5}$) can accumulate in the respiratory system or penetrate the vascular system, causing or aggravating diseases such as asthma, bronchitis, lung disease, and cardiovascular disease. Children, the elderly, and the ill are believed to be especially vulnerable to adverse health effects of PM_{10} and $PM_{2.5}$. Since activities from the Proposed Plan and alternatives would generate direct emissions of PM (mainly in the form of DPM and $PM_{2.5}$), this PEIR discusses the potential for the Proposed Plan's primary $PM_{2.5}$ emissions to increase mortality and morbidity in the local Port area.

The Port considers the assessment of potential mortality and morbidity effects to be an expansion of the $PM_{2.5}$ ambient impact discussion for project operations, as identified in Impact AQ-2, and therefore quantifies morbidity and mortality when operation of a Proposed Plan or alternative would result in off-site 24-hour $PM_{2.5}$ incremental concentrations (project minus baseline) that exceed the SCAQMD significance criterion of 2.5 $\mu g/m^3$ (Table 3.2-8). Similar to performance of an HRA of TACs, quantification of mortality and morbidity depends on the specific locations of PM emission sources relative to nearby residential areas, which are not known in sufficient detail at the program level. Therefore, this PEIR uses a qualitative approach to evaluate potential mortality and morbidity effects from the Proposed Plan and alternatives. This qualitative approach is presented in Impact AQ-2 under the heading, "Potential Impact of Significant Local Concentrations on Public Health."

A qualitative discussion of the *regional* health effects of the Proposed Plan's primary and secondary emissions of $PM_{2.5}$ is provided in Impact AQ-1 under the heading, "Potential Impact of Significant Regional Emissions on Public Health."

3.2.3.3 Proposed Plan

Impact AQ-1: Construction and operations would produce emissions that exceed a SCAQMD significance threshold.

Impact Determination

Construction

The development of projects under the Proposed Plan would result in air quality impacts from 1) combustive emissions due to the use of fossil fuel-powered equipment and 2) fugitive dust (PM_{10}/$PM_{2.5}$) due to construction equipment that operate on unpaved surfaces and perform earthmoving activities. Some of the larger proposed construction activities include 1) roadway and rail line realignment, 2) dredging, diking, and landfilling, 3) wharf construction, 4) terminal and backlands improvements, and 5) railyard construction.

Table 3.2-9 presents examples of unmitigated peak daily emissions that could occur from some of the largest individual construction activities under the Proposed Plan. As indicated in the table footnotes, the emissions were obtained from prior POLB CEQA documents for projects with construction activities similar to what may occur under the Proposed Plan. Many of the larger projects associated with the Proposed Plan, such as the Pier J, Pier T, and Pier W development projects, would require most if not all of the activities presented in Table 3.2-9. The daily levels of construction efforts needed to perform these activities under the Proposed Plan and their resulting daily emissions could approximate the efforts associated with the Pier S and Pier B project activities and therefore their resulting emissions.

The data in Table 3.2-9 show that, without mitigation, each of the example construction activities under the Proposed Plan would generate NO_x emissions that exceed the SCAQMD daily emission threshold. Many of the combined construction activities (such as wharf construction) also would exceed the thresholds for VOCs, CO, and $PM_{2.5}$. It is likely that at some point in the future, several of these activities could occur during the same day. Assuming that a minimum of two of the largest emissive activities presented in Table 3.2-9 would occur in the same day (wharf construction for combustive emissions and terminal backlands construction for fugitive dust), this peak day scenario under the Proposed Plan could generate emissions that exceed the SCAQMD daily emission thresholds for all pollutants except SO_x. Therefore, without mitigation, construction emissions associated with the Proposed Plan would be significant for VOCs, CO, NO_x, PM_{10}, and $PM_{2.5}$.

TABLE 3.2-9. EXAMPLES OF POTENTIAL UNMITIGATED PEAK DAILY EMISSIONS FOR CONSTRUCTION ACTIVITIES UNDER THE PROPOSED PLAN

Activity	Daily Emissions (Pounds)					
	VOC	CO	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Dredging/Dike Realignment[1]						
Dredge/Material Disposal	21	114	635	3	26	24
Rock Placement	32	354	945	2	39	36
Total - Dredging/Dike Realignment	**53**	**468**	**1,580**	**5**	**65**	**60**

TABLE 3.2-9. EXAMPLES OF POTENTIAL UNMITIGATED PEAK DAILY EMISSIONS FOR CONSTRUCTION ACTIVITIES UNDER THE PROPOSED PLAN

Activity	Daily Emissions (Pounds)					
	VOC	**CO**	**NO_x**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**
Wharf Construction[1]						
Pile Construction	10	55	315	1	13	12
Deck Construction	9	262	101	0.2	6	6
Crane Delivery	137	287	2,491	69	47	40
Total - Wharf Construction	**156**	**604**	**2,907**	**70**	**66**	**58**
Terminal Backlands Construction[1]						
Grading	13	65	167	0.3	256	132
Utilities	12	76	136	0.2	7	6
Paving	9	49	112	0.2	6	5
Terminal Buildings Construction	22	200	270	0.5	15	13
Total - Terminal Backlands Construction	**56**	**390**	**685**	**1**	**284**	**156**
Railyard Construction[2]						
Total Railyard Construction	**36**	**276**	**518**	**1**	**68**	**29**
Total Peak Day Emissions[3]	**212**	**994**	**3,592**	**71**	**350**	**214**
Significance Thresholds	**75**	**550**	**100**	**150**	**150**	**55**

Source: (POLB 2018c, POLB 2012)
Key: CO = carbon monoxide; EIR = Environmental Impact Report; EIS = Environmental Impact Statement; NO_x = nitrogen oxides; $PM_{2.5}$ = particulate matter less than 2.5 microns in diameter; ppm = parts per million; PM_{10} = particulate matter less than 10 microns in diameter; SO_x = sulfur oxides; VOC volatile organic compounds
Notes:
[1] Data are for the most recent year of emissions estimates from Pier S Final EIS/Final EIR Table 3.2-8a.
[2] Data are for Year 4 in Pier B Draft EIR Table 3.2-7.
[3] Includes Wharf Construction and Terminal Backlands Construction.

Implementation of the OHSPER project would not require construction, as the facility is already operable in its present configuration. Therefore, this project would not result in any adverse air quality impacts.

Operations

The Proposed Plan would increase container throughput in year 2040 by 9.4 million twenty-foot equivalent units (TEUs) compared to the 2017 Baseline and would have a total annual throughput of 16.9 million TEUs.

Table 3.2-10 presents estimates of unmitigated peak daily emissions that would occur from operation of the full build-out scenario of the Proposed Plan in year 2040. These emissions would occur within the Port area and extend to the boundaries of the SCAB for OGVs, trucks, and trains. The peak daily emissions were scaled from the estimated annual emissions by applying peak day factors. The peak day factors vary by emission source category and range from 11 to 64 percent higher than average daily emissions.

TABLE 3.2-10. PEAK DAY CRITERIA POLLUTANT OPERATIONAL EMISSIONS; UNMITIGATED PROPOSED PLAN, 2040

Emission Source	Peak Day Emissions (lb/day)[1]					
	VOC	**CO**	**NO_x**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**
Ocean-Going Vessels						
OGVs in Transit[2]	2,319	4,665	24,535	1,263	785	737
OGVs at Berth[3]	331	681	5,135	536	204	191
Harbor Craft[4]	670	4,534	4,806	4	223	206
Cargo Handling Equipment	376	8,874	2,652	19	94	86
Locomotives						
Switchers On-Port	2	42	26	0	0	0
Line Haul Locomotives On-Port	35	843	889	3	13	13
Line Haul Locomotives Off-Port[5]	91	2,221	2,343	9	33	35
Heavy-Duty Vehicles						
HDVs On-Terminal Exhaust[6]	83	1,768	1,735	3	1	1
HDVs On-Terminal Tire and Brake Wear	0	0	0	0	5	2
HDVs On-Terminal Road Dust	0	0	0	0	168	25
HDVs Off-Terminal Exhaust[7]	49	657	7,710	35	61	58
HDVs Off-Terminal Tire and Brake Wear	0	0	0	0	364	132
HDVs Off-Terminal Road Dust	0	0	0	0	268	40
Automobiles						
Auto Exhaust	13	570	29	2	1	1
Auto Tire and Brake Wear	0	0	0	0	50	20
Auto Road Dust	0	0	0	0	75	11
Transport Refrigeration Unit Gensets[8]	16	247	182	0	1	1
Total, Proposed Plan	**3,987**	**25,102**	**50,042**	**1,874**	**2,345**	**1,559**
CEQA Impacts						
Total, 2017 Baseline	**2,303**	**11,633**	**54,361**	**1,883**	**1,438**	**1,058**
Proposed Plan minus 2017 Baseline	**1,684**	**13,469**	**-4,319**	**-9**	**907**	**501**
SCAQMD Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**Yes**	No	No	**Yes**	**Yes**

Key: CEQA = California Environmental Quality Act; CO = carbon monoxide; Gensets = generation sets; HDVs = Heavy-Duty Vehicles; nm = nautical miles; lb/day = pounds per day; NO_x = nitrogen oxides; OGVs = Ocean-Going Vessels; PM_{10} = particulate matter less than 10 microns in diameter; $PM_{2.5}$ = particulate matter less than 2.5 microns in diameter; Port = Port of Long Beach; SCAB = South Coast Air Basin; SCAQMD = South Coast Air Quality

TABLE 3.2-10. PEAK DAY CRITERIA POLLUTANT OPERATIONAL EMISSIONS; UNMITIGATED PROPOSED PLAN, 2040
Management District; SO_x = sulfur oxides; TRU = Transport Refrigeration Unit; VOC = volatile organic compounds; VSR = vessel speed reduction Notes: [1] The emissions domain for criteria pollutants is the SCAB. [2] OGV transit emissions include transit between the berth and the SCAB over-water boundary, and anchoring in the harbor while waiting for an available berth. The emissions assume that, in 2040, 95 percent of all inbound vessels will use VSR (maximum 12 knots) within 40 nm of Point Fermin, 95 percent of all outbound vessels will use VSR within 20 nm of Point Fermin, and 90 percent of all outbound vessels will use VSR between 20 and 40 nm of Point Fermin. [3] OGV at-berth emissions assume that the shore power usage rates in 2040 would be 80 percent for containerships, cruise vessels, and reefer vessels; and 0 percent for all other vessels. [4] Harbor craft emissions are from assist tugboats only. All other harbor craft activity is not directly related to cargo throughput and, therefore, is not expected to substantially increase in the future as a result of the Proposed Plan. [5] Off-port line haul locomotive emissions include trains that originate/terminate at the Port and trains carrying Port containers that originate/terminate at off-dock rail yards within the SCAB (calculated as the equivalent number of trains needed to carry only the Port-related cargo). [6] On-terminal HDV emissions include queuing at terminal entry gates, travel and idling within the terminals, and queuing at the terminal exit gates. [7] Off-terminal HDV emissions represent trips between the Port and the first point of rest or SCAB boundary, whichever comes first. [8] TRU genset emissions are quantified for the time they spend at the Port.

The largest contributors to unmitigated emissions in 2040 would include OGVs in transit and at berth, harbor craft, CHE, and off-terminal operations of trucks. The following discusses how unmitigated emissions for each source category would change relative to the 2017 Baseline:

- Emissions from OGVs in transit would increase for all pollutants except NO_x in response to the projected increase in the number of vessel calls, and in the case of container vessels, the gradual shift toward larger vessels. The total number of vessel calls would increase from 2,157 in 2017 to 3,077 in 2040. The average container vessel size would increase from approximately 6,300 TEUs in 2017 to approximately 8,800 TEUs in 2040. The decrease in NO_x emissions would result from the future increase in the percentage of vessels with propulsion engines meeting the Tier 3 standards. The Port's assumptions for VSR participation in 2040 are similar to past participation rates and therefore do not substantially affect the emissions increase. Specifically, VSR within 20 nm of Point Fermin was conservatively assumed to decrease from 97 percent in 2017 to 95 percent in 2040. VSR between 20 and 40 nm of Point Fermin was assumed to change from 91 percent in 2017 to 90 and 95 percent of outbound and inbound vessels, respectively, in 2040.
- Emissions from OGVs at berth would decrease in part because of the increase in the use of shore power, in compliance with the California Port Regulations for At-Berth Ocean-Going Vessels. The current regulations require, and therefore the emission calculations reflect, 80 percent reductions in at-berth emissions due to the use of shore power for containerships, cruise vessels, and reefer vessels in 2040. In comparison, the actual shore power usages for those vessel types in 2017 were 72 percent for containerships, 95 percent for cruise vessels, and 0 percent for reefer vessels. Emissions decreases would also result from future turnover of ship auxiliary engines, where engines that reach the end of their useful lives would be replaced with newer, cleaner engines. The 2040 emissions also show an economy-of-scale benefit whereby larger vessels typically have lower auxiliary engine and boiler emissions per unit of cargo throughput.

- Emissions from harbor craft would increase in response to the projected increase in the number of vessel calls. The harbor craft emissions conservatively assume total engine usage would grow in proportion to TEU throughput even though there may be an economy-of-scale benefit due to the shift toward larger container ships (for example, a lower harbor craft engine usage per unit of cargo throughput). Annual TEU throughput would increase from 7.5 million in 2017 to 16.9 million in 2040.
- Emissions from CHE would increase for all pollutants except NO_x in response to the projected increase in the number of TEUs and associated operating hours. The annual operating hours of fossil-fueled CHE would increase from 1.8 million in 2017 to 3.5 million in 2040. The emission increases would be lessened by future turnover of CHE, where equipment that reach the end of their useful lives would be replaced with newer, less-polluting equipment. The future turnover would be enough to result in a decrease in NO_x emissions. The estimate of unmitigated CHE emissions conservatively assumes there would be no zero-emissions equipment added to the fleet serving the Port above existing percentages.
- Emissions from switcher locomotives would decrease because of the proposed improvements in on-dock rail capacity and efficiency, which would lead to less switcher locomotive use (POLB 2019d). Annual switcher use would decrease from approximately 22,000 hours in 2017 to 16,600 hours in 2040. The emissions would also decrease because of future fleet turnover to cleaner-emitting locomotives, as documented in the Pier B On-Dock Rail Support Facility Project EIR (POLB 2018c).
- Emissions from line haul locomotives would increase for CO and SO_x but would decrease for VOCs, NO_x, PM_{10}, and $PM_{2.5}$. The increase in CO and SO_x emissions would be in response to the projected increase in the number of TEUs transported by rail. The annual TEUs transported by rail (both on- and off-dock) would increase from 2.3 million in 2017 to 5.6 million in 2040. The decrease in VOC, NO_x, PM_{10}, and $PM_{2.5}$ emissions would result from future turnover of the line haul locomotive fleet, where older locomotives would be gradually retired and replaced with Tier 4 locomotives.
- Emissions from heavy-duty vehicles would increase for all pollutants except VOCs in response to the projected increase in vehicle miles traveled (VMT) and truck calls determined by the project traffic study. The annual VMT would increase from 167 million miles/year in 2017 to 465 million miles/year in 2040. The annual number of truck calls would increase from 3.7 million in 2017 to 9.0 million in 2040. The emission increases would be lessened by future truck fleet turnover, where trucks that reach the end of their useful lives would be replaced with newer, less-polluting trucks. The future turnover would be enough to result in a decrease in VOC emissions. Because PM_{10} and $PM_{2.5}$ emissions would be dominated by tire wear, brake wear, and road dust rather than engine exhaust, they would be only slightly influenced by fleet turnover. The relatively large increases in CO and NO_x emissions from on-terminal truck operations are a result of CARB's emission factor model (called EMFAC2017) predicting relatively little change in low-speed and idling exhaust emissions from trucks between 2017 and 2040. At higher speeds typical of off-terminal truck operations, the CO and NO_x emission factors are much lower in 2040 compared to 2017. The unmitigated emissions conservatively assume no zero-emission trucks would serve the Port in 2040.
- Emissions from automobiles would decrease for VOCs, CO, NO_x, and SO_x despite increased VMT because of future fleet turnover, where automobiles retiring from the fleet would be replaced with newer, less-polluting vehicles. The annual VMT would increase from 100 million miles/year in 2017 to 138 million miles/year in 2040. Because PM_{10} and

$PM_{2.5}$ emissions would be dominated by tire wear, brake wear, and road dust rather than engine exhaust, PM_{10} and $PM_{2.5}$ emissions would increase in response to the projected increase in VMT.

- Emissions from TRU generation sets would increase for VOCs, CO, NO_x, and SO_x in response to the projected increase in reefer throughput. The annual throughput of cooled reefers transported by truck would increase from 83,000 in 2017 to 183,000 in 2040. The annual throughput of cooled reefers transported by on-dock rail would increase from 26,000 in 2017 to 63,000 in 2040. The slightly higher ratio of TEUs transported via on-dock rail versus truck in 2040 would contribute to the emissions increase because the on-terminal TRU dwell time and operation on a train (8.9 hours) is longer than on a truck (0.65 hours). The decrease in PM_{10} and $PM_{2.5}$ emissions would result from compliance with CARB's Airborne Toxic Control Measure for TRUs and normal turnover of the TRU generation set fleet.

Table 3.2-10 shows that unmitigated peak day emissions generated from Port operations under the Proposed Plan minus the 2017 Baseline scenario would exceed the SCAQMD daily emission thresholds for VOCs, CO, PM_{10}, and $PM_{2.5}$. Emissions of SO_x would decrease slightly relative to the 2017 Baseline. Emissions of NO_x would decrease substantially relative to the 2017 Baseline. Most of the NO_x decrease would come from OGVs at berth (a 4,959 lb/day decrease) and OGVs in transit (a 2,346 lb/day decrease). Therefore, unmitigated emissions of VOCs, CO, PM_{10}, and $PM_{2.5}$ associated with Proposed Plan operations in 2040 would have a significant impact on air quality.

Operation of the OHSPER site would include the use of diesel-powered dredges, scows, tugboats, and other vessels that would carry materials to the project site. These same types of emission sources operate as part of the existing use of the WASSS. Therefore, the net change in emissions between existing and proposed uses of the site would not exceed any SCAQMD emission threshold.

Mitigation Measures

Construction

The following mitigation measures would reduce emissions from construction under the Proposed Plan. The measures were adapted from the POLB's "Best Management Practices for Reducing Air Emissions from Construction Equipment" (POLB 2010) and were developed in conjunction with the 2010 CAAP.

AQ-1: On-Road Construction Trucks Emission Controls. All on-road heavy-duty trucks used to transport materials to and from the construction site shall meet USEPA 2010 on-road heavy-duty diesel engine emission standards.

AQ-2: Tier 4 Construction Equipment Emission Controls. All land-based, diesel-fueled off-road construction equipment 25 hp or greater shall meet USEPA/CARB Tier 4 off-road engine emission standards.

The unmitigated emissions from dredging, dike realignment, wharf construction, and terminal backlands construction in Table 3.2-9 assume implementation of Tier 3 engine standards on all land-based off-road construction equipment. The effects of implementing **Mitigation Measure AQ-2** (Tier 4 engine standards) for these sources were not evaluated in the Pier S Final Environmental Impact Statement (FEIS)/Final Environmental Impact Report (FEIR) and therefore they are not included in the mitigated emissions presented below in Table 3.2-11. The unmitigated emissions from railyard construction assume an average equipment fleet for the SCAB. The effects of implementing **Mitigation Measure AQ-2** for this activity are included below in Table 3.2-11.

TABLE 3.2-11. EXAMPLES OF POTENTIAL MITIGATED PEAK DAILY EMISSIONS FOR CONSTRUCTION ACTIVITIES UNDER THE PROPOSED PLAN

Activity	Daily Emissions (Pounds)					
	VOC	CO	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Dredging/Dike Realignment[1]						
Dredge/Material Disposal	19	114	372	3	12	11
Rock Placement	29	354	556	1	18	16
Total - Dredging/Dike Realignment	**48**	**468**	**928**	**4**	**30**	**27**
Wharf Construction[1]						
Pile Construction	9	55	181	1	6	5
Deck Construction	9	261	101	0.2	6	6
Crane Delivery	137	287	2,491	69	47	40
Total - Wharf Construction	**155**	**603**	**2,773**	**70**	**59**	**51**
Terminal Backlands Construction[1]						
Grading	13	65	167	0.3	108	58
Utilities	12	76	136	0.2	7	6
Paving	9	49	112	0.2	6	5
Terminal Buildings Construction	22	200	270	0.5	15	13
Total - Terminal Backlands Construction	**56**	**390**	**685**	**1**	**136**	**82**
Railyard Construction[2]						
Total Railyard Construction	**29**	**269**	**175**	**1**	**53**	**18**
Total Peak Day Emissions[3]	**211**	**993**	**3,458**	**71**	**195**	**133**
Significance Thresholds	75	550	100	150	150	55

Source: (POLB 2018c, POLB 2012)
Key: CO = carbon monoxide; EIR = Environmental Impact Report; EIS = Environmental Impact Statement; NO_x = nitrogen oxides; $PM_{2.5}$ = particulate matter less than 2.5 microns in diameter; ppm = parts per million; PM_{10} = particulate matter less than 10 microns in diameter; SO_x = sulfur oxides; VOC = volatile organic compounds
Notes:
[1] Data are for the most recent year of emissions estimates from Pier S Final EIS/Final EIR Table 3.2-8b.
[2] Data are for Year 4 in Pier B Draft EIR Table 3.2-9.
[3] Includes Wharf Construction and Terminal Backlands Construction.

AQ-3: Off-Road Construction Equipment Emission Controls. Off-road diesel-powered construction equipment shall comply with the following:

- Maintain all construction equipment according to manufacturer's specifications.
- Construction equipment shall not idle for more than 5 minutes when not in use.

The benefits achieved from the implementation of this measure were not quantified in the analysis due to the wide range of variables involved. This measure, however, would further reduce combustion emissions.

AQ-4: Increased Watering Frequency for Fugitive Dust Control. Construction site watering, which would be required by SCAQMD Rule 403, shall be increased such that the watering interval is no greater than 2.1 hours.

A watering interval of 2.1 hours, which was the basis of an emission test, would increase the fugitive dust emissions control from 61 percent (unmitigated) to 74 percent (Countess Environmental 2006).

AQ-5: Additional Fugitive Dust Control. Contractors shall perform the following:

- Apply approved nontoxic chemical soil stabilizers according to manufacturers' specifications to all inactive construction areas or replace groundcover in disturbed areas;
- Provide temporary wind fencing around sites being graded or cleared;
- Cover truck loads that haul dirt, sand, or gravel or maintain at least 2 feet of freeboard in accordance with Section 23114 of the California Vehicle Code;
- Install wheel washers where vehicles enter and exit unpaved roads onto paved roads, or wash off tires of vehicles and any equipment leaving the construction site; and
- Suspend all soil disturbance activities when winds exceed 25 miles per hour or when visible dust plumes emanate from the site and stabilize all disturbed areas.

The unmitigated fugitive dust emissions from dredging, dike realignment, wharf construction, and terminal backlands construction in Table 3.2-9 assume a 75 percent reduction from uncontrolled levels based on the use of measures that would ensure compliance with SCAQMD Rule 403. The estimation of the effects of implementing **Mitigation Measures AQ-4 and AQ-5** for these activities, as presented below in Table 3.2-11, assumes a 90 percent reduction from uncontrolled levels. The unmitigated fugitive dust emissions from railyard construction in Table 3.2-9 assume a 61 percent reduction from uncontrolled levels based on the use of measures that would ensure compliance with SCAQMD Rule 403. However, estimation of the effects of implementing **Mitigation Measures AQ-4 and AQ-5** for this activity, as presented in Table 3.2-11, assumes a 74 percent reduction from uncontrolled levels.

AQ-6: Emission Controls for Construction Tugboats. The construction contractor shall ensure that all tugboats used in construction meet the USEPA Tier 3 marine engine standards, if feasible. In addition, the construction contractor shall require all construction tugboats that home fleet in the San Pedro Bay Ports 1) to shut down their main engines and 2) to refrain from using auxiliary engines while at dock and instead to use electrical shore power, if feasible.

The unmitigated tugboat emissions from dredging, dike realignment, and wharf construction assume an average tugboat fleet for the SCAB with Tier 2 or lower (Tier 1 or Tier 0) engine standards on these sources. The estimation of the effects of implementing **Mitigation Measure AQ-6** (Tier 3 engine standards) for these sources was not evaluated in the Pier S FEIS/FEIR and therefore they are not included in the mitigated emissions presented below in Table 3.2-11.

Operations

The estimates of unmitigated emissions from operations under the Proposed Plan in year 2040 are based on the approach that Port sources would operate in compliance with all applicable current regulations and most source-specific control measures identified in the 2010 CAAP Update. The 2017 CAAP Update proposes strategies that will transition San Pedro Bay Ports' operations from fossil-fueled to near-zero and zero-emissions technologies. The control strategies in the 2017 CAAP Update, therefore, represent measures that could mitigate significant levels of emissions from future Port operations under the Proposed Plan.

The 2017 CAAP Update emission-reduction strategies are in various stages of planning. As part of the 2017 CAAP Update process, the San Pedro Bay Ports estimated potential emission reductions from implementation of the following measures, based on a variety of equipment and vehicle fleet turnover rate assumptions: 1) zero-emissions CHE by 2030 and 2) zero-emissions drayage trucks by 2035 (POLA and POLB 2017b). This analysis showed substantial emission reductions from the implementation of near-zero and zero-emissions drayage trucks between the interim years of 2017 and 2035. Specifying actual emission reductions from these measures in these interim years for sources that operate under the Proposed Plan would be too speculative for analysis in this PEIR, due to the uncertainty of predicting how the vehicle fleets will turn over in the future. However, implementation of these and other source-specific strategies from the 2017 CAAP Update could result in substantial reductions of emissions from sources that operate under the Proposed Plan.

This PEIR proposes the following mitigation measures that would reduce emissions from Port operations under the Proposed Plan. **Mitigation Measure AQ-7** would implement a source-specific control measure from the 2010 CAAP Update on an interim basis in the event that a control measure for the same source type proposed in the 2017 CAAP Update has not been developed by the San Pedro Bay Ports. **Mitigation Measure AQ-8** implements commercially available clean engine and equipment technologies and fuels to achieve the goals identified in the 2017 CAAP Update. These mitigation measures would be implemented with specific milestones as part of the project-level environmental review process and subsequent terminal lease agreements that would occur under the Proposed Plan.

AQ-7: Source-Specific Control Measures from 2010 CAAP Update. All applicable source-specific control measures identified in the 2010 CAAP Update shall be incorporated into project operations unless they are superseded by regulation or by more effective emission-reduction strategies as required in **Mitigation Measure AQ-8**.

AQ-8: Clean Vehicles and Equipment Technology and Fuels Strategies from 2017 CAAP Update. All applicable commercially available clean engine equipment technologies and fuels strategies shall be incorporated into project operations to meet the goals identified in the 2017 CAAP Update. These could include the following:

a. Clean Trucks Program Update – Zero-Emissions Drayage Trucks by 2035.

b. Terminal Equipment – Zero-Emissions CHE by 2030.

c. Terminal Equipment Idling Reduction Program.

d. Vessel Speed Reduction Program – Maximize Participation in VSR for all Vessels Transiting within 40 nm of Point Fermin.

e. Vessel At-Berth Emission Reductions – Achieve 100 Percent Compliance for all OGVs by 2030.

f. Green Ship Incentives - Improvements in Operational Efficiencies and Introduction of Emission-Reduction Technologies.

g. Clean Ship Program – Encourage Calls by Cleaner Ships.

h. Harbor Craft – Strategies to Reduce Harbor Craft Emissions and Fuel Consumption.

AQ-9: Review of New Emission Control Technologies. Every 5 years following a project approval date, the project proponent shall conduct a review of new air quality technological advancements. The applicability of a technology shall be based on operational, technical, and financial feasibility to the project. If a technology is determined to be feasible in terms of financial, technical, and operational feasibility, the project proponent shall implement such technology.

Significance of Impact after Mitigation

Construction

Table 3.2-11 presents examples of mitigated daily emissions that could occur from some of the largest individual construction activities under the Proposed Plan. These data show that with mitigation, each of the example construction activities under the Proposed Plan would generate NO_x emissions that exceed the SCAQMD daily emission threshold. Many of the combined construction activities (such as wharf construction) also would exceed the thresholds for VOCs, CO, and $PM_{2.5}$. Assuming that a minimum of two of the largest emissive activities presented in Table 3.2-11 would occur in the same day (wharf construction for combustive emissions and terminal backlands construction for fugitive dust), this peak day scenario under the Proposed Plan could generate mitigated emissions that exceed the SCAQMD daily emission thresholds for all pollutants except SO_x.

The mitigated emissions presented in Table 3.2-11 for dredging, dike realignment, wharf construction, and terminal backlands construction are overestimates, as they do not include implementation of **Mitigation Measure AQ-2 or AQ-6**. Implementation of these measures would substantially reduce the emission estimates for tugboats and off-road construction equipment that operate as part of these activities. However, they would not be expected to eliminate the potential for exceedances of the SCAQMD daily emission thresholds mentioned above. Therefore, mitigated construction emissions from the Proposed Plan would be significant for VOCs, CO, NO_x, PM_{10}, and $PM_{2.5}$.

Operations

It is uncertain to what degree individual projects under the Proposed Plan would implement the proposed mitigation measures. For example, implementation of source-specific emission-reduction strategies identified in the 2017 CAAP Update (**Mitigation Measure AQ-8**) would depend on future advancements in technology, regulatory development, and economic incentives (POLA and POLB 2017a). Therefore, mitigated operational emissions are not quantified in this PEIR. However, review of Table 3.2-10 shows that full implementation of zero-emission drayage trucks and CHE proposed in the 2017 CAAP Update could substantially reduce the annual unmitigated emissions estimated for the Proposed Plan in year 2040. These emission reductions would particularly benefit the communities adjacent to the Port since on-terminal truck and CHE emissions would occur close to the ground and relatively close to the adjacent communities. However, based on the magnitude of the unmitigated emissions in Table 3.2-10, which include emissions both on-Port and along cargo transit routes out to the SCAB boundary, and the uncertainty of the level of future mitigation, the analysis concludes that mitigated emissions would potentially remain above the SCAQMD daily emission thresholds for VOCs, CO, PM_{10}, and $PM_{2.5}$. Therefore, operation of the mitigated Proposed Plan would produce significant levels of VOC, CO, PM_{10}, and $PM_{2.5}$ emissions.

The following example for VOCs is provided to support the Port's conclusion that VOC, CO, PM_{10}, and $PM_{2.5}$ emissions potentially would remain significant after mitigation. The unmitigated 2040 peak daily VOC emissions increment (Proposed Plan minus 2017 Baseline) in Table 3.2-10 is estimated to be 1,684 lb/day. This means that the operational mitigation measures would need to reduce VOC emissions by at least 1,629 lb/day (1,684 lb/day minus the SCAQMD threshold of 55 lb/day) to bring the impact down to less than significant. If the Port were to fully implement three key elements of **Mitigation Measure AQ-8** (8a, zero-emission drayage trucks; 8b, zero-emission CHE; and 8e, at-berth emission reductions for all OGVs), VOC emissions would be reduced by roughly 800 lb/day, which is about one-half of the reductions needed to eliminate the significant impact. Substantial additional reductions would need to come from the remaining elements of **Mitigation Measure AQ-8** as well as **Mitigation Measures AQ-7 and AQ-9** to eliminate the significant impact. It is uncertain at this time whether future advancements in technology, regulatory development, and economic incentives would enable the Port to implement these measures to the degree necessary to eliminate this significant impact.

<u>Potential Impact of Significant Regional Emissions on Public Health</u>

In *Sierra Club v. County of Fresno* (2018), the California Supreme Court ruled that an EIR for a proposed master-planned, mixed-use development in Fresno County known as Friant Ranch did not adequately relate the expected adverse air quality impacts to likely health consequences or explain in meaningful detail why it is not feasible at the time of drafting to provide such an analysis. The specific language in the Court's decision is provided below.

> *The EIR fails to provide an adequate discussion of health and safety problems that will be caused by the rise in various pollutants resulting from the Project's development. At this point, we cannot know whether the required additional analysis will disclose that the Project's effects on air quality are less than significant or unavoidable, or whether that analysis will require reassessment of proposed mitigation measures. Absent an analysis that reasonably informs the public how anticipated air quality effects will adversely affect human health, an EIR may still be sufficient if it adequately explains why it is not scientifically feasible at the time of drafting to provide such an analysis.*

In response to the Court's decision, this section provides a discussion of the potential health effects associated with the Proposed Plan's significant construction and operational emissions identified in Impact AQ-1.

Impact AQ-1 concluded that the Proposed Plan would produce construction emissions that could exceed the SCAQMD's daily emission thresholds for VOCs, CO, NO_x, PM_{10}, and $PM_{2.5}$ both with and without mitigation. Impact AQ-1 also concluded that the Proposed Plan would produce operational emissions that could exceed the SCAQMD's daily emission thresholds for VOCs, CO, PM_{10}, and $PM_{2.5}$ both with and without mitigation. The SCAQMD's daily emission thresholds relate to *regional* air quality impacts. An exceedance of a threshold means the Proposed Plan would make a significant contribution to regional air pollution emissions in the SCAB. However, an exceedance of the daily emission threshold does not necessarily mean that the pollutant would contribute to a violation of the CAAQS or NAAQS or cause adverse health effects. An emission merely indicates the amount of a pollutant entering the atmosphere from an emission source. Further analysis, discussed below, would be necessary to determine the downwind ambient concentrations of that pollutant (or secondary pollutants formed from that pollutant) in the atmosphere where the general population would be exposed.

On a regional scale, the pollutants of interest for the Proposed Plan in terms of potential health effects would be O_3 and secondary PM (as PM_{10} and $PM_{2.5}$). As described in Section 3.2.1.2 (Setting), these pollutants form through secondary reactions that take time, resulting in peak concentrations miles downwind of the emission sources. Hence, their effects would occur regionally. For the Proposed Plan, the main precursors to O_3 and secondary PM formation would be VOC and NO_x. A portion of the NO_x would also form NO_2, a criteria pollutant. Directly emitted (primary) CO, PM_{10}, and $PM_{2.5}$ are also addressed in this section for regional health effects, although they would likely reach their peak concentrations locally, in close proximity to the Port. Health effects associated with VOCs and PM as TACs are also addressed in Impact AQ-4 (Health Risk Assessment of Toxic Air Contaminant Emissions).

Analysis Approach and Limitations

This PEIR links Proposed Plan emissions to regional health effects qualitatively because technical and scientific limitations prevent the accurate quantification of regional health effects. First, as explained in Impact AQ-1, emissions from construction activities under the Proposed Plan could not be quantified at this programmatic stage due to the lack of project-level detail needed for the calculations. Second, mitigated operational emissions under the Proposed Plan could not be quantified at this programmatic stage because the degree to which the 2017 CAAP Update (**Mitigation Measure AQ-8**) would be implemented for each project is unknown at this time. Without emissions, the quantification of health effects is not possible.

Third, even with accurate emission estimates, the quantification of regional health effects would not be possible for some pollutants and would produce an unacceptably high level of uncertainty for other pollutants. Health effects quantification would require a two-stage process consisting of a) regional modeling of emissions to estimate ambient concentrations in the region and to determine the exposed population; and b) applying available methodologies to estimate the quantities of adverse health outcomes for the exposed population at the predicted concentration levels. There are modeling tools that could theoretically carry out these steps for O_3 and secondary PM. For example, the Community Multiscale Air Quality Modeling System (CMAQ) (USEPA 2019b) and Comprehensive Air Quality Model with Extensions (CAMx) (Ramboll Environ 2019) are air quality modeling systems that can estimate O_3 and secondary PM concentrations on a regional scale. The Environmental Benefits Mapping and Analysis Program (BenMAP) (USEPA 2019c) is a regional-scale health effects estimation model for O_3 and PM. CARB developed a methodology (CARB 2010b) for estimating premature mortality associated with regional exposure to PM. Currently, there is no widely-used and reliable methodology for quantifying health effects associated with exposure to CO and NO_2 concentrations. The following two paragraphs explain why regional modeling of health outcomes is not a feasible approach for this PEIR, even if construction emissions and mitigated operational emissions associated with the Proposed Plan were known.

The SCAQMD and San Joaquin Valley Air Pollution Control District (SJVAPCD) filed separate *amicus curiae* briefs with the California Supreme Court for the Friant Ranch case (SCAQMD 2015b, SJVAPCD 2015). Both districts concluded that currently available regional modeling tools are not well suited to analyze relatively small changes in pollutant concentrations associated with individual projects. Regional modeling tools are generally designed to be used at the national, state, regional, and/or city levels. They are not equipped to analyze whether and to what extent the criteria pollutant emissions of an individual CEQA project directly impact human health in a particular area (SJVAPCD 2015). For example, running a photochemical grid model used for predicting O_3 attainment with the emissions solely from an individual project is not likely to yield valid information given the relative scale involved (SJVAPCD 2015). SCAQMD stated that it does not currently know of a way to accurately quantify O_3-related health impacts caused by NO_x or VOC emissions from relatively small projects. The primary author of the CARB methodology (CARB 2010b) for PM mortality has reported that this methodology is not suited for small projects and may yield unreliable results due to various uncertainties (SCAQMD 2015b).

SCAQMD's own modeling shows that it takes a large amount of additional precursor emissions to cause a modeled increase in ambient O_3 levels over an entire region and that it may only be feasible to analyze air quality-related health impacts for projects on a regional scale with very high emissions of NO_x and VOCs. For example, SCAQMD's 2012 AQMP showed that reducing NO_x and VOCs by 864,000 lb/day and 374,000 lb/day, respectively, would reduce O_3 levels at the SCAQMD's monitor site with the highest levels by only 9 parts per billion. In another example, for its proposed Rule 1315, SCAQMD modeled approximately 89,180 lb/day of VOCs and 6,620 lb/day of NO_x and predicted 20 premature deaths per year and 89,947 school absences per year due to the associated ambient O_3 and PM exposures. By comparison, unmitigated operational VOC emissions from the Proposed Plan would increase by 1,684 lb/day (less than 2 percent of the emissions evaluated for Rule 1315), and NO_x emissions would decrease by 4,319 lb/day (resulting in a possible O_3 benefit depending on whether VOCs or NO_x are the controlling precursor). Also for Rule 1315, SCAQMD modeled $PM_{2.5}$ impacts from three very large power plants producing up to 5,650 lb/day of $PM_{2.5}$ and estimated 0.05 to 1.77 annual premature deaths from the associated ambient PM exposure. By comparison, unmitigated operational $PM_{2.5}$ emissions from the Proposed Plan would increase by 501 lb/day (9 percent of the emissions evaluated for Rule 1315), much of which would be released by ships at sea and, therefore, far from populated onshore locations.

The above discussion shows that a) construction emissions and mitigated operational emissions associated with the Proposed Plan could not be quantified at this time due to the lack of project-level detail; and b) even if emissions could be quantified, available regional modeling tools for criteria pollutants are not designed to accurately quantify health outcomes for individual projects. Therefore, quantification of regional health effects associated with the Proposed Plan's criteria pollutant emissions is not feasible for this PEIR. As a result, this PEIR provides a qualitative discussion of the potential for the Proposed Plan's emissions to cause regional adverse health effects.

The qualitative regional health effects discussion follows a two-step approach. The first step determines whether the Proposed Plan's significant regional emissions would likely contribute to a violation of the CAAQS or NAAQS outside of the local Port area. If so, then the Proposed Plan is presumed to contribute to regional adverse health effects. If not, then the Proposed Plan is presumed not to contribute to regional adverse health effects because CARB and USEPA established the CAAQS and NAAQS to protect public health and welfare. Specifically, the CAAQS were established to protect public health, including the most sensitive groups (CARB 2019d). The NAAQS were established to protect public health with an adequate margin of safety (Title 42 United States Code [U.S.C.] Chapter 85, Subchapter I, Part A, Section 7409). The final step describes the general types of adverse health effects that could be associated with the Proposed Plan's significant regional pollutant impacts.

A discussion of the Proposed Plan's *local* contributions to adverse health effects in the Port vicinity is provided below as part of Impact AQ-2.

Identification of Potential Regional Adverse Health Effects

Ozone. VOCs and NO_x are precursors to O_3, for which the SCAB is currently in nonattainment of the CAAQS and NAAQS (also referred to as state and federal standards). The most stringent state and federal O_3 standards are 0.09 ppm for a 1-hour average, 0.070 ppm for the 3-year average of the fourth-highest 8-hour concentration each year (known as the federal 8-hour standard), and 0.07 ppm for an 8-hour average (known as the state 8-hour standard). The highest 1-hour O_3 concentration recorded in the SCAB over the last three available years (2015–2017) is

0.163 ppm, which is 1.8 times the standard. This concentration occurred in 2016 at the Crestline station in the central San Bernardino Mountains. The standard was exceeded somewhere in the SCAB on 24 percent of days during the 3-year period. The highest federal 8-hour O_3 concentration recorded in the SCAB over the last three available years (2015–2017) is 0.112 ppm, which is 1.6 times the standard. This concentration also occurred at the Crestline station. The threshold of 0.070 ppm was exceeded somewhere in the SCAB on 36 percent of days during the 3-year period. The highest state 8-hour O_3 concentration recorded in the SCAB over the last three available years (2015–2017) is 0.136 ppm, which is 1.9 times the standard. This concentration occurred in 2017 at the San Bernardino station. The standard was exceeded somewhere in the SCAB on 36 percent of days during the 3-year period (SCAQMD 2019c).

Recent Port environmental documents suggest that the Proposed Plan's peak daily construction emissions (Table 3.2-11) could be roughly 0.1 ton per day of VOCs and 1.7 ton per day of NO_x (reported emissions were converted from pounds to tons). Table 3.2-12 shows that the Proposed Plan's peak daily operational emissions relative to the 2017 Baseline would be approximately 0.9 ton per day of VOCs and -1.7 ton per day of NO_x (an air quality benefit for NO_x) without mitigation. By comparison and for context, CARB's emission inventory for 2015, which is the closest available year to the 2017 Baseline, estimates total anthropogenic emissions within the SCAB to be 525.7 tons per day of VOCs and 579.6 tons per day of NO_x (CARB 2019e). These estimates show that the Proposed Plan's maximum regional VOC and NO_x contributions would be equivalent to about 0.2 and 0.3 percent, respectively, of the total SCAB emissions. The NO_x contribution would occur only during construction since there would be a NO_x reduction during operations. Therefore, the Proposed Plan would potentially contribute to a regional violation of the O_3 standard and to regional adverse health effects related to O_3.

TABLE 3.2-12. EXAMPLES OF POTENTIAL UNMITIGATED MAXIMUM AMBIENT POLLUTANT CONCENTRATIONS FROM OPERATIONAL ACTIVITIES UNDER THE PROPOSED PLAN

Pollutant	Averaging Time	Container Terminal Impact (µg/m^3)(1)	Railyard Impact (µg/m^3)(2)	SCAQMD Threshold (µg/m^3)
NO_2	Federal 1-hour	**410**	**226**	188
	State 1-hour	ND(3)	316	339
	State Annual	**72**	**61**	57
CO	1-hour	5,933	4,034	23,000
	8-hour	4,428	3,193	10,000
PM_{10}	24-hour	**3.6**	0.8	2.5
	Annual	ND(3)	0.4	1.0
$PM_{2.5}$	24-hour	**3.5**	0.4	2.5

Key: µg/m^3 = milligrams per cubic meter; CO = carbon monoxide; EIR = Environmental Impact Report; EIS = Environmental Impact Statement; NO_2 = nitrogen dioxide; $PM_{2.5}$ = particulate matter less than 2.5 microns in diameter; PM_{10} = particulate matter less than 10 microns in diameter; SCAQMD = South Coast Air Quality Management District

Notes:

(1) Data are from Pier S Final EIS/Final EIR Table 3.2-12a.

(2) Data are from Pier B Draft EIR Tables 3.2-21 and 3.2-22.

(3) "ND" means no data were available from the referenced document.

CO and NO_2 data are equal to project impacts plus background pollutant concentrations. PM_{10}/$PM_{2.5}$ data are equal to project impact concentrations. Exceedance of a threshold is shown in **bold**.

The following summary of adverse health effects associated with O_3 exposure was compiled by the SCAQMD in its Final 2016 AQMP (SCAQMD 2017). Appendix I of the 2016 AQMP provides an expanded discussion of the adverse health effects:

Short-term exposures (lasting for a few hours) to ozone at levels typically observed in Southern California can result in breathing pattern changes, reduction of breathing capacity, increased susceptibility to infections, inflammation of the lung tissue, and some immunological changes. Individuals working outdoors, children (including teenagers), older adults, people with pre-existing lung disease, such as asthma, and individuals with certain nutritional deficiencies are considered to be the subgroups most susceptible to ozone effects. Elevated ozone levels are associated with increased school absences and daily hospital admission rates, as well as increased mortality. An increased risk for asthma has been found in children who participate in multiple sports and live in high-ozone communities. Ozone exposure under exercising conditions is known to increase the severity of respiratory symptoms. Although lung volume and airway resistance changes observed after a single exposure diminish with repeated exposures, biochemical and cellular changes appear to persist, which can lead to subsequent lung structural changes.

Carbon Monoxide. The SCAB is currently in attainment of the CAAQS and NAAQS for CO. The most stringent CAAQS or NAAQS for CO are 20 ppm for a 1-hour average and 9.0 ppm for an 8-hour average. The highest CO concentrations recorded anywhere in the SCAB over the last 3 available years (2015–2017) are 8.4 ppm for a 1-hour average and 4.6 ppm for an 8-hour average (SCAQMD 2019c). These pollutant levels are 42 and 51 percent of the 1-hour and 8-hour standards, respectively.

Table 3.2-11 shows that the Proposed Plan's peak daily construction emissions could be roughly 0.5 ton per day of CO. Table 3.2-12 shows that the Proposed Plan's peak daily operational emissions relative to the 2017 Baseline would be approximately 7 tons per day of CO without mitigation. By comparison and for context, CARB's 2015 emission inventory estimates total anthropogenic CO emissions within the SCAB to be 2,475.9 tons per day (CARB 2019e). These estimates show that the Proposed Plan's maximum regional CO contribution would be equivalent to about 0.3 percent of the total CO emissions in the SCAB. Therefore, given a) the relatively small regional emissions contribution from the Proposed Plan and b) the attainment status of the region, the Proposed Plan would not contribute to a regional violation of the CO standards and, therefore, would not contribute to regional adverse health effects related to CO.

Nitrogen Dioxide. The SCAB is currently in attainment of the CAAQS and NAAQS for NO_2. The most stringent state and federal NO_2 standards are 0.18 ppm for a 1-hour average (state 1-hour standard), 0.100 ppm for a 3-year average of the 98th percentile of the annual distributions of daily maximum 1-hour average concentrations (federal 1-hour standard), and 0.030 ppm for an annual average.

The highest NO_2 concentrations recorded anywhere in the SCAB over the last 3 available years (2015–2017) are 0.1155 ppm for the state 1-hour average, 0.078 ppm for the federal 1-hour average, and 0.0356 ppm for an annual average (SCAQMD 2019c). These pollutant levels are 64, 78, and 119 percent of the state 1-hour, federal 1-hour, and state annual standards, respectively. The exceedance of the state annual standard of 0.030 ppm occurred in all 3 years at a single monitoring station adjacent to Route 60 in Ontario. This station is one of four near-road sites in the SCAB purposely placed by the SCAQMD to capture impacts from heavily traveled roadways (SCAQMD 2016). In November 2018, CARB proposed to separate the area surrounding this monitor from the remainder of the SCAB and reclassify the area as nonattainment. CARB is currently working with the SCAQMD to define the specific boundary of the nonattainment area. The remainder of the SCAB will remain classified as attainment (CARB 2018c).

The discussion on the adverse health effects of O_3, above, shows that the Proposed Plan's maximum regional NO_x contribution would be equivalent to about 0.3 percent of the total NO_x emissions in the SCAB. Contributions of NO_x would occur only during construction, as there would be a NO_x reduction during Proposed Plan operations. Therefore, given a) the relatively small short-term increase and long-term decrease in regional NO_x emissions contributions from the Proposed Plan and b) the attainment status of the region, the Proposed Plan would not contribute to a regional violation of the NO_2 standards and, therefore, would not contribute to regional adverse health effects related to NO_2 outside of the local Port area. Adverse health effects related to the Proposed Plan's NO_2 emissions are also addressed on a local level in Impact AQ-2.

PM_{10}. The SCAB is currently nonattainment of the CAAQS for PM_{10}. The state standards for PM_{10} are 50 µg/m^3 for a 24-hour average and 20 µg/m^3 for an annual average. The federal standard for PM_{10} is 150 µg/m^3 for a 24-hour average, which is much less stringent than the state AAQS. The highest 24-hour PM_{10} concentration recorded in the SCAB over the last 3 available years (2015–2017) is 144 µg/m^3, which is 2.9 times the state standard but only 96 percent of the federal standard. This concentration occurred in 2017 at the Mira Loma (Jurupa Valley) station in Riverside County. The state standard was exceeded somewhere in the SCAB on 51 percent of days during the 3-year period. The highest annual PM_{10} concentration recorded in the SCAB over the last 3 available years (2015–2017) is 54.4 µg/m^3, which is 2.7 times the standard. This concentration also occurred at the Mira Loma station. Exceedances of the annual standard occurred at numerous stations in the SCAB in each year of the 3-year period.

Table 3.2-11 shows that the Proposed Plan's peak daily construction emissions could be roughly 0.1 ton per day of PM_{10}. Table 3.2-12 shows that the Proposed Plan's peak daily operational emissions relative to the 2017 Baseline would be approximately 0.5 ton per day of PM_{10} without mitigation. By comparison and for context, CARB's 2015 emission inventory estimates total anthropogenic emissions within the SCAB to be 296.8 tons per day of PM_{10} (CARB 2019e). This estimate shows that the Proposed Plan's maximum regional direct PM_{10} contribution would be equivalent to about 0.2 of the total SCAB emissions. The Proposed Plan's VOC and NO_x emissions, described above under O_3, would also contribute to secondary PM_{10} formation in the region. Therefore, the Proposed Plan would potentially contribute to regional violations of the PM_{10} standards and to regional adverse health effects related to PM_{10}.

A summary of adverse health effects associated with PM_{10} exposure is provided under $PM_{2.5}$, below.

$PM_{2.5}$. The SCAB is currently nonattainment of the CAAQS and NAAQS for $PM_{2.5}$. The state standard for $PM_{2.5}$ is 12 µg/m^3 for an annual average. The federal standards for $PM_{2.5}$ are 35 µg/m^3 for a 3-year average of the 98th percentile of the 24-hour concentrations, and 12 µg/m^3 for a 3-year annual average. The highest annual $PM_{2.5}$ concentration recorded in the SCAB over the last 3 available years (2015–2017) is 14.73 µg/m^3, which is 1.2 times the state standard. This concentration occurred in 2016 at a station adjacent to Route 60 in Ontario. Exceedances of the annual standard occurred at several stations in the SCAB in each year of the 3-year period. The highest 3-year average of the 98th percentile of the 24-hour $PM_{2.5}$ concentrations recorded in the SCAB over the last 3 available years (2015–2017) is 39.4 µg/m^3, which is 1.1 times the federal standard. This concentration occurred at the Mira Loma (Jurupa Valley) station in Riverside County. The 24-hour $PM_{2.5}$ concentration threshold of 35 µg/m^3 was exceeded somewhere in the SCAB on 4 percent of days over the 3-year period. The highest 3-year annual average $PM_{2.5}$ concentration recorded in the SCAB over the last 3 available years (2015–2017) is 14.5 µg/m^3, which is 1.2 times the federal standard. This concentration occurred at a station adjacent to Route 60 in Ontario.

Table 3.2-11 shows that the Proposed Plan's peak daily construction emissions could be roughly 0.07 ton per day of $PM_{2.5}$. Table 3.2-12 shows that the Proposed Plan's peak daily operational emissions relative to the 2017 Baseline would be approximately 0.3 ton per day of $PM_{2.5}$ without mitigation. By comparison and for context, CARB's 2015 emission inventory estimates total anthropogenic emissions within the SCAB to be 102.3 tons per day of $PM_{2.5}$ (CARB 2019e). These estimates show that the Proposed Plan's maximum regional direct $PM_{2.5}$ contribution would be equivalent to about 0.3 percent of the total SCAB emissions. The Proposed Plan's VOC and NO_x emissions, described above under O_3, would also contribute to secondary $PM_{2.5}$ formation in the region. Therefore, the Proposed Plan would potentially contribute to regional violations of the $PM_{2.5}$ standards and to regional adverse health effects related to $PM_{2.5}$.

The following summary of adverse health effects associated with PM_{10} and $PM_{2.5}$ exposure was compiled in the 2016 AQMP (SCAQMD 2017). Appendix I of the 2016 AQMP provides an expanded discussion of the adverse health effects.

> *Several studies have found correlations between elevated ambient particulate matter levels (PM) and an increase in mortality rates, respiratory infections, number and severity of asthma attacks, and the number of hospital admissions in different parts of the United States and in various areas around the world. In recent years, studies have reported an association between long-term exposure to $PM_{2.5}$ and increased total mortality (reduction in life-span and increased mortality from lung cancer). Higher levels of $PM_{2.5}$ have also been related to increased mortality due to cardiovascular or respiratory diseases, hospital admissions for acute respiratory conditions, school absences, lost work days, a decrease in respiratory function in children, and increased medication use in children and adults with asthma. Long-term exposure to PM has been found to be associated with reduced lung function growth in children, and increased risk of cardiovascular diseases in adults. Elderly persons, young children, and people with pre-existing respiratory and/or cardiovascular disease appear to be more susceptible to the effects of PM_{10} and $PM_{2.5}$. In its most recent review, USEPA concluded that both short-term and long-term exposures to $PM_{2.5}$ are causally related to increased mortality risk (USEPA 2009).*

In summary, construction and operation of the Proposed Plan would potentially contribute to regional adverse health effects associated with exposure to O_3, PM_{10}, and $PM_{2.5}$ in the SCAB. The Proposed Plan would not contribute to regional adverse health effects associated with exposure to CO or NO_2.

Impact AQ-2: Construction and operations would result in off-site ambient air pollutant concentrations that exceed a SCAQMD significance threshold.

<u>Impact Determination</u>

Construction

Table 3.2-13 summarizes examples of dispersion modeling analyses of unmitigated maximum ambient pollutant concentrations that could occur from construction activities under the Proposed Plan. The concentrations were obtained from prior POLB CEQA documents for projects with construction activities similar to what could occur under the Proposed Plan. The Terminal Development/Dredging/Landfilling scenario includes the combined impacts from 1) dredging, diking, and landfilling, 2) wharf construction, 3) terminal backlands improvements, and 4) railyard construction activities that were estimated for the Pier S project. The railyard construction scenario equates to impacts estimated for construction of the Pier B railyard. The maximum concentrations presented from these prior CEQA documents were generally predicted to occur on or near the project site boundaries.

TABLE 3.2-13. EXAMPLES OF POTENTIAL UNMITIGATED MAXIMUM AMBIENT POLLUTANT CONCENTRATIONS FROM CONSTRUCTION ACTIVITIES UNDER THE PROPOSED PLAN

Pollutant	Averaging Time	Terminal Development/ Dredging/Landfilling Impact ($\mu g/m^3$)(1)	Railyard Construction Impact ($\mu g/m^3$)(2)	SCAQMD Threshold ($\mu g/m^3$)
NO_2	Federal 1-hour	**355**	**345**	188
	State 1-hour	ND(3)	**469**	339
	State Annual	ND(3)	**77**	57
CO	1-hour	5,812	4,343	23,000
	8-hour	4,315	3,462	10,000
PM_{10}	24-hour	**26.4**	6.2	10.4
	Annual	ND(3)	**1.0**	1.0
$PM_{2.5}$	24-hour	**14.6**	3.5	10.4

Key: $\mu g/m^3$ = milligrams per cubic meter; CO = carbon monoxide; EIR = Environmental Impact Report; EIS = Environmental Impact Statement; NO_2 = nitrogen dioxide; $PM_{2.5}$ = particulate matter less than 2.5 microns in diameter; PM_{10} = particulate matter less than 10 microns in diameter; SCAQMD = South Coast Air Quality Management District

Notes:

(1) Data are from Pier S Final EIS/Final EIR (POLB 2012) Table 3.2-9.

(2) Data are from Pier B Draft EIR (POLB 2018c) Tables 3.2-11 and 3.2-12.

(3) "ND" means no data were available from the referenced document.

CO and NO_2 data are equal to project impacts plus background pollutant concentrations. PM_{10}/$PM_{2.5}$ data are equal to project impact concentrations. Exceedance of a threshold is shown in **bold**.

It is expected that ambient pollutant impacts generated from the smaller construction activities under the Proposed Plan, such as the Ocean Boulevard Bicycle Gap Closure project, would be less than those identified in Table 3.2-13. This is because the Pier S and Pier B projects used in the table evaluated large terminal and railyard development activities with dense aerial distributions of emissions that would result in higher localized ambient impacts compared to emissions from smaller projects under the Proposed Plan. However, ambient pollutant impacts from the larger projects under the Proposed Plan, such as the Pier J, Pier T, and Pier W development projects, could approximate those from either the Terminal Development/Dredging/Landfilling or Railyard scenario identified in Table 3.2-13.

The data in Table 3.2-13 show that unmitigated ambient pollutant impacts from the larger construction activities under the Proposed Plan would have the potential to exceed the SCAQMD concentration thresholds for 1-hour and annual NO_2, 24-hour and annual PM_{10}, and 24-hour $PM_{2.5}$. Moreover, concurrent construction projects in close proximity to each other could result in overlapping impacts and could lead to higher concentrations at some locations. Therefore, without mitigation, maximum ambient pollutant concentrations of NO_2, PM_{10}, and $PM_{2.5}$ associated with construction of the Proposed Plan would represent a significant impact.

Future project-level CEQA documentation for individual actions included in the Proposed Plan will provide more detailed analyses, as appropriate, of project-specific construction air quality impacts.

Implementation of the OHSPER project would not require construction, as the facility is already operable in its present configuration. Therefore, this project would not result in any adverse air quality impacts.

Operations

Table 3.2-12 summarizes examples of dispersion modeling analyses that estimated unmitigated maximum ambient pollutant concentrations from the operation of large goods movement projects at the Port. The concentrations were obtained from prior POLB CEQA documents for projects similar to what could occur under the Proposed Plan. The container terminal scenario evaluated impacts from the Pier S Project FEIS/FEIR and includes 1) OGV transit inside the Port and OGVs at berth, 2) tugboat assist for OGVs, 3) CHE, 4) on-terminal trucking activities, and 5) locomotive operations within the on-site railyard and to the Cerritos Channel. The railyard scenario evaluated locomotive operations from the Pier B railyard EIR. The maximum concentrations presented from these prior CEQA documents were generally predicted to occur on or near the project site boundaries.

It is expected that ambient pollutant impacts generated from the larger operational activities under the Proposed Plan, such as the Pier J, Pier T, and Pier W container terminal development projects, would approximate those identified for the container terminal scenario in Table 3.2-12. This is because the Pier S project used in the table proposed a large container terminal with annual throughput levels (1.8 million TEUs) and operational activities that would be similar to these larger projects under the Proposed Plan. Ambient pollutant impacts from smaller projects proposed under the Proposed Plan generally would be lower than those identified for the railyard scenario in Table 3.2-12, as their activity levels and emissions would be lower than this railyard scenario.

The data in Table 3.2-12 show that unmitigated ambient pollutant impacts from the larger operational activities under the Proposed Plan would have the potential to exceed the SCAQMD concentration thresholds for 1-hour and annual NO_2 and 24-hour PM_{10} and $PM_{2.5}$. Moreover, concurrent operation of projects in close proximity to each other may have overlapping impacts, leading to higher concentrations at some locations. Therefore, without mitigation, maximum ambient pollutant concentrations of NO_2, PM_{10}, and $PM_{2.5}$ associated with operation of the Proposed Plan would represent a significant impact.

Future project-level CEQA documentation for individual actions included in the Proposed Plan will provide more detailed analyses, as appropriate, of project-specific operational air quality impacts.

Operation of the OHSPER project would include the use of diesel-powered dredges, scows, tugboats, and other vessels that would carry materials to the project site. These same types of emission sources operate as part of the existing use of the WASSS. Therefore, the net change in ambient air pollutant impacts between existing and proposed uses of the site would be minimal and would not exceed any SCAQMD threshold.

Mitigation Measures

Construction

Mitigation Measures AQ-1 through AQ-6 would reduce the ambient impact of construction emissions from the Proposed Plan.

Operations

Mitigation Measures AQ-7 through AQ-9 (see Impact AQ-1) would reduce the ambient impact of emissions from Port operations under the Proposed Plan.

Significance of Impact after Mitigation

Construction

Table 3.2-14 summarizes examples of dispersion modeling analyses of mitigated maximum ambient pollutant concentrations that could occur from larger construction activities under the Proposed Plan. Similar to the discussion of mitigation for Impact AQ-1, full implementation of **Mitigation Measures AQ-2 and AQ-6** would reduce the ambient impacts from the Terminal Development/Dredging/Landfilling scenario by further amounts from those shown in Table 3.2-14. The data in Table 3.2-14 show that mitigated ambient pollutant impacts from the larger construction activities under the Proposed Plan would have the potential to exceed the SCAQMD concentration thresholds for 1-hour and annual NO_2 and 24-hour PM_{10}. Moreover, concurrent construction projects in close proximity to each other could result in overlapping impacts and could lead to higher concentrations at some locations and possible exceedances of the $PM_{2.5}$ threshold. Therefore, with mitigation, maximum ambient pollutant concentrations of NO_2, PM_{10}, and $PM_{2.5}$ associated with construction of the Proposed Plan would represent a significant air quality impact.

TABLE 3.2-14. EXAMPLES OF POTENTIAL MITIGATED MAXIMUM AMBIENT POLLUTANT CONCENTRATIONS FROM CONSTRUCTION ACTIVITIES UNDER THE PROPOSED PLAN

Pollutant	Averaging Time	Terminal Development/ Dredging/Landfilling Impact (μg/m^3)$^{(1)}$	Railyard Construction Impact (μg/m^3)$^{(2)}$	SCAQMD Threshold (μg/m^3)
NO_2	Federal 1-hour	**355**	**267**	188
	State 1-hour	ND $^{(3)}$	**372**	339
	State Annual	ND $^{(3)}$	**61**	57
CO	1-hour	5,812	4,341	23,000
	8-hour	4,315	3,460	10,000
PM_{10}	24-hour	**12.5**	3.5	10.4
	Annual	ND$^{(3)}$	0.4	1.0
$PM_{2.5}$	24-hour	7.6	1.2	10.4

Key: μg/m^3 = milligrams per cubic meter; CO = carbon monoxide; EIR = Environmental Impact Report; EIS = Environmental Impact Statement; NO_2 = nitrogen dioxide; $PM_{2.5}$ = particulate matter less than 2.5 microns in diameter; PM_{10} = particulate matter less than 10 microns in diameter; SCAQMD = South Coast Air Quality Management District

Notes:

(1) Data are from Pier S Final EIS/Final EIR (POLB 2012) Table 3.2-10.

(2) Data are from Pier B Draft EIR (POLB 2018c) Tables 3.2-15 and 3.2-16.

(3) "ND" means no data were available from the referenced document.

CO and NO_2 data are equal to project impacts plus background pollutant concentrations. PM_{10}/$PM_{2.5}$ data are equal to project impact concentrations. Exceedance of a threshold is shown in **bold**.

Operations

The air dispersion modeling analyses conducted for the POLB Pier S and Pier B projects incorporated all applicable regulations and 2010 CAAP Update measures into the unmitigated analyses. These analyses did not identify any feasible measures to mitigate proposed operational emissions or resulting ambient pollutant impacts. Therefore, the results presented in Table 3.2-12 represent conservative levels of mitigated ambient pollutant impacts that could occur from operational activities under the Proposed Plan.

Implementation of **Mitigation Measures AQ-7 through AQ-9** would further reduce the ambient impacts presented in Table 3.2-12 by an unknown amount. These mitigation measures would be implemented as part of the project-level environmental review process and subsequent terminal lease agreements that would occur under the Proposed Plan. However, based on the magnitude of the unmitigated concentration impacts in Table 3.2-12 and the uncertainly of the level of future mitigation, the analysis concludes that mitigated impacts would potentially remain above the SCAQMD ambient concentration thresholds for 1-hour and annual NO_2 and 24-hour PM_{10} and $PM_{2.5}$. Therefore, operation of the mitigated Proposed Plan would produce significant local NO_2, PM_{10}, and $PM_{2.5}$ concentrations.

<u>Potential Impact of Significant Local Ambient Concentrations on Public Health</u>

In response to the California Supreme Court's recent decision on *Sierra Club v. County of Fresno* (2018), this section provides a discussion of the potential health effects associated with the Proposed Plan's significant construction and operational ambient pollutant concentrations identified in Impact AQ-2. These pollutant concentrations are considered *local* impacts because they are typically determined through dispersion modeling of the Port's primary pollutant emissions in the local Port area, and because the maximum pollutant concentrations predicted by the dispersion model are almost always located in close proximity to the Port. By definition, a modeled exceedance of a SCAQMD ambient concentration threshold means that the Proposed Plan would contribute to a local violation of the CAAQS or NAAQS and therefore would contribute to local adverse health effects in the modeled exceedance area. If no modeled exceedance is predicted, the Proposed Plan is presumed not to contribute to local adverse health effects because CARB and USEPA established the CAAQS and NAAQS to protect public health and welfare.

Impact AQ-2 concluded that construction and operation of the Proposed Plan would produce ambient pollutant concentrations that could exceed the SCAQMD localized thresholds for NO_2, PM_{10}, and $PM_{2.5}$, both with and without mitigation. Therefore, construction and operation of the Proposed Plan would potentially contribute to local adverse health effects associated with exposure to NO_2, PM_{10}, and $PM_{2.5}$. Health effects associated with PM as a TAC (most notably, DPM) are addressed in Impact AQ-4 (Health Risk Assessment of Toxic Air Contaminant Emissions).

Analysis Approach and Limitations

This PEIR links the Proposed Plan's local pollutant impacts to health effects qualitatively because technical and scientific limitations prevent the accurate quantification of local health effects. Health effects quantification would generally require a two-stage process consisting of a) modeling of emissions to estimate local ambient concentrations and to determine the exposed population; and b) applying available methodologies to estimate the quantities of adverse health outcomes for the exposed population at the predicted concentration levels. As explained in Section 3.2.3.2 (Assessment Methodology), there was insufficient detail for this PEIR to quantify construction emissions or mitigated operational emissions associated with the Proposed Plan. The lack of necessary emissions data, coupled with the lack of adequate spatial, temporal, and physical detail of the various emission sources, made dispersion modeling of the projects within the Proposed Plan infeasible. Instead, this PEIR relied on previous analyses conducted for activities that are similar to those identified for the Proposed Plan and found in the most recent POLB project-level CEQA/NEPA documents. Without Proposed Plan-specific dispersion modeling, this PEIR cannot accurately define the geographical extent of CAAQS or NAAQS exceedance areas in the Port vicinity, the magnitude of pollutant concentrations within those areas, or the predicted frequencies of exceedance within those areas. This information is an essential starting point in the quantification of adverse health effects.

Currently, there is no widely-used and reliable methodology that could be used to quantify local health effects associated with exposure to NO_2 concentrations. The Port has identified a local quantitative methodology only for PM emissions, which is described in Section 3.2.3.2 (Assessment Methodology) under the heading, “Particulate Matter Morbidity and Mortality Considerations.” This approach would be used as warranted in future project-level CEQA review for the various projects under the Proposed Plan if the project exceeds SCAQMD’s $PM_{2.5}$ threshold as discussed in Section 3.2.3.2.

The above discussion shows that a) dispersion modeling of local ambient pollutant concentrations, which would be needed for the quantification of local adverse health effects, could not be performed at this time due to the lack of adequate project-level detail; and b) even if dispersion modeling could be performed, a quantification methodology for local adverse health outcomes is only available for PM. Therefore, the Port finds that quantification of local health effects associated with the Proposed Plan’s criteria pollutant impacts is not feasible. As a result, this PEIR provides a qualitative discussion of the potential for the Proposed Plan’s local impacts to cause adverse health effects. Based on past analyses of Port operations and the general understanding of operations under the Proposed Plan, it is expected that the ambient air pollutant impacts from the Proposed Plan would be the highest within and directly adjacent to the Port and would decrease in magnitude with distance away from the Port and its connecting transportation corridors.

The qualitative local health effects discussion follows a three-step approach. The first step simply concludes that adverse health effects could occur from Proposed Plan-related exposure to NO_2, PM_{10}, and $PM_{2.5}$ concentrations in the local Port vicinity. The second step provides context by describing the existing levels of NO_2, PM_{10}, and $PM_{2.5}$ in the Port vicinity, over which the Proposed Plan’s local impacts would occur. The final step describes the general types of the adverse health effects that could be associated with the Proposed Plan’s significant local pollutant impacts.

A discussion of the Proposed Plan’s *regional* contributions to adverse health effects in the SCAB is provided as part of Impact AQ-1.

Identification of Potential Local Adverse Health Effects

Nitrogen Dioxide. Impact AQ-2 concluded that construction and operation of the Proposed Plan could produce significant local ambient NO_2 concentrations both with and without mitigation. Therefore, construction and operation of the Proposed Plan would potentially contribute to local adverse health effects associated with exposure to NO_2.

The SCAB is currently in attainment of the state and federal NO_2 standards. On a local scale, Table 3.2-3 shows that none of the three monitoring stations nearest the Port exceeded the NO_2 standards in the last 3 years (2016–2018), although the highest observed 1-hour concentration was very close to the standard. Specifically, the highest observed 1-hour concentration was 0.179 ppm, 99 percent of the state standard, at the Superblock (Inner Harbor) station. The highest 3-year average of the 98^{th} percentile of the annual distributions of daily maximum 1-hour average concentrations was 0.087 ppm, 87 percent of the federal standard, at the Superblock station. The highest observed annual concentration was 0.024 $\mu g/m^3$, 80 percent of the state standard, at the Superblock station.

The following summary of adverse health effects associated with NO_2 exposure was compiled in the 2016 AQMP. Appendix I of the 2016 AQMP provides an expanded discussion of the adverse health effects.

> *USEPA noted the respiratory effects of NO_2, and evidence suggestive of impacts on cardiovascular health, mortality and cancer (USEPA 2016d). Evidence for low-level nitrogen dioxide (NO_2) exposure effects is derived from laboratory studies of asthmatics and from epidemiological studies. Additional evidence is derived from animal studies. USEPA cited the coherence of the results from a variety of studies, and a plausible biological mechanism to support the determination of a causal relationship between short-term NO_2 exposures and asthma exacerbations ("asthma attacks"). The long-term link with respiratory outcomes was strengthened by recent experimental and epidemiological studies, and the strongest evidence available is from studies of asthma development. Experimental studies have found that NO_2 exposures increase responsiveness of airways, pulmonary inflammation, and oxidative stress, and can lead to the development of allergic responses. These biological responses provide evidence of a plausible mechanism for NO_2 to cause asthma. Additionally, results from controlled exposure studies of asthmatics demonstrate an increase in the tendency of airways to contract in response to a chemical stimulus (airway responsiveness) or after inhaled allergens. Animal studies also provide evidence that NO_2 exposures have negative effects on the immune system, and therefore increase the host's susceptibility to respiratory infections. Epidemiological studies showing associations between NO_2 levels and hospital admissions for respiratory infections support such a link, although the studies examining respiratory infections in children are less consistent.*

PM_{10}. Impact AQ-2 concluded that construction and operation of the Proposed Plan could produce significant local ambient PM_{10} concentrations both with and without mitigation. Therefore, construction and operation of the Proposed Plan would potentially contribute to local adverse health effects associated with exposure to PM_{10}.

The SCAB is currently classified as nonattainment of the state 24-hour and annual PM_{10} standards. On a local scale, Table 3.2-3 shows that the three monitoring stations nearest the Port exceeded both the 24-hour and annual standards in each of the last 3 years (2016–2018). The highest observed 24-hour concentration was 102 $\mu g/m^3$, 2.0 times the standard, at the Superblock (Inner Harbor) station. The 24-hour standard was exceeded on approximately 20 percent of all days at that station over the 3-year period (based on observations taken every 6 days). The highest observed annual concentration was 40.4 $\mu g/m^3$, 2.0 times the standard, also at the Superblock station. Because of the exceedances of the state and federal standards, these monitoring data indicate that the potential for adverse health effects related to PM_{10} exposure already exists in the project vicinity in the absence of any contribution from the Proposed Plan. The impacts related to the Proposed Plan would contribute additional adverse health effects.

The summary of potential adverse health effects associated with PM_{10} exposure is provided in Impact AQ-1 under the heading, "Potential Impact of Significant Regional Emissions on Public Health."

$PM_{2.5}$. Impact AQ-2 concluded that construction and operation of the Proposed Plan could produce significant local ambient $PM_{2.5}$ concentrations both with and without mitigation.

Therefore, construction and operation of the Proposed Plan would potentially contribute to local adverse health effects associated with exposure to $PM_{2.5}$.

The SCAB is currently classified as nonattainment of the state and federal $PM_{2.5}$ standards. On a local scale, Table 3.2-3 shows that only the annual state and federal standards were exceeded over the last 3 years (2016–2018), and by only one of the three monitoring stations nearest the Port—the Gull Park (Outer Harbor) station. Specifically, the highest annual concentration observed at Gull Park was 15.8 µg/m^3, which is 1.3 times the state standard. The 3-year average concentration at Gull Park was 15.0 µg/m^3, which is 1.2 times the federal standard. None of the three stations exceeded the federal 24-hour standard of 35 µg/m^3. The highest observed 3-year average of the 98th percentile of the 24-hour concentrations was 30.3 µg/m^3, which is 87 percent of the federal standard. Because of the exceedances of the annual state and federal standards at one station, these monitoring data indicate that the potential for adverse health effects related to $PM_{2.5}$ exposure already exists in the project vicinity in the absence of any contribution from the Proposed Plan. The impacts related to the Proposed Plan would contribute additional adverse health effects.

The summary of potential adverse health effects associated with $PM_{2.5}$ exposure is provided in Impact AQ-1 under the heading, "Potential Impact of Significant Regional Emissions on Public Health."

In summary, construction and operation of the Proposed Plan would potentially contribute to local adverse health effects associated with exposure to NO_2, PM_{10}, and $PM_{2.5}$ in the Port vicinity. The Proposed Plan would not contribute to local adverse health effects associated with exposure to CO.

Impact AQ-3: Operations would not create odors objectionable to sensitive receptors.

<u>Impact Determination</u>

Port operations under the Proposed Plan would generate air pollutants due primarily to the combustion of diesel fuel. The chemical species found in diesel exhaust include some that are known to have odors and that produce the characteristic diesel exhaust odor with which most people are familiar. Quantifying potential odor impacts from diesel exhaust is very difficult due to the complex mixture of chemicals in the diesel exhaust, the differing odor thresholds of these constituent species, and the difficulty in quantifying the potential for changes in perceived odors even when air contaminant concentrations are known. The mobile nature of most Port emission sources would help to decentralize, disperse, and dilute their emissions across the Harbor District. Within this context, operations under the Proposed Plan would likely result in only minor changes in the overall odor environment within the Port region. Therefore, the potential is low for the Proposed Plan to produce objectionable odors that would affect a sensitive receptor. Therefore, operation of the Proposed Plan would produce less than significant odor impacts.

Operation of the OHSPER would include the use of diesel-powered dredges, scows, tugboats, and other vessels that would carry materials to the project site. These same types of emission sources operate as part of the existing use of the WASSS. Therefore, the net change in emissions between existing and proposed uses of the site would be minimal and would not create an objectionable odor at the nearest sensitive receptor.

As operations would not create odors objectionable to sensitive receptors, no mitigation is required. Impacts would be less than significant.

Impact AQ-4: Construction and operations would expose receptors to significant levels of TACs.

Impact Determination

Construction and operations associated with the Proposed Plan would generate TACs primarily from the combustion of diesel fuels. These TACs could affect public health in the vicinity of the Port (locally) and in the SCAB in general (regionally). To evaluate potential public health effects of proposed construction and operational emissions, this PEIR presents both regional and localized impact analyses.

The analysis of regional health impacts focuses on DPM emissions from Proposed Plan operations, as operations would generate substantially more DPM emissions than construction. Table 3.2-15 summarizes the annual estimates of unmitigated DPM emissions that would occur from operational activities under the Proposed Plan. These data show that unmitigated annual DPM emissions within the SCAB from 2040 Proposed Plan operations would increase by about 54 tons per year relative to the 2017 Baseline. For comparison, this Plan-related increase equates to about 1.4 percent of the SCAB Basin-wide DPM emissions of 3,736 tons per year reported in MATES-IV for the SCAQMD's 2012 study year (SCAQMD 2015a). This increase in DPM emissions would occur from all of the goods movement sources evaluated for the Proposed Plan. Therefore, the net increase in DPM emissions from the Proposed Plan likely would produce slight increases in cancer risks in proximity to where these sources would operate within the SCAB. Since the existing Basin-wide average cancer risk from TACs in the SCAB is estimated by MATES-IV to be as high as 367 chances per million, the increased DPM emissions associated with the Proposed Plan would be a significant regional impact to individual cancer risk.

TABLE 3.2-15. ANNUAL DPM OPERATIONAL EMISSIONS; UNMITIGATED PROPOSED PLAN, 2040

Emission Source	Annual DPM Emissions (ton/yr)[1]
Ocean-Going Vessels	
OGVs in Transit[2]	83.8
OGVs at Berth[3]	16.9
Harbor Craft[4]	24.7
Cargo Handling Equipment	9.8
Locomotives	
Switchers On-Port	0.1
Line Haul Locomotives On-Port	2.2
Line Haul Locomotives Off-Port[5]	5.7
Heavy-Duty Vehicles[6]	
HDVs On-Terminal Exhaust[7]	0.1
HDVs Off-Terminal Exhaust[8]	8.0
Automobiles	0.0
Transport Refrigeration Unit Gensets[9]	0.1
Total, Proposed Plan	**151.4**
Total, 2017 Baseline	**104.0**
Proposed Plan minus 2017 Baseline	**47.4**

TABLE 3.2-15. ANNUAL DPM OPERATIONAL EMISSIONS; UNMITIGATED PROPOSED PLAN, 2040
Key: DPM = diesel particulate matter; Gensets = generation sets; HDVs = Heavy-Duty Vehicles; nm = nautical miles; OGVs = Ocean-Going Vessels; Port = Port of Long Beach; SCAB = South Coast Air Basin; ton/yr = tons per year; TRU = Transport Refrigeration Unit; VSR = vessel speed reduction Notes: [1] The emissions domain is the SCAB. [2] OGV transit emissions include transit between the berth and the SCAB over-water boundary, and anchoring in the harbor while waiting for an available berth. The emissions assume that, in 2040, 95 percent of all inbound vessels will use VSR (maximum 12 knots) within 40 nm of Point Fermin, 95 percent of all outbound vessels will use VSR within 20 nm of Point Fermin, and 90 percent of all outbound vessels will use VSR between 20 and 40 nm of Point Fermin. [3] OGV at-berth emissions assume that the shore power usage rates in 2040 would be 80 percent for containerships, cruise vessels, and reefer vessels; and 0 percent for all other vessels. [4] Harbor craft emissions are from assist tugboats only. All other harbor craft activity is not directly related to cargo throughput and, therefore, is not expected to substantially increase in the future as a result of the Proposed Plan. [5] Off-port line haul locomotive emissions include trains that originate/terminate at the Port and trains carrying Port containers that originate/terminate at off-dock rail yards within the SCAB (calculated as the equivalent number of trains needed to carry only the Port-related cargo). [6] HDV emissions assume 4 percent of the fleet will use liquefied natural gas instead of diesel fuel. [7] On-terminal HDV emissions include queuing at terminal entry gates, travel and idling within the terminals, and queuing at the terminal exit gates. [8] Off-terminal HDV emissions represent trips between the Port and the first point of rest or SCAB boundary, whichever comes first. [9] TRU genset emissions are quantified for the time they spend at the Port.

To estimate localized health effects associated with Proposed Plan-related TAC emissions, the analysis relies on the results of HRAs conducted for activities that are similar to those identified for the Proposed Plan and evaluated in recently certified San Pedro Bay Ports CEQA documents. These include the Port of Long Beach Pier B Final EIR and the Port of Los Angeles Berths 226–236 (Everport) Container Terminal Improvements Project Final EIS/Final EIR. These HRAs evaluated emissions of TACs from construction and operational sources to quantify individual cancer risks, cancer burden, and chronic and acute noncancer health effects. The Port of Los Angeles Berths 226–236 Project container terminal would encompass 229 acres and would have an annual throughput of 2.38 million TEUs by year 2033. The Port of Long Beach Pier B project would encompass 182 acres and would process about 3,200 train round trips by year 2035. In comparison, several container terminals proposed for operation under the Proposed Plan in year 2040 would have annual throughputs that approximate those identified for the Port of Los Angeles Berths 226–236 project. In addition, the Proposed Plan would increase container throughput in year 2040 by 9.4 million TEUs compared to the 2017 Baseline and would have a total annual throughput of 16.9 million TEUs.

The HRAs from the Port of Los Angeles Berths 226–236 EIS/EIR and Port of Long Beach Pier B railyard EIR both concluded that the unmitigated projects would result in significant individual cancer risks to certain residential and sensitive receptors located near the project emission sources. Both HRAs identified less than significant cancer burden and noncancer health effects. Given that the Proposed Plan would include projects that are similar to those evaluated in the Berths 226–236 and Pier B HRAs, it is reasonable to assume that the unmitigated projects under the Proposed Plan could also produce significant individual cancer risks. Moreover, the concurrent operation of projects in close proximity to each other could result in overlapping impacts and could lead to higher risks at some locations and the potential for significant cancer burden and noncancer health effects. Therefore, this PEIR concludes that unmitigated activities under the Proposed Plan would result in a significant impact related to individual cancer risks, cancer burden, and chronic and acute noncancer health effects in the local Port area.

Future project-level CEQA documentation for individual actions included in the Proposed Plan will provide more detailed analyses, as appropriate, of project-specific health impacts.

PM Mortality and Morbidity Effects

The results of the example dispersion modeling analyses presented in Table 3.2-12 for the container terminal scenario show that operation of the Proposed Plan could result in exceedances of the $PM_{2.5}$ SCAQMD threshold of 2.5 μg/m^3 that the Port uses as a trigger level to quantify PM mortality and morbidity effects for CEQA purposes. This PEIR does not quantify PM mortality and morbidity effects from the Proposed Plan activities since the project-level detail necessary for accurate dispersion modeling is not available. Nevertheless, since operational activities associated with the Proposed Plan could incrementally increase ambient $PM_{2.5}$ concentrations above the SCAQMD threshold within communities adjacent to the Port, the Proposed Plan could result in an incremental increase in mortality and morbidity effects in the local Port area. This would represent a significant impact. Additional discussion of the potential health effects associated with exposure to $PM_{2.5}$ emissions from the Proposed Plan is included in Impact AQ-2 under the heading, "Potential Impact of Significant Local Concentrations on Public Health."

Operation of the OHSPER project would include the use of diesel-powered dredges, scows, tugboats, and other vessels that would carry materials to the project site. These same types of emission sources operate as part of the existing use of the WASSS. Therefore, the net change in ambient air pollutant impacts between existing and proposed uses of the site would not expose receptors to significant levels of TACs.

Mitigation Measures

Mitigation Measures AQ-1 through AQ-3 and **Mitigation Measures AQ-6 through AQ-9** would reduce the ambient impact of TACs emissions from Port construction and operations under the Proposed Plan.

Significance of Impact after Mitigation

For regional health impacts, implementation of **Mitigation Measures AQ-1 through AQ-3** and **Mitigation Measures AQ-6 through AQ-9** would reduce DPM emissions from Port construction and operations under the Proposed Plan by an unspecified amount. A high degree of mitigation measure implementation on a Port-wide basis could result in considerable DPM emission reductions. However, based on the magnitude of the unmitigated emissions in Table 3.2-15 and the uncertainty of the level of future mitigation, the analysis estimates that mitigated DPM emissions would potentially remain above 2017 Baseline levels. Therefore, this PEIR conservatively concludes that mitigated operation of the Proposed Plan would result in a significant impact related to regional cancer risks.

For localized health impacts, the mitigated HRA conducted for the Port of Los Angeles Berths 226–236 project evaluated the implementation of applicable 2010 CAAP measures. The mitigated HRA conducted for the Port of Long Beach Pier B projects incorporated measures to reduce TACs from proposed construction sources. The results of these analyses determined that these measures would reduce projected cancer risks to less than significant levels. Additionally, for the Proposed Plan, full implementation of **Mitigation Measure AQ-8** would largely eliminate operational DPM emissions from trucks and CHE, which are typically the two largest contributors to localized health risks from large POLB projects. Therefore, with full implementation of the proposed mitigation measures, the impact of the localized health risks associated with the Proposed Plan would likely be less than significant for all health effects categories and potentially lower than 2017 Baseline levels. Nevertheless, since it is uncertain how individual projects under the Proposed Plan would implement the proposed mitigation measures in the future, this PEIR conservatively retains the significance findings of the unmitigated Proposed Plan. Therefore, with mitigation, the impact of the localized health risks associated with construction and operation of the Proposed Plan would be significant for individual cancer risk, cancer burden, and chronic and acute noncancer health effects.

Impact AQ-5: Operations would not conflict with or obstruct implementation of the applicable AQMP.

Impact Determination

Operation of the Proposed Plan would produce emissions of nonattainment pollutants primarily from diesel-powered sources. The AQMP proposes emission-reduction measures that are designed to bring the SCAB into attainment of the CAAQS and NAAQS. The attainment strategies in the AQMP include mobile source control measures and clean fuel programs that are enforced at the state and federal levels on engine manufacturers and petroleum refiners and retailers. Operations under the Proposed Plan would need to comply with these strategies. SCAQMD also adopts AQMP control measures into the SCAQMD Rules and Regulations, which are then used to regulate sources of air pollution in the SCAB. Compliance with these requirements would ensure that the Proposed Plan would not obstruct implementation of the AQMP.

The POLB provides SCAG with Port-wide cargo forecasts that are used to simulate growth and emissions scenarios in the AQMP. The POLB operates well within the cargo forecasts provided for the AQMP and the 2016 AQMP includes cargo forecasts that encompass those for the Proposed Plan. Therefore, the Proposed Plan would be consistent with the future emissions predicted for the Port in the AQMP. One objective of the AQMP is to improve the flow of goods at the San Pedro Bay Ports. The Proposed Plan would assist in implementing this AQMP objective. Therefore, the Proposed Plan would not conflict with or obstruct implementation of the applicable AQMP.

Operation of the OHSPER project would include the use of diesel-powered dredges, scows, tugboats, and other vessels that would carry materials to the project site. These same types of emission sources operate as part of the existing use of the WASSS and they would comply with applicable air quality regulations, which would be consistent with the AQMP. As a result, operation of the OHSPER site would not conflict with or obstruct implementation of the applicable AQMP, and the impact would be less than significant.

As operations would not conflict with or obstruct implementation of the applicable AQMP, no mitigation is required. Impacts would be less than significant.

3.2.3.4 Alternative 1 (No Plan Alternative)

Alternative 1 (No Plan Alternative) considers what would reasonably occur if the Port did not update the PMP to include updates to the planning districts and allowable land and water use designations within the Harbor District. Alternative 1 includes projects that are 1) consistent with the 1990 PMP as amended, 2) may or may not have been evaluated in a final CEQA document, and/or 3) could be implemented without approval of the Proposed Plan. Alternative 1 includes the following projects: Administrative Building Site Support Yard (Expansion), Fourth Track at Ocean Boulevard, Ocean Boulevard Bicycle Gap Closure, Pier B Street Support Yard, Pier D Street Realignment, Pier S Mixed Use Development, and Pier S Shoreline Enhancement. This alternative also includes the Pier T Echo Support Yard project, which would construct a 17-acre support yard (chassis, empties, or peel-off) that would serve the Pier T container terminal. In addition, use of the WASSS would continue as currently permitted (i.e., placement and reuse of clean sediments).

Impact Determination

Construction

Unmitigated construction activities proposed for Alternative 1 would result in the same significant air quality impacts as those identified for the Proposed Plan: 1) unmitigated construction emissions would exceed the SCAQMD daily emission thresholds for all pollutants except SO_x and 2) unmitigated ambient pollutant impacts would have the potential to exceed the SCAQMD concentration thresholds for 1-hour and annual NO_2, 24-hour and annual PM_{10}, and 24-hour $PM_{2.5}$. Therefore, unmitigated construction activities proposed for Alternative 1 would result in significant impacts under Impact AQ-1 and Impact AQ-2. Since Alternative 1 proposes fewer and smaller construction activities compared to the Proposed Plan, the Alternative would result in fewer daily and total construction emissions compared to those that would occur from the Proposed Plan. Similarly, ambient pollutant concentrations from construction activities proposed for Alternative 1 most likely would be lower than those estimated for the Proposed Plan.

Mitigation Measures AQ-1 through AQ-6 would reduce emissions and their ambient impacts from construction activities proposed for Alternative 1. These measures would not be expected to eliminate the exceedances of the SCAQMD daily emissions and concentration thresholds mentioned above. Therefore, mitigated construction emissions and ambient pollutant impacts would be significant under Impact AQ-1 and Impact AQ-2, respectively.

Operations

Unmitigated operations proposed for Alternative 1 would result in the same significant air quality impacts as those identified for the Proposed Plan: 1) unmitigated operations emissions generated by Alternative 1 minus the 2017 Baseline scenario (see Table 3.2-16) would exceed the SCAQMD daily emission thresholds for VOCs, CO, PM_{10}, and $PM_{2.5}$; 2) unmitigated ambient pollutant impacts from the largest operational activities would have the potential to exceed the SCAQMD concentration thresholds for 1-hour and annual NO_2 and 24-hour PM_{10} and $PM_{2.5}$; 3) the increase in DPM emissions from Alternative 1 (as summarized in Table 3.2-17) likely would produce slight increases in cancer risks in proximity to where proposed sources would operate within the SCAB, which would result in a significant regional impact related to individual cancer risk; and 4) proposed construction and operations would generate TACs that would result in significant individual cancer risks, cancer burden, and chronic and acute noncancer health effects in locations adjacent to the Port. Therefore, unmitigated operations proposed for Alternative 1 would result in significant impacts under Impact AQ-1, Impact AQ-2, and Impact AQ-4, respectively.

Alternative 1 in year 2040 would increase container throughput by 6.5 million TEUs compared to the 2017 Baseline, versus an increase of 9.4 million TEUs predicted for the Proposed Plan. Due to these lower throughput levels, operations from Alternative 1 most likely would produce lower daily and total emissions, ambient pollutant concentrations, and health impacts compared to those estimated for the Proposed Plan. For example, the 2040 unmitigated peak day emissions estimated for operations due to Alternative 1 would be about 11 percent lower, averaged over all pollutants, than those estimated for the Proposed Plan (see Table 3.2-10).

TABLE 3.2-16. PEAK DAY CRITERIA POLLUTANT OPERATIONAL EMISSIONS; UNMITIGATED ALTERNATIVE 1, 2040

Emission Source	Peak Day Emissions (lb/day)[1]					
	VOC	CO	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Ocean-Going Vessels						
OGVs in Transit[2]	2,109	4,253	22,824	1,168	724	680
OGVs at Berth[3]	318	654	4,950	517	196	184
Harbor Craft[4]	624	4,220	4,474	4	207	192
Cargo Handling Equipment	302	7,226	2,154	15	76	70
Locomotives						
Switchers On-Port	3	53	33	0	0	0
Line Haul Locomotives On-Port	29	707	746	3	11	11
Line Haul Locomotives Off-Port[5]	76	1,854	1,955	7	28	29
Heavy-Duty Vehicles						
HDVs On-Terminal Exhaust[6]	69	1,475	1,447	3	1	1
HDVs On-Terminal Tire and Brake Wear	0	0	0	0	4	2
HDVs On-Terminal Road Dust	0	0	0	0	140	21
HDVs Off-Terminal Exhaust[7]	43	567	6,646	30	53	51
HDVs Off-Terminal Tire and Brake Wear	0	0	0	0	317	115
HDVs Off-Terminal Road Dust	0	0	0	0	233	35
Automobiles						
Auto Exhaust	12	518	26	2	1	1
Auto Tire and Brake Wear	0	0	0	0	46	18
Auto Road Dust	0	0	0	0	69	10
Transport Refrigeration Unit Gensets[8]	13	204	150	0	1	1
Total, Alternative 1	**3,598**	**21,730**	**45,405**	**1,749**	**2,107**	**1,420**
CEQA Impacts						
Total, 2017 Baseline	**2,303**	**11,633**	**54,361**	**1,883**	**1,438**	**1,058**
Alternative 1 minus 2017 Baseline	**1,295**	**10,097**	**-8,955**	**-134**	**669**	**361**
SCAQMD Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**Yes**	No	No	**Yes**	**Yes**

TABLE 3.2-16. PEAK DAY CRITERIA POLLUTANT OPERATIONAL EMISSIONS; UNMITIGATED ALTERNATIVE 1, 2040						
Emission Source	**Peak Day Emissions (lb/day)[1]**					
	VOC	**CO**	**NO_x**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**

Key: CEQA = California Environmental Quality Act; CO = carbon monoxide; Gensets = generation sets; HDVs = Heavy-Duty Vehicles; lb/day = pounds per day; nm = nautical miles; NO_x = nitrogen oxides; OGVs = Ocean-Going Vessels; PM_{10} = particulate matter less than 10 microns in diameter; $PM_{2.5}$ = particulate matter less than 2.5 microns in diameter; Port = Port of Long Beach; SCAB = South Coast Air Basin; SCAQMD = South Coast Air Quality Management District; SO_x = sulfur oxides; TRU = Transport Refrigeration Unit; VOC = volatile organic compounds; VSR = vessel speed reduction

Notes:

[1] The emissions domain for criteria pollutants is the SCAB.

[2] OGV transit emissions include transit between the berth and the SCAB over-water boundary, and anchoring in the harbor while waiting for an available berth. The emissions assume that, in 2040, 95 percent of all inbound vessels will use VSR (maximum 12 knots) within 40 nm of Point Fermin, 95 percent of all outbound vessels will use VSR within 20 nm of Point Fermin, and 90 percent of all outbound vessels will use VSR between 20 and 40 nm of Point Fermin.

[3] OGV at-berth emissions assume that the shore power usage rates in 2040 would be 80 percent for containerships, cruise vessels, and reefer vessels; and 0 percent for all other vessels.

[4] Harbor craft emissions are from assist tugboats only. All other harbor craft activity is not directly related to cargo throughput and, therefore, is not expected to substantially increase in the future as a result of Alternative 1.

[5] Off-port line haul locomotive emissions include trains that originate/terminate at the Port and trains carrying Port containers that originate/terminate at off-dock rail yards within the SCAB (calculated as the equivalent number of trains needed to carry only the Port-related cargo).

[6] On-terminal HDV emissions include queuing at terminal entry gates, travel and idling within the terminals, and queuing at the terminal exit gates.

[7] Off-terminal HDV emissions represent trips between the Port and the first point of rest or SCAB boundary, whichever comes first.

[8] TRU genset emissions are quantified for the time they spend at the Port.

TABLE 3.2-17. ANNUAL DPM OPERATIONAL EMISSIONS; UNMITIGATED ALTERNATIVE 1, 2040	
Emission Source	**Annual DPM Emissions (ton/yr)[1]**
Ocean-Going Vessels	
OGVs in Transit[2]	77.3
OGVs at Berth[3]	16.2
Harbor Craft[4]	23.0
Cargo Handling Equipment	8.0
Locomotives	
Switchers On-Port	0.1
Line Haul Locomotives On-Port	1.8
Line Haul Locomotives Off-Port[5]	4.8
Heavy-Duty Vehicles[6]	
HDVs On-Terminal Exhaust[7]	0.1
HDVs Off-Terminal Exhaust[8]	7.0
Automobiles	0.0
Transport Refrigeration Unit Gensets[9]	0.1
Total, Alternative 1	**138.3**
Total, 2017 Baseline	**104.0**
Alternative 1 minus 2017 Baseline	**34.3**

TABLE 3.2-17. ANNUAL DPM OPERATIONAL EMISSIONS; UNMITIGATED ALTERNATIVE 1, 2040
Key: DPM = diesel particulate matter; Gensets = generation sets; HDVs = Heavy-Duty Vehicles; nm = nautical miles; OGVs = Ocean-Going Vessels; Port = Port of Long Beach; SCAB = South Coast Air Basin; ton/yr = tons per year; TRU = Transport Refrigeration Unit; VSR = vessel speed reduction Notes: [1] The emissions domain is the SCAB. [2] OGV transit emissions include transit between the berth and the SCAB over-water boundary, and anchoring in the harbor while waiting for an available berth. The emissions assume that, in 2040, 95 percent of all inbound vessels will use VSR (maximum 12 knots) within 40 nm of Point Fermin, 95 percent of all outbound vessels will use VSR within 20 nm of Point Fermin, and 90 percent of all outbound vessels will use VSR between 20 and 40 nm of Point Fermin. [3] OGV at-berth emissions assume that the shore power usage rates in 2040 would be 80 percent for containerships, cruise vessels, and reefer vessels; and 0 percent for all other vessels. [4] Harbor craft emissions are from assist tugboats only. All other harbor craft activity is not directly related to cargo throughput and, therefore, is not expected to substantially increase in the future as a result of Alternative 1. [5] Off-port line haul locomotive emissions include trains that originate/terminate at the Port and trains carrying Port containers that originate/terminate at off-dock rail yards within the SCAB (calculated as the equivalent number of trains needed to carry only the Port-related cargo). [6] HDV emissions assume 4 percent of the fleet will use liquefied natural gas instead of diesel fuel. [7] On-terminal HDV emissions include queuing at terminal entry gates, travel and idling within the terminals, and queuing at the terminal exit gates. [8] Off-terminal HDV emissions represent trips between the Port and the first point of rest or SCAB boundary, whichever comes first. [9] TRU genset emissions are quantified for the time they spend at the Port.

Mitigation Measures AQ-7 through AQ-9 would reduce emissions of criteria pollutants and TACs and their ambient impacts and health effects from Port operations under Alternative 1. As discussed for the Proposed Plan in Section 3.2.3.3 (Proposed Plan), it is uncertain to what degree individual projects under Alternative 1 would implement the proposed mitigation measures. Due to this uncertainly, plus the magnitude of unmitigated operational emissions estimated for Alternative 1, the analysis concludes that mitigated emissions would remain above the SCAQMD daily emission thresholds for VOCs, CO, PM_{10}, and $PM_{2.5}$. In addition, based on the magnitude of the unmitigated air pollutant concentration impacts and DPM emissions and the uncertainly of the level of future mitigation, the analysis estimates that mitigated impacts 1) potentially would remain above the SCAQMD ambient concentration thresholds for 1-hour and annual NO_2 and 24-hour PM_{10} and $PM_{2.5}$ and 2) potentially would result in a significant contribution to regional cancer risks and significant localized individual cancer risks, cancer burden, and chronic and acute noncancer health effects. Therefore, mitigated operations proposed for Alternative 1 would result in significant impacts under Impact AQ-1, Impact AQ-2, and Impact AQ-4, respectively.

Similar to the Proposed Plan, operations from Alternative 1 would not create odors objectionable to sensitive receptors. In addition, operations would not conflict with or obstruct implementation of the applicable AQMP. Therefore, Impact AQ-3 and Impact AQ-5 under Alternative 1 would be less than significant and no mitigation is required.

3.2.3.5 Alternative 2 (No Terminal Development)

Alternative 2 (No Terminal Development) is similar to the Proposed Plan and would include updates to the planning districts and allowable land and water use designations in the Harbor District. However, Alternative 2 would not include terminal development projects at Pier T, Pier W, or Pier J. Alternative 2 would include the following projects: Administrative Building Site Support Yard (Expansion), Protective Boat Basin (Berth F202), OHSPER, Fourth Track at Ocean Boulevard, Ocean Boulevard Bicycle Gap Closure, Pier B Street Support Yard, Pier D Street

Realignment, Pier T Echo Support Yard, Pier S Mixed Use Development, Pier S Shoreline Enhancement, and land use changes.

Impact Determination

Construction

Unmitigated construction activities proposed for Alternative 2 would result in the same significant air quality impacts as those identified for the Proposed Plan: 1) unmitigated construction emissions would exceed the SCAQMD daily emission thresholds for all pollutants except SO_x and 2) unmitigated ambient pollutant impacts would have the potential to exceed the SCAQMD concentration thresholds for 1-hour and annual NO_2, 24-hour and annual PM_{10}, and 24-hour $PM_{2.5}$. Therefore, unmitigated construction activities proposed for Alternative 2 would result in significant impacts under Impact AQ-1 and Impact AQ-2. Since Alternative 2 proposes fewer and smaller construction activities compared to the Proposed Plan, the Alternative would result in fewer daily and total construction emissions compared to those that would occur from the Proposed Plan. Similarly, ambient pollutant concentrations from construction activities proposed for Alternative 2 most likely would be lower than those estimated for the Proposed Plan.

Mitigation Measures AQ-1 through AQ-6 would reduce emissions and their ambient impacts from construction activities proposed for Alternative 2. These measures would not be expected to eliminate the exceedances of the SCAQMD daily emissions and concentration thresholds mentioned above. Therefore, mitigated construction emissions and ambient pollutant impacts would be significant under Impact AQ-1 and Impact AQ-2, respectively.

Operations

Unmitigated operations proposed for Alternative 2 would result in the same significant air quality impacts as those identified for the Proposed Plan: 1) unmitigated operations emissions generated by Alternative 2 minus the 2017 Baseline scenario (identical to those presented for Alternative 1 in Table 3.2-16) would exceed the SCAQMD daily emission thresholds for VOCs, CO, PM_{10}, and $PM_{2.5}$; 2) unmitigated ambient pollutant impacts from the largest operational activities would have the potential to exceed the SCAQMD concentration thresholds for 1-hour and annual NO_2 and 24-hour PM_{10} and $PM_{2.5}$; 3) the increase in DPM emissions from Alternative 2 (identical to those presented for Alternative 1 in Table 3.2-17) likely would produce slight increases in cancer risks in proximity to where proposed sources would operate within the SCAB, which would result in a significant regional impact related to individual cancer risk; and 4) proposed construction and operations would generate TACs that would result in significant individual cancer risks, cancer burden, and chronic and acute noncancer health effects in locations adjacent to the Port. Therefore, unmitigated operations proposed for Alternative 2 would result in significant impacts under Impact AQ-1, Impact AQ-2, and Impact AQ-4, respectively.

Alternative 2 in year 2040 would increase container throughput by 6.5 million TEUs compared to the 2017 Baseline, versus an increase of 9.4 million TEUs predicted for the Proposed Plan. Due to these lower throughput levels, operations from Alternative 2 most likely would produce lower daily and total emissions, ambient pollutant concentrations, and health impacts compared to those estimated for the Proposed Plan. For example, the 2040 unmitigated peak day emissions estimated for operations due to Alternative 2 would be about 11 percent lower, averaged over all pollutants, than those estimated for the Proposed Plan (see Table 3.2-10).

Mitigation Measures AQ-7 through AQ-9 would reduce emissions of criteria pollutants and TACs and their ambient impacts and health effects from Port operations under Alternative 2. As discussed for the Proposed Plan in Section 3.2.3.3 (Proposed Plan), it is uncertain to what degree individual projects under Alternative 2 would implement the proposed mitigation measures. Due to this uncertainly, plus the magnitude of unmitigated operational emissions estimated for Alternative 2, the analysis concludes that mitigated emissions would remain above the SCAQMD daily emission thresholds for VOCs, CO, PM_{10}, and $PM_{2.5}$. In addition, based on the magnitude of the unmitigated concentration impacts and DPM emissions and the uncertainly of the level of future mitigation, the analysis estimates that mitigated impacts 1) potentially would remain above the SCAQMD ambient concentration thresholds for 1-hour and annual NO_2 and 24-hour PM_{10} and $PM_{2.5}$ and 2) potentially would result in a significant contribution to regional cancer risks and significant localized individual cancer risks, cancer burden, and chronic and acute noncancer health effects. Therefore, mitigated operations proposed for Alternative 2 would result in significant impacts under Impact AQ-1, Impact AQ-2, and Impact AQ-4, respectively.

Similar to the Proposed Plan, operations from Alternative 2 would not create odors objectionable to sensitive receptors. In addition, operations would not conflict with or obstruct implementation of the applicable AQMP. Therefore, Impact AQ-3 and Impact AQ-5 under Alternative 2 would be less than significant and no mitigation is required.

3.2.3.6 Alternative 3 (Reduced Terminal Development)

Alternative 3 (Reduced Terminal Development) is similar to the Proposed Plan and would include updates to the planning districts and allowable land and water use designations in the Harbor District. Under Alternative 3, development of the Pier J terminal would be reduced compared to the Pier J Terminal Redevelopment under the Proposed Plan. The Pier J Reduced Development would include dredging and filling the 22-acre triangle, cutting a 9-acre notch, extending the north wharf to the east, and relocating the existing rail line and yard to Pier J South. No development of a new Pier W terminal would occur. Alternative 3 would include the following projects: Administrative Building Site Support Yard (Expansion), Protective Boat Basin (Berth F202), OHSPER, Fourth Track at Ocean Boulevard, Ocean Boulevard Bicycle Gap Closure, Pier B Street Support Yard, Pier D Street Realignment, Pier S Mixed Use Development, Pier S Shoreline Enhancement, Pier T Improvements, Pier J Reduced Development, and land use changes.

<u>Impact Determination</u>

Construction

Unmitigated construction activities proposed for Alternative 3 would result in the same significant air quality impacts as the ones identified for the Proposed Plan: 1) unmitigated construction emissions would exceed the SCAQMD daily emission thresholds for all pollutants except SO_x and 2) unmitigated ambient pollutant impacts would have the potential to exceed the SCAQMD concentration thresholds for 1-hour and annual NO_2, 24-hour and annual PM_{10}, and 24-hour $PM_{2.5}$. Therefore, unmitigated construction activities proposed for Alternative 3 would result in significant impacts under Impact AQ-1 and Impact AQ-2. Since Alternative 3 proposes somewhat fewer and smaller construction activities compared to the Proposed Plan, the Alternative would result in fewer daily and total construction emissions compared to those that would occur from the Proposed Plan. Similarly, the highest ambient pollutant concentrations from construction activities proposed for Alternative 3 would occur on fewer days compared to the Proposed Plan.

Mitigation Measures AQ-1 through AQ-6 would reduce emissions and their ambient impacts from construction activities proposed for Alternative 3. These measures would not be expected to eliminate the exceedances of the SCAQMD daily emissions and concentration thresholds mentioned above. Therefore, mitigated construction emissions and ambient pollutant impacts would be significant under Impact AQ-1 and Impact AQ-2, respectively.

Operations

Unmitigated operations proposed for Alternative 3 would result in the same significant air quality impacts as those identified for the Proposed Plan: 1) unmitigated operations emissions generated by Alternative 3 minus the 2017 Baseline scenario (see Table 3.2-18) would exceed the SCAQMD daily emission thresholds for VOCs, CO, PM_{10}, and $PM_{2.5}$; 2) unmitigated ambient pollutant impacts from the largest operational activities would have the potential to exceed the SCAQMD concentration thresholds for 1-hour and annual NO_2 and 24-hour PM_{10} and $PM_{2.5}$; 3) the increase in DPM emissions from Alternative 3 (as presented in Table 3.2-19) likely would produce slight increases in cancer risks in proximity to where proposed sources would operate within the SCAB, which would result in a significant regional impact related to individual cancer risk; and 4) proposed construction and operations would generate TACs that would result in significant individual cancer risks, cancer burden, and chronic and acute noncancer health effects in locations adjacent to the Port. Therefore, unmitigated operations proposed for Alternative 3 would result in significant impacts under Impact AQ-1, Impact AQ-2, and Impact AQ-4, respectively.

Alternative 3 in year 2040 would increase container throughput by 7.8 million TEUs compared to the 2017 Baseline, versus an increase of 9.4 million TEUs predicted for the Proposed Plan. Due to these lower throughput levels, operations from Alternative 3 most likely would produce slightly lower daily and total emissions, ambient pollutant concentrations, and health impacts compared to those estimated for the Proposed Plan. For example, the 2040 unmitigated peak day emissions estimated for operations due to Alternative 3 would be about 6 percent lower, averaged over all pollutants, than those estimated for the Proposed Plan (see Table 3.2-10).

TABLE 3.2-18. PEAK DAY CRITERIA POLLUTANT OPERATIONAL EMISSIONS; UNMITIGATED ALTERNATIVE 3, 2040

Emission Source	Peak Day Emissions (lb/day)[1]					
	VOC	CO	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Ocean-Going Vessels						
OGVs in Transit[2]	2,186	4,404	23,456	1,205	747	701
OGVs at Berth[3]	322	662	5,030	524	199	187
Harbor Craft[4]	633	4,283	4,540	4	210	195
Cargo Handling Equipment	336	7,986	2,387	17	85	77
Locomotives						
Switchers On-Port	3	67	42	0	1	1
Line Haul Locomotives On-Port	34	833	879	3	13	13
Line Haul Locomotives Off-Port[5]	87	2,123	2,240	8	32	33
Heavy-Duty Vehicles						
HDVs On-Terminal Exhaust[6]	75	1,601	1,570	3	1	1

TABLE 3.2-18. PEAK DAY CRITERIA POLLUTANT OPERATIONAL EMISSIONS; UNMITIGATED ALTERNATIVE 3, 2040

Emission Source	Peak Day Emissions (lb/day)[1]					
	VOC	**CO**	**NO_x**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**
HDVs On-Terminal Tire and Brake Wear	0	0	0	0	5	2
HDVs On-Terminal Road Dust	0	0	0	0	152	23
HDVs Off-Terminal Exhaust[7]	45	608	7,132	32	56	54
HDVs Off-Terminal Tire and Brake Wear	0	0	0	0	337	122
HDVs Off-Terminal Road Dust	0	0	0	0	248	37
Automobiles						
Auto Exhaust	13	542	27	2	1	1
Auto Tire and Brake Wear	0	0	0	0	48	19
Auto Road Dust	0	0	0	0	72	11
Transport Refrigeration Unit Gensets[8]	15	236	174	0	1	1
Total, Alternative 3	**3,751**	**23,344**	**47,476**	**1,799**	**2,205**	**1,476**
CEQA Impacts						
Total, 2017 Baseline	**2,303**	**11,633**	**54,361**	**1,883**	**1,438**	**1,058**
Alternative 3 minus 2017 Baseline	**1,448**	**11,711**	**-6,884**	**-84**	**767**	**418**
SCAQMD Thresholds	55	550	55	150	150	55
Significant?	**Yes**	**Yes**	No	No	**Yes**	**Yes**

Key: CEQA = California Environmental Quality Act; CO = carbon monoxide; Gensets = generation sets; HDVs = Heavy-Duty Vehicles; lb/day = pounds per day; nm = nautical miles; NO_x = nitrogen oxides; OGVs = Ocean-Going Vessels; PM_{10} = particulate matter less than 10 microns in diameter; $PM_{2.5}$ = particulate matter less than 2.5 microns in diameter; Port = Port of Long Beach; SCAB = South Coast Air Basin; SCAQMD = South Coast Air Quality Management District; SO_x = sulfur oxides; TRU = Transport Refrigeration Unit; VOC = volatile organic compounds; VSR = vessel speed reduction

Notes:

[1] The emissions domain for criteria pollutants is the SCAB.

[2] OGV transit emissions include transit between the berth and the SCAB over-water boundary, and anchoring in the harbor while waiting for an available berth. The emissions assume that, in 2040, 95 percent of all inbound vessels will use VSR (maximum 12 knots) within 40 nm of Point Fermin, 95 percent of all outbound vessels will use VSR within 20 nm of Point Fermin, and 90 percent of all outbound vessels will use VSR between 20 and 40 nm of Point Fermin.

[3] OGV at-berth emissions assume that the shore power usage rates in 2040 would be 80 percent for containerships, cruise vessels, and reefer vessels; and 0 percent for all other vessels.

[4] Harbor craft emissions are from assist tugboats only. All other harbor craft activity is not directly related to cargo throughput and, therefore, is not expected to substantially increase in the future as a result of Alternative 3.

[5] Off-port line haul locomotive emissions include trains that originate/terminate at the Port and trains carrying Port containers that originate/terminate at off-dock rail yards within the SCAB (calculated as the equivalent number of trains needed to carry only the Port-related cargo).

[6] On-terminal HDV emissions include queuing at terminal entry gates, travel and idling within the terminals, and queuing at the terminal exit gates.

[7] Off-terminal HDV emissions represent trips between the Port and the first point of rest or SCAB boundary, whichever comes first.

[8] TRU genset emissions are quantified for the time they spend at the Port.

TABLE 3.2-19. ANNUAL DPM OPERATIONAL EMISSIONS; UNMITIGATED ALTERNATIVE 3, 2040	
Emission Source	**Annual DPM Emissions (ton/yr)[1]**
Ocean-Going Vessels	
OGVs in Transit[2]	79.7
OGVs at Berth[3]	16.4
Harbor Craft[4]	23.4
Cargo Handling Equipment	8.8
Locomotives	
Switchers On-Port	0.1
Line Haul Locomotives On-Port	2.1
Line Haul Locomotives Off-Port[5]	5.5
Heavy-Duty Vehicles[6]	
HDVs On-Terminal Exhaust[7]	0.1
HDVs Off-Terminal Exhaust[8]	7.4
Automobiles	0.0
Transport Refrigeration Unit Gensets[9]	0.1
Total, Alternative 3	**143.6**
Total, 2017 Baseline	**104.0**
Alternative 3 minus 2017 Baseline	**39.6**

Key: DPM = diesel particulate matter; Gensets = generation sets; HDVs = Heavy-Duty Vehicles; nm = nautical miles; OGVs = Ocean-Going Vessels; Port = Port of Long Beach; SCAB = South Coast Air Basin; ton/yr = tons per year; TRU = Transport Refrigeration Unit; VSR = vessel speed reduction

Notes:

[1] The emissions domain is the SCAB.

[2] OGV transit emissions include transit between the berth and the SCAB over-water boundary, and anchoring in the harbor while waiting for an available berth. The emissions assume that, in 2040, 95 percent of all inbound vessels will use VSR (maximum 12 knots) within 40 nm of Point Fermin, 95 percent of all outbound vessels will use VSR within 20 nm of Point Fermin, and 90 percent of all outbound vessels will use VSR between 20 and 40 nm of Point Fermin.

[3] OGV at-berth emissions assume that the shore power usage rates in 2040 would be 80 percent for containerships, cruise vessels, and reefer vessels; and 0 percent for all other vessels.

[4] Harbor craft emissions are from assist tugboats only. All other harbor craft activity is not directly related to cargo throughput and, therefore, is not expected to substantially increase in the future as a result of Alternative 3.

[5] Off-port line haul locomotive emissions include trains that originate/terminate at the Port and trains carrying Port containers that originate/terminate at off-dock rail yards within the SCAB (calculated as the equivalent number of trains needed to carry only the Port-related cargo).

[6] HDV emissions assume 4 percent of the fleet will use liquefied natural gas instead of diesel fuel.

[7] On-terminal HDV emissions include queuing at terminal entry gates, travel and idling within the terminals, and queuing at the terminal exit gates.

[8] Off-terminal HDV emissions represent trips between the Port and the first point of rest or SCAB boundary, whichever comes first.

[9] TRU genset emissions are quantified for the time they spend at the Port.

Mitigation Measures AQ-7 through AQ-9 would reduce emissions of criteria pollutants and TACs and their ambient impacts and health effects from Port operations under Alternative 3. As discussed for the Proposed Plan in Section 3.2.3.3 (Proposed Plan), it is uncertain to what degree individual projects under Alternative 3 would implement the proposed mitigation measures. Due to this uncertainly, plus the magnitude of unmitigated operational emissions estimated for Alternative 3, the analysis concludes that mitigated emissions would remain above the SCAQMD daily emission thresholds for VOCs, CO, PM_{10}, and $PM_{2.5}$. In addition, based on the magnitude of the unmitigated concentration impacts and DPM emissions and the uncertainly of the level of future mitigation, the analysis estimates that mitigated impacts 1) potentially would remain above the SCAQMD ambient concentration thresholds for 1-hour and annual NO_2 and 24-hour PM_{10} and $PM_{2.5}$ and 2) potentially would result in a significant contribution to regional cancer risks and significant localized individual cancer risks, cancer burden, and chronic and acute noncancer health effects. Therefore, mitigated operations proposed for Alternative 3 would result in significant impacts under Impact AQ-1, Impact AQ-2, and Impact AQ-4, respectively.

Similar to the Proposed Plan, operations from Alternative 3 would not create odors objectionable to sensitive receptors. In addition, operations would not conflict with or obstruct implementation of the applicable AQMP. Therefore, Impact AQ-3 and Impact AQ-5 under Alternative 3 would be less than significant and no mitigation is required.

3.2.4 Cumulative Impacts

The following discussion evaluates whether air quality impacts of the Proposed Plan would be cumulatively significant within the context of impacts caused by other past, present, and reasonably foreseeable future projects in the geographic vicinity of the Proposed Plan. The discussion of each cumulative impact first establishes whether the past, present, and reasonably foreseeable future projects, including the Proposed Plan, would produce a significant cumulative air quality impact. If so, then the second part of the discussion determines whether the Proposed Plan would make a cumulatively considerable contribution to the significant cumulative impact and therefore require mitigation.

The SCAQMD has not published air quality significance thresholds specifically for cumulative impacts. To be conservative, this EIR considers cumulative impacts to be significant if they exceed the significance criteria for individual projects presented in Section 3.2.3.1 (Significance Criteria). The SCAQMD developed these significance criteria based on the existing air quality conditions within the SCAB (see below).

3.2.4.1 Geographical Extent

The region of analysis for cumulative effects on air quality is the SCAB. However, the analysis focuses on communities adjacent to the Port, such as the City of Long Beach and Community of Wilmington, as these areas would experience the greatest effect from emissions under the Proposed Plan.

3.2.4.2 Existing Cumulative Condition

Due to its large population, substantial numbers of emission sources, and geographical and meteorological conditions that inhibit atmospheric dispersion, the SCAB has a high potential for air pollution. As stated in Section 3.2.1.2 (Setting) and shown in Table 3.2-2, the region currently does not attain the NAAQS for O_3, $PM_{2.5}$, and lead (Los Angeles County only). The SCAB also is in nonattainment of the CAAQS for O_3, PM_{10}, and $PM_{2.5}$. The region is in attainment of the NAAQS and CAAQS for CO, NO_2, and SO_2 and it is in attainment for the NAAQS for PM_{10}. These pollutant nonattainment conditions within the Proposed Plan region are therefore cumulatively significant.

The SCAQMD, in its MATES-IV study, estimated that elevated levels of cancer risks occur in proximity to the San Pedro Bay Port Complex due to the operational emissions from the San Pedro Bay Ports (SCAQMD 2015a). Regarding noncancer effects, the CARB identifies that elevated levels of air pollution that can occur within the San Pedro Bay Ports region are associated with adverse health effects, including asthma, bronchitis, reduced lung function, and increased mortality and morbidity (CARB 2006b). Based on these conditions, airborne cancer and noncancer conditions within the Proposed Plan region are cumulatively significant.

3.2.4.3 Reasonably Foreseeable Projects

The cumulative projects considered in the analysis are shown in Chapter 2 (Related Projects and Relationship to Local and Regional Plans), Table 2.1-1. Almost all of these projects are known or assumed to have cumulative air quality impacts. These cumulative projects could include construction or operational activities that would occur concurrently (or at least in part) with activities of the Proposed Plan; are within the Proposed Plan region of influence; or would potentially contribute cumulatively to the region's air quality impacts.

3.2.4.4 Proposed Plan Cumulative Impacts

- **AQ-1: Produce emissions that would exceed any of the SCAQMD daily thresholds of significance in Table 3.2-7.**

Cumulative projects would result in significant cumulative impacts if their combined construction emissions would exceed a SCAQMD daily construction emission threshold identified in Table 3.2-7. Based on the large number of projects that could be under construction at the same time as those identified for the Proposed Plan, it is likely that the cumulative projects together would exceed the emission thresholds for VOCs, CO, NO_x, PM_{10}, and $PM_{2.5}$ and possibly SO_x. Therefore, cumulative projects would result in significant cumulative air quality impacts for these five, and possibly six pollutants during the Proposed Plan construction period. As shown in Table 3.2-11, mitigated construction activities under the Proposed Plan would contribute emissions of these six pollutants and all of them except SO_x would exceed the SCAQMD daily construction emission thresholds. Therefore, emissions from construction under the Proposed Plan would make a cumulatively considerable contribution to a significant cumulative impact for VOCs, CO, NO_x, PM_{10}, and $PM_{2.5}$. To be conservative, the analysis also assumes that during a peak day scenario, activities from cumulative construction projects, in combination with those from construction projects under the Proposed Plan, would have the potential to exceed the SCAQMD daily construction emission threshold for SO_x, which would result in a cumulatively considerable contribution to a significant cumulative impact for SO_x. **Mitigation Measure AQ-10** (described below) is prescribed for this cumulative impact.

Cumulative projects would result in significant cumulative impacts if their combined operational emissions would exceed a SCAQMD daily operational emission threshold identified in Table 3.2-7. Based on the large number of projects that could operate at the same time as those identified for the Proposed Plan, it is likely that the cumulative projects together would exceed the emission thresholds for VOCs, CO, NO_x, PM_{10}, $PM_{2.5}$, and possibly SO_x. Therefore, the cumulative projects would result in significant cumulative air quality impacts for these five, and possibly six pollutants during operation of the Proposed Plan. The analysis of Impact AQ-1 for the Proposed Plan determined that mitigated emissions from operations under the Proposed Plan would result in increases in all of these pollutants except NO_x. In addition, emissions from operations under the Proposed Plan would exceed the SCAQMD daily operational emission thresholds for VOCs, CO, PM_{10}, and $PM_{2.5}$. Therefore, emissions from operations under the Proposed Plan would make a cumulatively considerable contribution to a significant cumulative impact for VOC, CO, PM_{10}, and $PM_{2.5}$. To be conservative, the analysis also assumes that during a peak day scenario, activities from the operation of cumulative projects, in combination with those from operations under the Proposed Plan, would have the potential to exceed the SCAQMD daily emission threshold for SO_x, which would result in a cumulatively considerable contribution to a significant cumulative impact for SO_x. **Mitigation Measure AQ-10** is prescribed for this cumulative impact.

- **AQ-2: Result in off-site ambient air pollutant concentrations that exceed any of the SCAQMD thresholds of significance shown in Table 3.2-8 (the analysis also evaluates compliance with the federal 1-hour NO_2 standard, which SCAQMD does not list as one of its thresholds).**

Cumulative projects would result in significant cumulative impacts if the combined ambient pollutant concentrations would exceed a SCAQMD ambient pollutant threshold identified in Table 3.2-8. Due to the localized nature of this impact, related projects that are in close proximity to construction projects identified for the Proposed Plan would have the greatest potential to contribute to cumulative pollutant concentrations. Although it is uncertain if the related projects would result in a cumulative exceedance of an ambient pollutant threshold without performing dispersion modeling, previous experience with large projects in the SCAB indicates that cumulative air quality impacts would likely exceed the SCAQMD thresholds for NO_x and PM_{10} and could exceed the threshold for $PM_{2.5}$. Consequently, construction of the cumulative projects would result in significant cumulative air quality impacts related to exceedances of the significance thresholds for NO_x, PM_{10}, and $PM_{2.5}$.

The analysis for Impact AQ-2 for construction due to the Proposed Plan determined that mitigated ambient pollutant impacts from the larger construction activities under the Proposed Plan would have the potential to exceed the SCAQMD concentration thresholds for 1-hour and annual NO_2 and 24-hour PM_{10} and $PM_{2.5}$. Therefore, construction under the Proposed Plan would make a cumulatively considerable contribution to a significant cumulative impact for NO_2, PM_{10}, and $PM_{2.5}$. **Mitigation Measure AQ-10** is prescribed for this cumulative impact.

Related projects that are in close proximity to the operation of projects identified for the Proposed Plan would have the greatest potential to contribute to cumulative pollutant concentrations. Although it is uncertain if the related projects would result in a cumulative exceedance of an ambient pollutant threshold without performing dispersion modeling, previous experience with large projects in the SCAB indicates that cumulative air quality impacts would likely exceed the SCAQMD thresholds for NO_x and PM_{10} and could exceed the threshold for $PM_{2.5}$. Consequently, operations of the cumulative projects would result in significant cumulative air quality impacts related to exceedances of the significance thresholds for NO_x, PM_{10}, and $PM_{2.5}$.

The analysis of Impact AQ-2 for the Proposed Plan determined that mitigated ambient pollutant impacts from the larger operational activities under the Proposed Plan would have the potential to exceed the SCAQMD concentration thresholds for 1-hour and annual NO_2 and 24-hour PM_{10} and $PM_{2.5}$. Therefore, operations under the Proposed Plan would make a cumulatively considerable contribution to a significant cumulative impact for NO_2, PM_{10}, and $PM_{2.5}$. **Mitigation Measure AQ-10** is prescribed for this cumulative impact.

- **AQ-3: Create an objectionable odor at the nearest sensitive receptor pursuant to SCAQMD Rule 402.**

There are numerous sources of odors within the Port region, including mobile sources powered by diesel and residual fuels and stationary industrial sources, such as waste conveyance and treatment facilities, petroleum storage tanks, and sulfur storage facilities. The chemical species found in diesel exhaust include some that are known to have odors and that produce the characteristic diesel exhaust odor with which most people are familiar. Quantifying potential odor impacts from diesel exhaust is very difficult due to the complex mixture of chemicals in the diesel exhaust, the differing odor thresholds of these constituent species, and the difficulty in quantifying the potential for changes in perceived odors even when air contaminant concentrations are known. Due to future regulations and potential CAAP measures, increasing emission controls and a decreasing reliance on diesel fuel are expected to reduce the generation of objectionable odors in the future. Nevertheless, due to the large number of odorous sources within the Port Harbor District and the proximity of residents to these operations, odorous emissions in the Port region are considered to be a significant cumulative impact.

Operational activities from the Proposed Plan would generate air pollutants due to the combustion of diesel fuel. The mobile nature of most operational emission sources would help to decentralize, disperse, and dilute their emissions across the Harbor District. Within this context, operations under the Proposed Plan would likely result in only minor changes in the overall odor environment within the Port region. However, since the cumulative projects generate significant amounts of odor emissions, emissions from operations of the Proposed Plan would be substantial enough to result in a cumulatively considerable contribution to a significant cumulative odor impact within the Port region. Implementation of **Mitigation Measures AQ-7 through AQ-9** would reduce the effects of these impacts, but not to less than significant levels. **Mitigation Measure AQ-10** also is prescribed for this cumulative impact.

- **AQ-4: Produce emissions that would expose the public to significant levels of TACs. The determination of significance is based on the following: maximum incremental cancer risk greater than or equal to 10 in one million (10×10^{-6}); noncancer (chronic or acute) hazard index greater than or equal to 1.0 (Project increment); or population cancer burden greater than 0.5 excess cancer cases in areas equal to or exceeding 1 in one million (1×10^{-6}) cancer risk.**

Cumulative projects would result in significant cumulative health impacts if their combined effects during construction and operation would cause local health risk values to exceed the thresholds identified in Table 3.2-8. Due to the localized nature of this impact, related projects that are in close proximity to the construction and operation of projects identified for the Proposed Plan would have the greatest potential to contribute to cumulative health impacts. Region-wide HRAs, such as the SCAQMD MATES-IV study, estimate that cancer risks from TACs generated within the entire SCAB approach 500 per million in the vicinity of the Port. Although only a portion of that risk would be attributable to the related projects (much of it is attributable to background stationary and mobile sources), the magnitude of this risk estimate suggests that a significant cumulative impact exists. Consequently, construction and operation of the cumulative projects would result in significant cumulative health risk impacts for individual cancer risk, population cancer burden, and noncancer effects from chronic and acute exposure.

The analysis of Impact AQ-4 determined that mitigated health risks from construction and operation of the Proposed Plan would be significant for individual cancer risk, cancer burden, and chronic and acute noncancer health effects. Therefore, construction and operation of the Proposed Plan would make a cumulatively considerable contribution to a significant cumulative impact for individual cancer risk, population cancer burden, and chronic and acute noncancer effects. **Mitigation Measure AQ-10** is prescribed for this cumulative impact.

- **AQ-5: Conflict with or obstruct implementation of an applicable AQMP or would not conform to the most recently adopted SIP.**

Cumulative projects would result in significant cumulative air quality impacts if their resultant population growth or operational emissions would exceed the assumptions in the current 2016 AQMP. The cumulative projects are subject to regional planning efforts and applicable land use plans (such as the General Plan, Community Plans, or PMP), transportation plans (such as the Regional Transportation Plan (RTP) and the Regional Transportation Improvement Program), and the CAAP. Since the AQMP accounts for population projections that are developed by SCAG and accounts for planned land use and transportation infrastructure growth, the cumulative projects would be consistent with the AQMP. As a result, cumulative projects would result in a less than significant cumulative impact related to obstruction of the AQMP.

Operation of the Proposed Plan would produce emissions of nonattainment pollutants primarily from diesel-powered sources. The AQMP proposes emission-reduction measures that are designed to bring the SCAB into attainment of the CAAQS and NAAQS. The attainment strategies in the AQMP include mobile source control measures and clean fuel programs that are enforced at the state and federal levels on engine manufacturers and petroleum refiners and retailers. Operations under the Proposed Plan would need to comply with these strategies. SCAQMD also adopts AQMP control measures into the SCAQMD Rules and Regulations, which are then used to regulate sources of air pollution in the SCAB. Compliance with these requirements would ensure that the Proposed Plan would not obstruct implementation of the AQMP.

The POLB provides SCAG with Port-wide cargo forecasts that are used to simulate growth and emissions scenarios in the AQMP. The POLB operates within the cargo forecasts provided for the AQMP and the AQMP includes cargo forecasts that encompass those for the Proposed Plan. Therefore, the Proposed Plan would be consistent with the future emissions predicted for the Port in the AQMP. One objective of the AQMP is to improve the flow of goods at the San Pedro Bay Ports. The Proposed Plan would assist in implementing this AQMP objective. Therefore, the Proposed Plan would not conflict with or obstruct implementation of the applicable AQMP. As a result, without mitigation, the Proposed Plan would not result in a cumulatively considerable contribution to a significant cumulative impact in terms of conflicting with or obstructing implementation of an applicable AQMP.

Mitigation Measure AQ-10: Cumulative Air Quality Impact Reduction Program. To mitigate air quality impacts of the Proposed Plan, the Community Grants Program will be implemented and funded to partially address the cumulative air quality impacts of individual projects under the Proposed Plan. To determine a project’s contribution to the Port of Long Beach Community Grants Program, the methodology described in the latest Port of Long Beach Community Grants Program and Investment Plan shall be used.

3.2.5 Mitigation Monitoring Program

Implementation of **Mitigation Measures AQ-1 through AQ-10** would be required to reduce impacts associated with construction and/or expansion of utility infrastructure within the Harbor District. These mitigation measures and monitoring requirements are summarized in Table 3.2-20.

TABLE 3.2-20. MITIGATION MONITORING PROGRAM

Mitigation Measure	Responsible Party	Timing/Frequency
AQ-1: On-Road Construction Trucks Emission Controls. All on-road heavy-duty trucks used to transport materials to and from the construction site shall meet USEPA 2010 on-road heavy-duty diesel engine emission standards.	POLB	During construction activities
AQ-2: Tier 4 Construction Equipment Emission Controls. All land-based, diesel-fueled off-road construction equipment 25 horsepower or greater shall meet USEPA/CARB Tier 4 off-road engine emission standards.	POLB	During construction activities
AQ-3: Off-Road Construction Equipment Emission Controls. Off-road diesel-powered construction equipment shall comply with the following:	POLB	During construction activities

TABLE 3.2-20. MITIGATION MONITORING PROGRAM		
Mitigation Measure	**Responsible Party**	**Timing/Frequency**
• Maintain all construction equipment according to manufacturer's specifications. • Construction equipment shall not idle for more than 5 minutes when not in use.		
AQ-4: Increased Watering Frequency for Fugitive Dust Control. Construction site watering, which would be required by SCAQMD Rule 403, shall be increased such that the watering interval is no greater than 2.1 hours.	POLB	During construction activities
AQ-5: Additional Fugitive Dust Control. Contractors shall perform the following: • Apply approved nontoxic chemical soil stabilizers according to manufacturers' specifications to all inactive construction areas or replace groundcover in disturbed areas; • Provide temporary wind fencing around sites being graded or cleared; • Cover truck loads that haul dirt, sand, or gravel or maintain at least 2 feet of freeboard in accordance with Section 23114 of the California Vehicle Code; • Install wheel washers where vehicles enter and exit unpaved roads onto paved roads, or wash off tires of vehicles and any equipment leaving the construction site; and • Suspend all soil disturbance activities when winds exceed 25 miles per hour or when visible dust plumes emanate from the site and stabilize all disturbed areas.	POLB	During construction activities
AQ-6: Emission Controls for Construction Tugboats. The construction contractor shall ensure that all tugboats used in construction meet the USEPA Tier 3 marine engine standards, if feasible. In addition, the construction contractor shall require all construction tugboats that home fleet in the San Pedro Bay Ports to: 1) shut down their main engines and 2) refrain from using auxiliary engines while at dock and instead use electrical shore power, if feasible.	POLB	During construction activities
AQ-7: Source-Specific Control Measures from 2010 CAAP Update. All applicable source-specific control measures identified in the 2010 CAAP Update shall be incorporated into project operations, unless they are superseded by regulation or by more effective emission-reduction strategies as required in **Mitigation Measure AQ-8**.	POLB	During operations
AQ-8: Clean Vehicles and Equipment Technology and Fuels Strategies from 2017 CAAP Update. All applicable commercially available clean engine equipment technologies and fuels strategies shall be incorporated into project operations to meet the goals identified in the 2017 CAAP Update.	POLB	During operations
AQ-9: Review of New Emission Control Technologies. Every 5 years following a project approval date, the project	POLB	During operations

TABLE 3.2-20. MITIGATION MONITORING PROGRAM		
Mitigation Measure	**Responsible Party**	**Timing/Frequency**
proponent shall conduct a review of new air quality technological advancements. The applicability of a technology shall be based on operational, technical, and financial feasibility to the project. If a technology is determined to be feasible in terms of financial, technical, and operational feasibility, the project proponent shall implement such technology.		
AQ-10: Cumulative Air Quality Impact Reduction Program. To mitigate air quality impacts of the Proposed Plan, the Community Grants Program will be implemented and funded to partially address the cumulative air quality impacts of individual projects under the Proposed Plan. To determine a project's contribution to the Port of Long Beach Community Grants Program, the methodology described in the latest Port of Long Beach Community Grants Program and Investment Plan shall be used.	POLB	Timing to be determined on a project-by-project basis
Key: CAAP = Clean Air Action Plan; CARB = California Air Resources Board; POLB or Port = Port of Long Beach; SCAQMD = South Coast Air Quality Management District; USEPA = U.S. Environmental Protection Agency		

3.3 BIOTA AND HABITATS

This section describes the potential impacts on biological resources that could result from implementation of the Proposed Plan and its alternatives.

3.3.1 Environmental Setting

3.3.1.1 Area of Influence

The area of influence with respect to impacts on biota and habitats is the Inner and Outer Harbor waters of Long Beach Harbor (Figure 1.2-1), and the uplands within and adjacent to the Harbor District. Long Beach Harbor is adjacent to Los Angeles Harbor, and the two harbors are connected via the outer harbors and through the inner harbors via the Cerritos Channel. Significant measureable effects of the Proposed Plan and its alternatives on marine organism distribution (spatial arrangement) and abundance (number of individuals) are not expected to extend to Los Angeles Harbor.

3.3.1.2 Setting

The Harbor District is part of the larger San Pedro Bay Port Complex on the western edge of San Pedro Bay. Over the past century, development of the POLB docks and facilities through dredging, filling, and channeling has substantially altered the original physiography and habitats of the area. Many areas of the Harbor District that were once part of an estuary of the Los Angeles and San Gabriel Rivers have been transformed over time into primarily protected deep-water habitat to enable safe ship movements and docking for commerce. The Port is presently located within a highly urbanized setting developed for industrial uses and is surrounded by industrial, commercial, and residential areas.

Biological resources within the San Pedro Bay Port Complex have been studied since the 1950s. Cumulatively, these studies provide harbor-wide baseline and historical trend information. Comprehensive studies were conducted in the 1970s to characterize the harbor environment and evaluate impacts from dredging and San Pedro Bay Port Complex expansion projects (HEP 1980). Since then, substantial additional studies on biological resources have been conducted to support various projects, including in the Port of Long Beach in 1983−1984 (MBC 1984) and 1990−1993 (MBC 1994); in the Port of Los Angeles in 1986−1987 (MEC 1988); and throughout the entire San Pedro Bay Port Complex in 1998–2000 (MEC 2002), 2007–2008 (SAIC 2010), and 2013–2014 (MBC and Merkel & Associates 2016). Beginning with the 1998–2000 surveys, the Port of Long Beach, in collaboration with the Port of Los Angeles, has been conducting these San Pedro Bay Port Complex-wide assessments of biological resources and habitat conditions on a recurring basis. Hereafter, the three most recent baywide studies are referred to by the years of data collection, 1998–2000, 2007–2008, and 2013–2014. Data collected more recently (2018) is being analyzed and a report of the results and conclusions should be available in 2020.

Physical and marine biological surveys also were conducted at the Harbor Generating Station and the Long Beach Generating Station since the 1970s, and at the Terminal Island Treatment Plant since 1993 (MBC and Merkel & Associates 2016). In addition, biological resources within the San Pedro Bay Port Complex have been described in numerous environmental documents, including those prepared for the Deep Draft Navigation Improvement Project (USACE and LAHD 1992), Pier 400 Project (LAHD 1999), Channel Deepening Project (USACE and LAHD 2009a), Middle Harbor Redevelopment Project (POLB 2009a), Gerald Desmond Bridge Replacement

Project (POLB and Caltrans 2010), Eagle Rock Aggregate Terminal Project (POLB and USACE 2013), and the Southern California Energy Tower Replacement Project (POLB 2018d).

Terrestrial Habitats and Species

Terrestrial habitats are defined in this document as uplands above tidal influence as well as lands that may have a freshwater influence. Most of the terrestrial habitats within the Harbor District contain facilities and infrastructure (e.g., buildings, roads, and paved container storage areas) with limited vegetated habitat areas.

Vegetation

The upland areas of the Harbor District consist primarily of developed or disturbed areas that support a variety of industrial activities and uses, providing limited habitat for vegetation. Habitat in unpaved or undeveloped areas is primarily ruderal with landscape plantings, including ornamental trees, shrubs, grasses, and nonnative weeds (USACE and LAHD 2009b, USACE and LAHD 2012, POLB 2009a). Most of the vegetation within the Harbor District is dominated by invasive species; however, small pockets of native shrub and herbaceous riparian habitats may occur.

Wildlife

Terrestrial wildlife within the Harbor District is generally associated with developed areas and includes feral cats, rats, mice, birds, and lizards. Birds are the most common wildlife species, especially gulls (*Larus* spp), American crow (*Corvus brachyrhynchos*), rock dove (*Columba livia*), house finch (*Carpodacus mexicanus*), house sparrow (*Passer domesticus*), European starling (*Sturnus vulgaris*), and Brewer's blackbird (*Euphagus cyanocephalus*) (MEC 2002). Other documented bird species include loggerhead shrike (*Lanius ludovicianus*), northern mockingbird (*Euphagus cyanocephalus*), yellow-rumped warbler (*Dendroica coronata*), Anna's hummingbird (*Calypte anna*), cliff swallow (*Petrochelidon pyrrhonota)*, and barn swallow (*Hirundo rustica*).

Several raptors occur within the Harbor District, including American kestrel (*Falco sparverius*), burrowing owl (*Athene cunicularia*), Cooper's hawk (*Accipiter cooperii*), merlin (*Falco columbarius*), red-tailed hawk (*Buteo jamaicensis*), and peregrine falcon (*Falco peregrinus*) (SAIC 2010, MBC and Merkel & Associates 2016). Turkey vultures (*Cathartes aura)* are also frequently observed.

The Harbor District provides suitable nesting habitat for various bird species. For example, American kestrels have been observed nesting in the cavities of structures or under dead palm tree leaves (POLB and Caltrans 2010), and peregrine falcons have been reported nesting on bridges (Vincent Thomas, Gerald Desmond, and Commodore Schuyler Heim Bridges) (MEC 2002, SAIC 2010). A variety of marine-associated birds are also known to use, and nest in, the Harbor District (described in Aquatic Habitats and Species).

Detailed survey information on bat populations within the Harbor District is not available, although numerous species could occur based on general patterns of geographic distribution and habitat availability. Several bat species have been reported in Long Beach Harbor, and structures such as crevices in bridge expansion joints and other roadway bridges within and adjacent to the Harbor District could provide habitat. Mouse-eared bats (*Myotis* spp) were historically observed roosting under the Gerald Desmond Bridge in the Inner Harbor, and the Mexican free-tailed bat (*Tadarida brasiliensis*) was considered likely to occur (POLB and Caltrans 2010). However, based on acoustic (Anabat) bat monitoring studies conducted under the Gerald Desmond Bridge for 3 years beginning in 2012, no bat populations were observed.

Aquatic Habitats and Species

General aquatic habitat areas within the Harbor District include the Outer Harbor and Inner Harbor (Figure 1.2-1). The Outer Harbor is defined as open waters located between the piers and the federal breakwater within the Port of Long Beach and Port of Los Angeles; the breakwater protects the ports and includes several shallow-water habitat areas. The Inner Harbor is defined as basins, channels, and slips within the ports that are semi-closed and/or not open to the outer breakwaters.

Kelp and Macroalgae

Kelp beds are considered a special aquatic site (vegetated shallows) pursuant to the Clean Water Act (CWA) Section 404(b)(1) Guidelines (40 CFR Part 230), and are considered Essential Fish Habitat-Habitat Areas of Particular Concern (EFH-HAPC) by the National Oceanic and Atmospheric Administration (NOAA) Fisheries under the Magnuson-Stevens Fishery Conservation and Management Act (MSA). Kelp contribute substantially to the overall quality of hard-bottom habitats by providing structural height and a diversity of functions for the marine ecosystem, including habitat for a variety of invertebrates, fish, marine mammals, and birds. Kelp also serve as important attachment sites for fish and invertebrate eggs, and provide food, nutrients, and protective cover for numerous aquatic species.

The Harbor District has a substantial amount of hard substrate (riprap, breakwaters, and jetties), which limits kelp coverage to narrow bands yet provides favorable habitat for a variety of other macroalgal species characteristic of the Southern California subtidal and rocky intertidal zones (MBC and Merkel & Associates 2016). In 2013 and 2014, spring and summer surveys recorded up to 30 algal taxa representing at least 28 distinct genera and indicated that richness and diversity were higher in the Outer Harbor than in the Inner Harbor. Giant kelp (*Macrocystis pyrifera*) is the most abundant kelp species in the San Pedro Bay Port Complex, with feather boa kelp (*Egregia menziesii*) also a major component. Other frequently observed species include *Ulva* (*Ulva* spp), bubble algae (*Colpomenia* spp), coralline algae (*Prionitis* spp and *Weeksia* spp), and invasive macroalgal species such as *Undaria* (*Undaria pinnatifida*) and *Sargassum* (*Sargassum muticum* and *S. horneri)* (SAIC 2010, MBC and Merkel & Associates 2016).

Eelgrass

Eelgrass beds are considered a special aquatic site (vegetated shallows) pursuant to the CWA Section 404(b)(1) Guidelines (40 CFR Part 30), and are considered EFH-HAPC by NOAA Fisheries under MSA. Eelgrass (*Zostera marina*) is a rooted aquatic plant that can inhabit favorable shallow, soft-bottom habitats in bays, estuaries, and sheltered coastal areas. The depth to which eelgrass can grow is a function of light penetration and water clarity. At greater depths, light is reduced to a level below which photosynthesis is able to meet the metabolic demands of the plant to sustain net growth. Under favorable conditions, eelgrass can form dense beds that provide substrate, food, shelter, and nursery habitat for commercially and recreationally important marine fish and invertebrates; eelgrass can also provide critical structural environments for resident bay and estuarine species (MBC and Merkel & Associates 2016). Eelgrass is an important resource for migratory birds during critical seasonal periods. Where it occurs within the Harbor District, eelgrass is important to waterfowl such as black brant (*Branta bernicla nigricans*), which feed nearly exclusively on plants (MBC and Merkel & Associates 2016), as well as the federally endangered California least tern (*Sternula antillarum browni*). Anchovies and topsmelt commonly occur in eelgrass beds, contributing to the foraging value of shallow-water habitat for California least terns. Additionally, eelgrass serves multiple functions in the San Pedro Bay ecosystem by trapping and removing suspended particulates, improving water clarity, reducing erosion by stabilizing sediments, oxygenating the water column, and facilitating nutrient cycling.

Surveys conducted in 2013 and 2014 reported approximately 0.6 to 0.8 acre of eelgrass within the Harbor District, mainly along the shoreline of Cerritos Channel (MBC and Merkel & Associates 2016). Approximately 67 acres of eelgrass have been recorded across the San Pedro Bay Port Complex. The limited eelgrass habitat in the Harbor District is due to the limited shallow-water areas present to support this aquatic habitat.

Marine Benthic Communities

Soft Bottom

Two hundred sixty-four species of benthic infauna (species living within the sediments) were collected across the San Pedro Bay Port Complex during surveys conducted in 2013−2014 (MBC and Merkel & Associates 2016). The infaunal community was dominated by polychaete worms (47 percent of the individuals in summer and 54 percent in spring), followed by mollusks, arthropods, nemerteans, and echinoderms (MBC and Merkel & Associates 2016). Mollusks accounted for most of the infaunal biomass, and polychaete worms were the most diverse taxonomic group (accounting for approximately 43 percent of total species), followed by mollusks and crustaceans. Outer Harbor and shallow areas generally have a greater abundance of benthic species compared to the Inner Harbor and deep areas. This is likely because the Outer Harbor has greater water circulation and higher habitat quality (SAIC 2010, MBC and Merkel & Associates 2016).

Studies at the San Pedro Bay Port Complex have shown a decrease in infaunal abundance over time, from a mean of 4,100 individuals per square meter in 2000 to approximately 1,860 individuals per square meter in 2008 to 1,215 individuals per square meter in 2013–2014; however, species diversity has increased (MBC and Merkel & Associates 2016). Marine benthic community trends suggest that benthic habitat conditions in the San Pedro Bay Port Complex have improved since 2000. The opportunistic species documented in higher numbers by earlier studies are being replaced by larger and longer-lived organisms, resulting in a benthic community characterized by lower abundance but higher diversity compared to previous studies (MBC and Merkel & Associates 2016). Still, six pollution-sensitive species were among the 10 most abundant documented by the 2013–2014 study.

Epifaunal invertebrates (species mostly living on the sediment surface) varied among sampling locations in the Inner and Outer Harbors, with no patterns observed in a 2008 baseline survey (SAIC 2010). In a 2013–2014 survey, slightly more individuals were collected at Inner Harbor locations than at Outer Harbor locations, and mean abundance was greater at deeper locations (MBC and Merkel & Associates 2016). The most common species included rock shrimp (*Sicyonia penicillata*), black-spotted shrimp (*Crangon nigromaculata*), ridgeback prawn (*Sicyonia ingentis*), Xantus' swimming crab (*Portunus xantusii*), and *Heptacarpus* shrimps. In contrast to the decreasing infaunal abundance trends, epifauna have increased in abundance, with mean catch per trawl more than 2.5 times greater than the previous harbor-wide surveys conducted in 2000 and 2008 (MBC and Merkel & Associates 2016). No definitive cause is known for this harbor-wide increase in abundance; however, analyses suggest an improvement in habitat quality in the navigational channels since the 2000 survey (MBC and Merkel & Associates 2016).

Hard Bottom

Hard substrate such as rock, riprap, pier pilings, dock floats, and sheet pile within the Harbor District provide habitat similar to that found on rocky coasts and reefs. These hard substrates offer firm attachment locations for sessile (organisms fixed in one place) and mobile invertebrates and algae, and provide refuge for other species including fish. Within the intertidal zone (the area between the high and low tide line), a key physical factor that affects the distribution and abundance of organisms is the tide, because organisms are subject to varying degrees of submergence and exposure. During 2008 and 2013−2014 surveys, riprap biota was twice as abundant within the mid-low intertidal zone than within the high intertidal zone, and less diverse in the high intertidal compared to mid-low and subtidal zones (SAIC 2010, MBC and Merkel & Associates 2016).

The dominant invertebrate species using hard substrates in the high intertidal zone were barnacles (e.g., *Balanus* spp and *Chthalamus fissus*) (SAIC 2010, MBC and Merkel & Associates 2016). Mid-low intertidal and subtidal riprap supported a wide diversity of mobile invertebrate species, including kelp crabs (*Pugettia* spp), shore crabs (*Hemigrapsus oregonensis* and *Pachygrapsus crassipes*), and California spiny lobster (*Panulirus interuptus*). Echinoderms included brittle stars (*Amphipholis squamata*), red sea urchins (*Strongylocentrotus franciscanus),* purple sea urchins (*S. purpuratus*), sea stars (*Patiria miniata, Pisaster brevispinus, and P. ochraceous*), and sea cucumbers (*Parastichopus parvimensis*). The most abundant mollusks are limpets (*Lottia* spp), chitons (e.g., *Mopalia muscosa*), gem murex (*Maxwellia gemma*), Norris's top shell (*Norrisia norrisi*), rock scallops (*Crassodoma gigantea*), scaled wormsnail (*Serpulorbis squamigerus*), sea slugs (e.g., *Hermissenda crassicornis, Navanax inermis, and Peltodoris nobilis*), oysters (*Crassostrea gigas and Ostrea lurida*), and wavy turban topsnail (*Megastraea undosa*). Several species of cnidarians have also been observed, including colonial cup corals, aggregating anemone (*Anthopleura elegantissima*), giant green anemone (*A. xanthogrammica*), burrowing anemones (*Pachycerianthus* spp), strawberry anemone (*Corynactis californica*), and sea fans (*Muricea californica* and *M. fruticosa*). Bryozoans (e.g., *Diaporecia californica*), sponges, and tunicates (unidentified colonial, *Styela montereyensis* and *S. clava*) were also common (SAIC 2010, MBC and Merkel & Associates 2016).

Plankton

Plankton are organisms that drift in the water and are comprised of three broad functional groups: phytoplankton, zooplankton, and bacterioplankton. Phytoplankton are small, free-floating organisms such as diatoms, blue-green algae, flagellates, and dinoflagellates that are capable of photosynthesis and comprise the first trophic level of the marine food chain. Zooplankton include tiny animals, such as protozoans and small crustaceans, and the larvae of many invertebrates and fishes. They generally consume phytoplankton, organic detritus, or other zooplankton. Bacterioplankton obtain energy by consuming organic material produced by other organisms, which plays an important role in converting organic material in the water column. Like other plankton, bacterioplankton are preyed upon by zooplankton.

Plankton abundance and distribution are strongly dependent on factors such as ambient nutrient concentrations and the physical state of the water column (e.g., stratification), as well as the abundance of other plankton. Distribution and abundance of phytoplankton in Inner Harbor areas are usually patchy (HEP 1980), with densities generally lowest in winter (most likely due to limited light and lower water temperatures) and highest in mid-spring and early autumn. Zooplankton communities in the Inner Harbor and Outer Harbor are distinct, with the Inner Harbor community characterized by high concentrations of the copepods *Acartia tonsa* and *Oithona oculata*. In the Cerritos Channel, zooplankton densities were the lowest, but species diversity and species richness were among the highest among the Inner Harbor stations (HEP 1980).

Ichthyoplankton (fish eggs and larvae) have been studied periodically in the San Pedro Bay Port Complex. In the most recent surveys (conducted in 2013−2014), a total of 79 larval fish taxa were observed (MBC and Merkel & Associates 2016). The most abundant species were represented by a complex of three goby genera (*Clevelandia, Ilypnus*, and *Quietula*), northern anchovy (*Engraulis mordax*), and combtooth blennies (*Hypsoblennius* spp). Seasonal patterns of ichthyoplankton were evident, with the total abundance of all larvae combined similar during winter and spring, and higher during summer. The 2000, 2008, and 2013−2014 studies generally exhibited a similar composition of larval fish (MEC 2002, SAIC 2010, MBC and Merkel & Associates 2016).

Fish

The San Pedro Bay Port Complex supports a diverse and abundant fish community within several habitat types, including vegetated and non-vegetated shallow water, artificial hard bottom such as riprap and pier pilings, open water, and soft-bottom habitat consisting of sand, silt, clay, or mud. More than 100 species have been reported historically; however, 62 fish taxa were recorded during surveys conducted in 2008, and 74 taxa were recorded in 2013−2014 (SAIC 2010, MBC and Merkel & Associates 2016). These surveys used somewhat different methodologies across a range of habitats and sampling periods, which could influence the number of taxa recorded.

Pelagic (open water) fish collections were dominated by five species that together accounted for 99 percent of the total catch: northern anchovy, California grunion (*Leuresthes tenuis*), Pacific mackerel (*Scomber japonicas*), topsmelt (*Atherinops affinis*), and jacksmelt (*Atherinopsis californiensis*). Abundance was highly variable among monitoring stations and seasonal trends were not evident; however, all of these species are schooling fishes that spend most of their lives in environments similar to harbors and embayments like the San Pedro Bay Port Complex (MBC and Merkel & Associates 2016).

The most dominant demersal (bottom-dwelling) fish species included, white croaker (*Genyonemus lineatus*), California lizardfish (*Synodus lucioceps*) queenfish (*Seriphus politus*), and northern anchovy. These four species accounted for 73 percent of the total demersal catch (MBC and Merkel & Associates 2016). Other commonly caught demersal species included speckled sanddab (*Citharichthys stigmaeus*), California tonguefish (*Symphurus atricauda*), staghorn sculpin (*Leptocottus armatus*), longspine combfish (*Zaniolepis latipinnis*), barred sand bass (*Paralabrax nebulifer*), and specklefin midshipman (*Porichthys myriaster*). Demersal sampling showed seasonal trends with generally larger catches during the summer surveys compared to winter surveys; however, no apparent spatial patterns were found in fish abundance in the San Pedro Bay Port Complex (MBC and Merkel & Associates 2016).

Birds

Southern California's coastal areas, including its shorelines, estuaries, bays, and harbors, provide numerous types of habitat for large numbers of waterfowl, shorebirds, wading birds, and aerial foragers. The open water and other habitats within the San Pedro Bay Port Complex provide opportunities for nesting, foraging, and resting by a diversity of bird species, including the California least tern, which is listed as endangered under both the federal Endangered Species Act of 1973 (ESA) and the California Endangered Species Act (CESA) (SAIC 2010, MBC and Merkel & Associates 2016).

A total of 76,260 individual birds representing 96 species of 30 families were observed during 12 monthly surveys over a 1-year period in 2013 and 2014 in the San Pedro Bay Port Complex (MBC and Merkel & Associates 2016). The average was 6,355 birds per survey. Approximately one-third of the species are present year-round, and the remainder are seasonal or migratory. Avian guilds are groups of birds within a region or habitat that utilize the same set of resources in a similar manner, but are not necessarily related taxonomically. During the 2013–2014 surveys, the most abundant guild of birds observed within the San Pedro Bay Port Complex were gulls, with western gull (*Larus occidentalis*) and Hermann's gull (*Larus heermanni*) most common. The next most abundant guilds were waterfowl dominated by western grebe (*Aechmophorus occidentalis*), Brandt's cormorant (*Phalacrocorax penicillatus*), double-crested cormorant (*P. auritus*), surf scoter (*Melanitta perspicillata*), and aerial fish foragers such as elegant tern (*Sterna elegans*) and California brown pelican (*Pelecanus occidentalis).*

Sea Turtles

Several sea turtle species are found off the coast of Southern California, and all of these species are federally listed as threatened or endangered under the ESA. The green sea turtle (*Chelonia mydas*) is the most frequently observed sea turtle species in Southern California, and the loggerhead (*Caretta caretta*), leatherback (*Dermochelys coriacea*), and olive Ridley (*Lepidochelys olivacea*) are occasionally seen. All four species have broad, worldwide ranges and are highly migratory. Most nearshore sightings of the green and loggerhead sea turtles appear to be associated with warm-water discharges from electric generating stations. For example, Dynegy's South Bay Power Plant (now closed) in San Diego Bay consistently supported a population of green sea turtles (Lewison, Eguchi and Seminoff 2010). No formal studies have been conducted for the San Pedro Bay Port Complex, although the POLB conducts visual monitoring for sea turtles during maintenance dredging and pile driving activities, and no anecdotal sightings of sea turtles have been reported in the Los Angeles or Long Beach Harbors. The nearest green sea turtle sightings were reported south of the ports in the San Gabriel River (associated with the warm-water discharge of an electric generating station) and in Alamitos Bay (MBC 2003, NPR 2015, Crear, et al. 2017). While sea turtles may be present as very rare visitors to the ports, no species are known or expected to breed within the San Pedro Bay Port Complex.

Marine Mammals

All marine mammals are protected under the Marine Mammal Protection Act (MMPA), and some are also protected under the federal ESA and the CESA. The California sea lion (*Zalophus californianus*) is the most abundant marine mammal in the San Pedro Bay Port Complex and is present year-round. The species is commonly found resting on ships, buoys, docks, and riprap shoreline, or foraging around bait barges and fish markets (MEC 2002, SAIC 2010, MBC and Merkel & Associates 2016). Harbor seals (*Phoca vitulina*) are less common, but have been recorded resting or foraging along riprap shorelines, particularly adjacent to the breakwaters of the Outer Harbor. No marine mammals breed in the San Pedro Bay Port Complex; local seals and sea lions primarily breed at the offshore Channel Islands.

The common bottlenose dolphin (*Tursiops truncatus*), short-beaked common dolphin (*Delphinus delphis*), and Pacific white-sided dolphin (*Lagenorhynchus obliquidens*) occasionally occur in low numbers in the Outer Harbor (SAIC 2010, MBC and Merkel & Associates 2016). The gray whale (*Eschrichtius robustus*) has been observed during migration and on rare occasion may enter the Outer Harbor (MEC 2002). No gray whales were observed during the 2013–2014 surveys; however, cetacean sightings overall were lower than in previous surveys (MBC and Merkel & Associates 2016). In March and April 2019, up to six gray whales were observed swimming in the Los Angeles and Long Beach harbors (Jerricks 2019).

Special Status Species

Special status species are defined as species protected under federal, state, or local laws and regulations, including federal ESA, CESA, Migratory Bird Treaty Act (MBTA), Bald and Golden Eagle Protection Act, and the MMPA.

Several special status species are known to occur or have the potential to occur, at least seasonally, in the San Pedro Bay Port Complex. Table 3.3-1 provides a list of these special status species; their regulatory status at the federal, state, and local level (as applicable); and habitat use and potential to occur in the San Pedro Bay Port Complex. The potential of each species to occur in the San Pedro Bay Port Complex was assessed based on the following criteria:

- **Present:** Taxon (or sign of taxon) was observed in the Harbor District or San Pedro Bay Port Complex, or in the same watershed (aquatic species only) during the most recent surveys; or a population has been acknowledged by the California Department of Fish and Wildlife (CDFW), U.S. Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NMFS)/NOAA, or local experts.
- **High:** Habitat (including soils) for the species exists on site and a known occurrence has been documented within 5 miles of the Harbor District in the past 20 years; however, the species was not observed during the most recent surveys.
- **Moderate:** Habitat (including soils) for the species exists on site and a known regional occurrence has been documented, but not within 5 miles of the Harbor District or within the past 20 years; or a known occurrence has been documented within 5 miles of the Harbor District and within the past 20 years, but marginal or limited amounts of habitat exist on site; or the species' range includes the geographic area of the Harbor District (within 5 miles) and suitable habitat exists.
- **Low:** Limited habitat for the taxon exists on site and no known occurrences have been documented, but the taxon's range includes the geographic area of the Harbor District.

Special status species that are present or have a high or moderate potential to occur within the Harbor District are discussed in detail below. In Table 3.3-1, species rated as **Present** or with a **High** potential to occur in the San Pedro Bay Port Complex have those **ratings bolded to highlight the potential**.

American Peregrine Falcon *(Falco peregrinus anatum)*. The American peregrine falcon is a USFWS Bird of Conservation Concern (BCC) and state-listed species. It was also listed under the federal ESA in 1970, but was subsequently delisted by the USFWS in 1999 due to recovery of the species. Peregrines become specialist hunters based on their location and in the San Pedro Bay Port Complex feed commonly on seabirds, occasionally including California least terns (KBC 2007), and on bats (Byre 1990). Peregrine populations are increasingly common in urban environments (Bell, Gregoire and Walton 1996, Cade 1996).

The Harbor District supports a high density of peregrine falcons (Bell, Gregoire and Walton 1996, BioResource Consultants 1998). Peregrines have nested in the Los Angeles and Long Beach Harbor regions for more than a decade on both the Commodore Schuyler Heim Bridge and the Gerald Desmond Bridge (MEC 2002, SAIC 2010). In 1998, the greater harbor region supported four nesting pairs. During the 2014 surveys, one peregrine falcon was observed on three different occasions; however, there was no evidence of nesting, which may have been a result of ongoing construction on the Commodore Schuyler Heim and Gerald Desmond Bridges (MBC and Merkel & Associates 2016).

TABLE 3.3-1. SPECIAL STATUS SPECIES KNOWN OR HAVING THE POTENTIAL TO OCCUR IN THE HARBOR DISTRICT AREA[1]

Common Name (*Scientific Name*)	Status			Habitat Use in the San Pedro Bay Port Complex	Potential to Occur in the Harbor District (Low, Moderate, High, Present)
	Federal	State	Local/Other		
Plants					
Southern Tarplant (*Centromadia parryi* spp *australis*)	-	-	CNPS 1B.1	Occurs in coastal salt and freshwater estuary edges and in disturbed soils near saltwater. Has been recorded in the Harbor District.	**Present**
Birds					
American peregrine falcon (*Falco peregrinus anatum*)	FDL/BCC	SDL/FP	-	Resident, nests on tall manufactured structures and cliffs. Forages throughout the San Pedro Bay Port Complex. Has nested in the Inner Harbor on Vincent Thomas Bridge, Gerald Desmond Bridge, and Commodore Schuyler Heim Bridge.	**Present**
Belding's savannah sparrow (*Passerculus sandwichensis beldingi*)	-	SE	-	Inhabits pickleweed marsh and saline emergent wetlands, and is a transient visitor to the San Pedro Bay Port Complex. Observed in Alamitos Bay marshes in 2001.	Low
Black oystercatcher (*Haematopus bachmani*)	BCC	-	-	Inhabits rocky coasts and intertidal zones, preferably those sheltered by jetties. May forage on riprap. In the San Pedro Bay Port Complex, commonly seen foraging; nesting is uncommon.	**High (foraging)**; low (nesting)
Black skimmer (*Rhychops niger*)	BCC	SCC	-	Requires shallow, calm water for foraging and sand bars, beaches, or dikes for roosting and nesting. Nested on Pier 400 in 1998−2000 and 2004. Forages over water near nests. Present year-round.	**High (wintering)**; low (nesting)
Brant (*Branta bernicula*)	-	SCC	-	Occasional visitor to the San Pedro Bay Port Complex. Forages in eelgrass beds. Observed at Cabrillo	Moderate

TABLE 3.3-1. SPECIAL STATUS SPECIES KNOWN OR HAVING THE POTENTIAL TO OCCUR IN THE HARBOR DISTRICT AREA[1]					
Common Name (*Scientific Name*)	**Status**			**Habitat Use in the San Pedro Bay Port Complex**	**Potential to Occur in the Harbor District (Low, Moderate, High, Present)**
	Federal	**State**	**Local/Other**		
				Beach in Outer Los Angeles Harbor in 2013−2014.	
Burrowing owl (*Athene cunicularia*)	BCC	SCC	-	Usually nests in old burrows of ground squirrels or other small mammals. May use pipes, culverts, and nest boxes. Forages in riprap. Nesting status in the San Pedro Bay Port Complex unknown. Observed at the designated California least tern nesting site at Pier 400 in 2008.	Low
California brown pelican (*Pelecanus occidentalis californicus*)	FDL	SDL/FP	-	Roosts on breakwater dikes and forages over open water. Rests on water or structures in Outer Harbor. Present in the San Pedro Bay Port Complex year-round. Nearest nesting colonies are on west Anacapa and Santa Barbara Islands.	**Present**
California gull (*Larus californicus*)	-	WL	-	An inland-breeding bird, but may be seen during any season in marine habitats. Preferred habitats along the coast are sandy beaches, mudflats, rocky intertidal, and pelagic areas of marine and estuarine habitats, as well as fresh and saline emergent wetlands.	**High**
California least tern (*Sternula antillarum browni*)	FE	SE/FP		Migratory in Southern California. Prefers undisturbed nest sites on open, sandy, or gravelly shores near shallow-water feeding areas in estuaries. Nests at designated site on Pier 400. Least tern observations during the 2007–2008 and 2014 surveys were of individuals foraging or flying in the vicinity of Pier 400.	**Present**

TABLE 3.3-1. SPECIAL STATUS SPECIES KNOWN OR HAVING THE POTENTIAL TO OCCUR IN THE HARBOR DISTRICT AREA[1]					
Common Name (*Scientific Name*)	**Status**			**Habitat Use in the San Pedro Bay Port Complex**	**Potential to Occur in the Harbor District (Low, Moderate, High, Present)**
	Federal	**State**	**Local/Other**		
				Transportation Corridor that was created in 1998 by the Port. Birds have also been reported foraging in several areas of the San Pedro Bay Port Complex, including shallow-water habitat west of the Pier T Mole, in the shallow waters adjacent to Pier 400, along the outer breakwater and open-water areas of the Outer Harbor, and in the Inner Harbor basin and channel areas. Present April through August.	
Caspian tern (*Hydroprogne caspia*)	BCC	-		Seasonal visitor. Nests on open, sandy, or pebble beaches, usually on islands. Nesting colonies have been seen on empty barges in the San Pedro Bay Port Complex.	**High**
Common loon (*Gavia immer*)	-	SSC		Infrequent winter visitor to the San Pedro Bay Port Complex. Breeds on large, secluded lakes. Winters over saltwater.	Low
Double-crested cormorant (*Phalacrocorax auritus*)	-	SSC		Nests in tall trees or structures near water, or occasionally on the ground. Has been recorded nesting on transmission towers north of the Gerald Desmond Bridge in Cerritos Channel. Channel nesting site is well established, with individuals observed nesting in both 2008 and 2013–2014 surveys.	**Present**
Elegant tern (*Thalasseus elegans*)	-	WL		Seasonal visitor. Nests in San Diego and Mexico. High numbers seen during 2008 and 2014 biological surveys of the San Pedro Bay Port	Moderate

TABLE 3.3-1. SPECIAL STATUS SPECIES KNOWN OR HAVING THE POTENTIAL TO OCCUR IN THE HARBOR DISTRICT AREA[1]					
Common Name (*Scientific Name*)	**Status**			**Habitat Use in the San Pedro Bay Port Complex**	**Potential to Occur in the Harbor District (Low, Moderate, High, Present)**
	Federal	**State**	**Local/Other**		
				Complex. Forages in waters near riprap.	
Loggerhead shrike (*Lanius ludovicianus*)	BCC	SSC		Inhabits grasslands, active pastures, riparian areas, open woodland, agricultural fields, and desert washes and other scrub communities. Requires hunting perches. Primarily could occur in Inner Harbor riprap or dock/piling habitat; recorded on Pier 400 in 2003.	Low
Osprey (*Pandion haliateus*)	-	WL		Commonly observed foraging in San Pedro Bay Port Complex. Nests on high posts, bridges, and buildings. Not known to nest in the San Pedro Bay Port Complex.	**High (foraging)**; low (nesting)
Bank Swallow *(Riparia riparia)*	-	ST		Colonial nester. Nests primarily in riparian and lowland habitats; requires vertical banks or cliffs with fine-textured sandy soils to dig holes. Lives near streams, rivers, lakes, and ocean coast; has been observed in sand and gravel quarries.	Low
Scripps's murrelet (*Synthilboramphus scrippsi*)	FC/BCC	ST		Uncommon visitor to, and generally does not nest in, the San Pedro Bay Port Complex. A single individual was observed in the Port of Los Angeles' Fish Harbor in 2013−2014.	Low
Western snowy plover (*Charadrius nivosus nivosus*)	FT/BCC	SSC		Inhabits coastal beaches, sand spits, dune-backed beaches, sparsely vegetated dunes, beaches at creek and river mouths, and salt pans at lagoons and estuaries. Occasionally migrants are observed at the	Low

TABLE 3.3-1. SPECIAL STATUS SPECIES KNOWN OR HAVING THE POTENTIAL TO OCCUR IN THE HARBOR DISTRICT AREA[1]					
Common Name (*Scientific Name*)	**Status**			**Habitat Use in the San Pedro Bay Port Complex**	**Potential to Occur in the Harbor District (Low, Moderate, High, Present)**
	Federal	**State**	**Local/Other**		
				California least tern nesting site at Pier 400.	
Bats					
Big free-tailed bat (*Nyctinomops macrotis*)	-	SSC		Roosts in buildings, caves, and occasionally in holes in trees. Needs high cliffs or rocky outcrops for roosting sites. Feeds primarily on large moths. May roost under Gerald Desmond Bridge.	Low
Long-legged myotis (*Myotis volans*)	-	SA		Roosts in rock crevices, buildings, under tree bark, and in mines and caves. May roost under Gerald Desmond Bridge.	Low
Pocket free-tailed bat (*Nyctinomops femorosaccus*)	-	SSC		Prefers rock crevices in cliffs as roosting sites. May roost under Gerald Desmond Bridge.	Low
Silver-haired bat (*Lasionycteris noctivagans*)		SSC		Roosts in wooded areas. During migration, may be found in sheds, wood piles, and outbuildings. Feeds on moths over water and above treetops.	Low
Townsend’s big-eared bat (*Corynorhinus townsendii*)	-	SSC		Prefers caves, mines, tunnels, buildings, or other human-made structures for roosting. May roost under Gerald Desmond Bridge.	Low
Yuma myotis (*Myotis yumanensis*)	-	SA		Roosts in buildings, mines, caves, or crevices. May roost under Gerald Desmond Bridge.	Low
Marine Mammals					
California sea lion (*Zalophus californianus*)	MMPA			Occurs in coastal waters and on beaches, docks, buoys, and jetties. Inhabits the San Pedro Bay Port Complex year-round and is generally found resting on ships, buoys, docks,	**Present**

TABLE 3.3-1. SPECIAL STATUS SPECIES KNOWN OR HAVING THE POTENTIAL TO OCCUR IN THE HARBOR DISTRICT AREA[1]

Common Name (*Scientific Name*)	Status			Habitat Use in the San Pedro Bay Port Complex	Potential to Occur in the Harbor District (Low, Moderate, High, Present)
	Federal	State	Local/Other		
				and riprap shoreline, or foraging around bait barges and fish markets. Breeds at the offshore Channel Islands.	
Harbor seal (*Phoca vitulina*)	MMPA			Found in nearshore coastal waters and often seen on rocky islands, sandy beaches, mudflats, bays, and estuaries. Does not occur often within the San Pedro Bay Port Complex, but can be found resting or foraging along riprap shorelines, particularly adjacent to the breakwaters of the Outer Harbor. Breeds at the offshore Channel Islands.	**Present**
Common bottlenose dolphin (*Tursiops truncates*)	MMPA			Found in both offshore and coastal waters, including harbors, bays, gulfs, and estuaries of temperate and tropical waters. Occasionally occurs in low numbers in the Outer Harbor.	Moderate
Short-beaked common dolphin (*Delphinus delphis*)	MMPA			Found primarily in offshore oceanic waters, often associated with underwater ridges, seamounts, and continental shelves where upwelling occurs and prey is abundant. Occasionally occurs in low numbers in the Outer Harbor.	Moderate
Pacific white-sided dolphin (*Lagenorhynchus obliquidens*)	MMPA			Found in open ocean waters in the North Pacific Ocean, and occurs off the coast of California in traveling groups between 10–100 individuals and in schools of thousands of individuals. Generally not found close to the shore. Occasionally occurs in low numbers in the Outer Harbor.	Moderate

TABLE 3.3-1. SPECIAL STATUS SPECIES KNOWN OR HAVING THE POTENTIAL TO OCCUR IN THE HARBOR DISTRICT AREA[1]					
Common Name (*Scientific Name*)	**Status**			**Habitat Use in the San Pedro Bay Port Complex**	**Potential to Occur in the Harbor District (Low, Moderate, High, Present)**
	Federal	**State**	**Local/Other**		
Gray whale (*Eschrichtius robustus*)	MMPA			Found in shallow coastal waters in the North Pacific Ocean. Feeds along the Pacific coast of the U.S. during the summer and migrates to wintering and calving areas off the coast of Baja California, Mexico. Rarely may enter the Outer Harbor.	Low
Sea Turtles					
Green sea turtle (*Chelonia mydas*)	FT (East Pacific DPS [i.e., West Coast of the U.S.])	-		Found nearshore in bays and lagoons, on reefs, and in areas with seagrass/eelgrass beds. Most commonly occurs from San Diego south to Baja California, Mexico. May be present as very rare visitor to the San Pedro Bay Port Complex.	Low
Loggerhead (*Caretta caretta*)	FT (North Pacific DPS – North of Equator and south of 60 degrees north latitude)			Occurs in open oceans throughout the temperate and tropical regions of the Pacific and is the most abundant species of sea turtle found in U.S. coastal waters. Feeds in coastal bays and estuaries, and in the shallow water along the continental shelf. May be present as very rare visitor to the San Pedro Bay Port Complex.	Low
Leatherback (*Dermochelys coriacea*)	FE			Nests in tropical latitudes in the eastern and western Pacific around the world. Western Pacific leatherbacks feed along the Pacific coast of North America. May be present as very rare visitor to the San Pedro Bay Port Complex.	Low

TABLE 3.3-1. SPECIAL STATUS SPECIES KNOWN OR HAVING THE POTENTIAL TO OCCUR IN THE HARBOR DISTRICT AREA[1]					
Common Name (*Scientific Name*)	**Status**			**Habitat Use in the San Pedro Bay Port Complex**	**Potential to Occur in the Harbor District (Low, Moderate, High, Present)**
	Federal	**State**	**Local/Other**		
Olive Ridley sea turtle (*Lepidochelys olivacea*)	FT			Generally found in coastal bays and estuaries throughout the tropical and subtropical waters of the Pacific. Forages offshore from surface to 500 feet. May be present as very rare visitor to the San Pedro Bay Port Complex.	Low

Sources: (CDFW 2019a, CDFW 2019b, USFWS 2019a, SAIC 2010, MBC and Merkel & Associates 2016, POLB 2018d, U.S. Navy and City of Long Beach 1998)
Key:
Federal: BCC = U.S. Fish and Wildlife Service Bird of Conservation Concern; DPS = Distinct Population Segment; FC = federal candidate for listing; FDL = delisted (no longer federally listed due to recovery); FE = federally listed endangered; FT = federally listed threatened; MMPA = Protected under the Marine Mammal Protection Act]
State: FP = fully protected; SA = special animal; SDL = delisted (no longer state-listed due to recovery); SE = state-listed endangered; SSC = species of special concern; ST = state-listed threatened; WL = California Department of Fish and Wildlife Watch List
Local/Other: CNPS 1.B.1 = California Native Plant Society rare, threatened, or endangered in California or elsewhere; seriously threatened in California (high degree/immediacy of threat)
Note: [1] Within 5 miles of the Harbor District

Black Oystercatcher *(Haematopus bachmani).* The black oystercatcher is a BCC. Black oystercatchers typically nest along rocky shores and islands along the Pacific coast of North America. This species has historically nested along the San Pedro and Middle Breakwater (SAIC 2010). No nesting was observed during the 2013−2014 surveys; however, they were observed between July 2013 to January 2014, mainly along the Middle Breakwater (Figure 1.2-1) (MBC and Merkel & Associates 2016). Oystercatchers have been observed in still waters of the Inner Harbor during the winter months (SAIC 2010).

Black Skimmer *(Rynchops niger).* The black skimmer is a BCC and a state species of special concern (SSC). Black skimmers have been observed roosting on sandy beaches, flying, or foraging in several areas of the Outer Harbor. Black skimmers nest at Bolsa Chica and Upper Newport Bay, with an average of 98 skimmers nesting at Pier 400 in Los Angeles Harbor from 1998 through 2000; however, they have not nested in the San Pedro Bay Port Complex since then (SAIC 2010). Those that nest at Bolsa Chica or at Seal Beach National Wildlife Refuge forage in waters of the Outer Harbor and sometimes the Inner Harbor. No nesting habitat for black skimmers is present in the Harbor District, although they may occasionally forage in the lower Los Angeles River or Dominguez Channel.

Brant *(Branta bernicula*). The brant is a species of goose that is an SSC at wintering and staging areas. It is a common migrant offshore of Los Angeles County, but is only occasionally observed foraging and resting in harbors and estuaries (Garrett 2006). During the more than twenty 2- to 3-day surveys conducted in the San Pedro Bay Port Complex in 2007–2008, only six brant were observed, over open water in Outer Harbor (SAIC 2010). Only two brant were observed during the 2013–2014 survey (MBC and Merkel & Associates 2016).

California Brown Pelican *(Pelecanus occidentalis californicus).* The California brown pelican was a federally and state-listed species, but was subsequently delisted due to recovery. It is designated by the CDFW as a fully protected species. The California brown pelican is common along the coast of Southern California, especially within 12 miles of shore, but regularly out to 100 miles (Shields 2002). This species roosts on rocky cliffs, jetties, sandy beaches, and mudflats, and forages over open water (Shields 2002). Brown pelicans do not nest within the San Pedro Bay Port Complex (the nearest nesting colonies are on west Anacapa and Santa Barbara Islands). However, the San Pedro Bay Port Complex provides valuable roosting and foraging habitat, particularly the outer breakwater and open water (SAIC 2010). California brown pelicans were observed in large numbers within the San Pedro Bay Port Complex during 2013−2014 surveys and accounted for 9.6 percent of total bird observations (MBC and Merkel & Associates 2016). This species was primarily observed in the Outer Harbor, with large concentrations of individuals roosting on the San Pedro and Middle Breakwaters. The brown pelican's primary prey in Southern California is northern anchovy and other small fish, as well as crustaceans and carrion (Shields 2002). California brown pelicans have been observed foraging in the Port of Los Angeles' West Basin and resting on piers/docks throughout the San Pedro Bay Port Complex (SAIC 2010). The species regularly flies within the Harbor District and could occur in the lower Los Angeles River or Dominguez Channel.

California Least Tern *(Sternula antillarum browni).* The California least tern (least tern) is federally listed and state-listed as endangered. Least terns nest in colonies on undisturbed, sparsely vegetated, flat areas with loose, sandy substrates (Thompson 1997). This species is a spring and summer visitor to the San Pedro Bay Port Complex and has nested there in favorable habitats since at least 1976. The species has nested at Pier 400, a 15-acre site designated by the Port of Los Angeles as protected nesting habitat, since 1997 (MBC and Merkel & Associates 2016). Least terns typically arrive at the Pier 400 nesting site in early April and remain until September, or until all chicks have fledged, at which time they migrate south to wintering grounds in Central or South America (Thompson 1997, U.S. Navy and City of Long Beach 1998, KBC 2004). During the 2014 nesting season, 126 nests were observed with approximately 93 breeding pairs that produced 64 fledglings (MBC and Merkel & Associates 2016).

During the nesting season, least terns forage in shallow-water areas and in the open ocean (Thompson 1997, U.S. Navy and City of Long Beach 1998, KBC 2004). The species is known to forage in several areas of the San Pedro Bay Port Complex (KBC 2004), including shallow-water habitat west of the Pier T Mole and shallow water adjacent to the Pier 400 Transportation Corridor that was created in 1998 by the Port (U.S. Navy and City of Long Beach 1998). Most of the least tern observations during the 2007–2008 and 2013–2014 surveys were of individuals foraging or flying in the vicinity of Pier 400, although least terns have been observed foraging along the outer breakwater and open-water areas of the Outer Harbor and within Inner Harbor basin and channel areas of the San Pedro Bay Port Complex (SAIC 2010, MBC and Merkel & Associates 2016).

Caspian Tern *(Hydroprogne caspia).* The Caspian tern is on the CDFW Watch List. This species has historically nested within the Port of Los Angeles, formerly on Pier 300 and more recently on Pier 400. The Port of Los Angeles site is one of only four breeding areas in Southern California for this species. From 1997 through 2005, an average of 165 Caspian terns nested each year at Pier 400. They abandoned the site in 2005 due to a nocturnal predator and have not returned (KBC 2007). However, those that nest at Bolsa Chica continue to forage in waters of the Outer Harbor and sometimes the Inner Harbor (SAIC 2010). In 2007, approximately 53 Caspian terns nested successfully on a barge in the Long Beach Harbor (Ross 2007). During the 2013–2014 surveys Caspian terns were observed during the spring and summer months, mainly adjacent to Pier 400. No nesting habitat is present in the Harbor District, but Caspian terns are likely to occasionally forage the lower Los Angeles River or Dominguez Channel.

Double-crested Cormorant *(Phalacrocorax* auritus). The double-crested cormorant is on the CDFW Watch List. This species nests in a variety of locations near water. Suitable roosts include offshore rocks, steep cliffs, and transmission towers (CDFW 2019a). The double-crested cormorant is present within the San Pedro Bay Port Complex year-round and was among the most abundant species recorded during the 2007–2008 and 2013–2014 surveys, accounting for 3.5 percent and 5.1 percent of all birds counted, respectively (SAIC 2010, MBC and Merkel & Associates 2016). This species nested on transmission towers north of the Gerald Desmond Bridge in the Inner Harbor (SAIC 2010) and on transmission towers northwest of the Commodore Schuyler Heim Bridge. The greatest number of nesting birds during the 2013−2014 surveys occurred in April and May, with 150 and 160 individuals observed, respectively (MBC and Merkel & Associates 2016). Within the Harbor District, double-crested cormorants probably forage and roost occasionally in Dominguez Channel and the lower Los Angeles River. Cormorants were observed nesting in transmission towers along the Cerritos Channel from February to July (MBC and Merkel & Associates 2016).

Elegant Tern *(Thalasseus elegans).* The elegant tern is on the CDFW Watch List. This species was one of the most abundant bird species overall (10.6 percent of total birds) during the 2013−2014 surveys (MBC and Merkel & Associates 2016). Elegant terns are a colonially nesting species with a relatively restricted distribution (MEC 2002). This species nested on Pier 400 in Los Angeles Harbor between 1998 and 2005 and at Pier 300 in 2008. Numerous observations of elegant tern flights over the breakwaters during 2007−2008 surveys suggest they forage primarily outside the harbor, although they occasionally were observed foraging within the San Pedro Bay Port Complex. High numbers of elegant terns roosted on port breakwaters with newly fledged young from June to early August (SAIC 2010). Elegant terns have very rarely been observed foraging in the Inner Harbor. No nesting habitat for elegant terns is present in the Harbor District, although they may occasionally forage in the lower Los Angeles River or Dominguez Channel.

Osprey (*Pandion haliaetus*). Osprey are on the CDFW Watch List. They do not breed at the San Pedro Bay Port Complex. This species was observed in the 2013–2014 surveys and during all 20 of the surveys conducted in the Los Angeles and Long Beach Harbors by SAIC in 2007–2008 (SAIC 2010). The osprey was the most common raptor observed during those surveys, frequently occurring on riprap.

California Sea Lion (*Zalophus californianus*). The California sea lion is protected under the MMPA. This species is the most commonly observed marine mammal in the San Pedro Bay Port Complex and is observed year-round foraging and resting on buoys, docks, riprap shoreline, and on the bulbous bows of container ships (MBC and Merkel & Associates 2016). California sea lions do not breed in the San Pedro Bay Port Complex.

Harbor Seal (*Phoca vitulina*). The harbor seal is protected under the MMPA. This species is the second most common marine mammal observed in the San Pedro Bay Port Complex and is observed year-round resting or foraging along riprap shorelines, particularly the breakwaters of the Outer Harbor (MBC and Merkel & Associates 2016). Harbor seals do not breed in the San Pedro Bay Port Complex.

Invasive/Nonnative Species

An introduced, exotic, nonindigenous, or nonnative species is defined as a species living outside its native distributional range, and one which has arrived there by human activity, either deliberate or accidental. California's 2003 Marine Invasive Species Act (see Section 3.3.2.2, State Regulations) requires resource agencies to conduct appropriate studies necessary to develop a baseline of nonnative species occurring in coastal marine waters of the state and then to monitor those areas for any new introductions. In the marine environment, the introduction of organisms has generally occurred in ports and harbors due in part to ballast water and ship hull fouling, which act as primary vectors (MBC and Merkel & Associates 2016).

In general, the number of introduced species documented by the last three harbor-wide studies (2002, 2007−2008, and 2013−2014) has remained relatively constant (MBC and Merkel & Associates 2016). Three invasive species of macroalgae present during 2013−2014 surveys were *Sargassum muticum*, *S. horneri,* and *Undaria pinnatifida*. *S horneri* was introduced to the San Pedro Bay Port Complex by ships; *S. muticum* was an unintentional introduction by way of growth on imported Pacific oysters; and *Undaria pinnatifida* was introduced to California as a result of importation for cultivation, accidental transport of oysters, and ship hull fouling (MBC and Merkel & Associates 2016).

Eight nonnative benthic *infauna* species were observed during the 2013−2014 surveys. The most frequently occurring species were the Asian clam (*Theora lubrica*), an amphipod (*Sinocorophium heteroceratus*), and the New Zealand snail (*Philine auriformis*). In addition, eight nonnative benthic epifaunal invertebrate species were observed during the 2013−2014 surveys, including New Zealand snail (the most abundant invasive species collected during both infaunal and epifaunal surveys), sea squirt (*Styela clava*), bay mussel (*Mytilus galloprovincialis*), spaghetti bryozoan (*Zoobotryon verticullatum*), and oriental shrimp (*Palaemon macrodactylus*) (MBC and Merkel & Associates 2016).

Eighteen nonnative, hard-bottom, invertebrate species were collected during 2013−2014 surveys of hard-bottom substrates. Species collected included an amphipod (*Aoroides secundus*) (the most abundant species), one barnacle species, two tunicate species, three bryozoan species, and three mollusk species. The majority of nonnative species were found in the Port of Los Angeles' West Basin.

Two nonnative fish species were collected during 2013−2014 surveys: yellowfin goby (*Acanthogobius flavimanus*) and chameleon goby (*Tridentiger trigonocephalus*) (MBC and Merkel & Associates 2016). Yellowfin goby has consistently been collected during past harbor-wide studies; however, only one chameleon goby individual was previously collected from the San Pedro Bay Harbor Complex and only in Los Angeles Harbor.

Special Aquatic Sites

Eelgrass beds and kelp beds are considered a special aquatic site (vegetated shallows) pursuant to the CWA 404(b)(1) Guidelines (40 CFR Part 230), and are considered EFH-HAPC. These special aquatic habitats are described previously under Aquatic Species and Habitats.

Mudflats are also considered special aquatic sites under the CWA, although very little habitat remains within the San Pedro Bay Port Complex due to development and filling.

Significant Ecological Areas

Los Angeles County has established Significant Ecological Areas to preserve a variety of biological communities for public education, research, and other non-disruptive outdoor uses. The only designated Significant Ecological Area within the San Pedro Bay Port Complex is Pier 400, corresponding to the California least tern nesting site located in the Port of Los Angeles (Los Angeles County, Department of Regional Planning 2005). No Significant Ecological Areas occur within the Harbor District. Significant Ecological Areas do not preclude limited development that is compatible with the biological community. In any event, policies and regulations for Significant Ecological Areas do not apply within City of Long Beach boundaries.

Essential Fish Habitat

In accordance with the 1996 amendments to MSA, an assessment of EFH is necessary for proposed federal actions. The Harbor District is designated as EFH for two Fishery Management Plans (FMPs): the Coastal Pelagic FMP and the Pacific Coast Groundfish FMP. Of the more than 90 species federally managed under these plans, 5 coastal pelagic and 17 Pacific coast groundfish species were captured in the San Pedro Bay Port Complex during the Port-wide fish surveys (MEC 2002, SAIC 2010, MBC and Merkel & Associates 2016) (Table 3.3-2).

Northern anchovy was the most abundant managed species overall (lampara and demersal surveys combined) during recent baseline surveys (MBC and Merkel & Associates 2016), and all top five most abundant pelagic fish collected by lampara net are managed or Ecosystem Component Species under the Coastal Pelagic FMP. Northern anchovy and Pacific sardine support a commercial bait fishery in the Outer Harbor. California grunion (*Leuresthes tenuis*), Pacific (chub) mackerel, and jacksmelt were less abundant, but relatively common throughout the San Pedro Bay Port Complex.

California skate (*Raja inornata*) was the most abundant Groundfish FMP species during recent baseline surveys, followed by vermillion rockfish (*Sebastes miniatus*) (MBC and Merkel & Associates 2016). Other Groundfish FMP species were collected in low numbers in the San Pedro Bay Port Complex. Several of the Groundfish FMP species are more typically associated with structures, kelp, or hard bottom such as along breakwaters and dikes, which may contribute to their low numbers in trawls towed along the soft bottom near such structures. Most managed groundfish species are rare or have never been captured in the Inner Harbor, and none of these species are known to spawn within the San Pedro Bay Port Complex.

TABLE 3.3-2. FISHERIES MANAGEMENT PLAN SPECIES WITH THE POTENTIAL TO OCCUR IN THE SAN PEDRO BAY PORT COMPLEX

Common Name (*Scientific Name*)	**Distribution**
Coastal Pelagic Species Fishery Management Plan	
Northern anchovy (*Engraulis mordax*)	Abundant throughout the San Pedro Bay Port Complex
Pacific sardine (*Sardinops sagax*)	Common throughout the San Pedro Bay Port Complex
Pacific (chub) mackerel (*Scomber japonicas*)	Common throughout the San Pedro Bay Port Complex
Jack mackerel (*Trachurus symmetricus*)	Common in the Inner to Middle Harbor and uncommon in Outer Harbor
Jacksmelt[1] *(Ahterinopsis californiensis)*	Common in the San Pedro Bay Port Complex
Pacific Coast Groundfish Fishery Management Plan	
Flatfish	
English sole (*Parophrys vetulus*)	Rare, and when found, found only in Outer, Middle, and Inner Harbor
Pacific sanddab (*Citharichthys sordidus*)	Common primarily in Outer Harbor deep-water areas; rare in the Inner Harbor
Roundfish	
Cabezon (*Scorpaenichthys marmoratus*)	Rare, and when found, found in Inner Harbor
Lingcod (*Ophiodon elongates*)	Rare
Rockfish	
Black rockfish (*Sebastes melanops*)	Rare, and when found, found in Inner Harbor
Bocaccio (*Sebastes paucispinis*)	Rare, and when found, found in Inner Harbor
Brown rockfish (*Sebastes auriculatus*)	Rare, and when found, found in Inner Harbor
Calico rockfish (*Sebastes dalli*)	Rare, and when found, found in Inner Harbor
California scorpionfish (*Scorpaena guttata*)	Rare, and when found, found in Inner Harbor
Gopher rockfish (*Sebastes carnatus*)	Rare, and when found, found in Inner Harbor
Vermillion rockfish (*Sebastes miniatus*)	Rare, and when found, found in Inner Harbor
Sharks, Skates, Rays	
Big skate (*Raja binoculata*)	Common in the San Pedro Bay Port Complex
California skate[1] (*Raja inornata*)	Common in Inner Harbor
Leopard shark (*Triakis semifasciata*)	Rare, and when found, found in Inner Harbor
Spiny dogfish (*Squalus acanthias*)	Rare

Source: (MEC 2002, SAIC 2010, MBC and Merkel & Associates 2016)
Note:
[1] Included in Pelagic Fisheries Management Plan as a lower level Ecosystem Component Species (PFMC 2016).

Wildlife Movement Corridors

The San Pedro Bay Port Complex is located between dense, urban development and ocean waters; therefore, natural corridors (topographic or habitat pathways) supporting terrestrial wildlife movement are extremely limited. The Los Angeles River area includes some habitat, particularly for birds, and coyotes, bobcats, and deer, as documented by National Park Service (NPS) wildlife cameras (Pener 2018), but this is outside the Harbor District. Open-water areas of the Harbor District provide important nursery and foraging habitat for coastal marine fish, and nesting and foraging habitat for many resident and migratory birds (including the designated California least tern nesting site). Marine mammals (e.g., the gray and blue whale) migrate along the coast and several species of sea turtles are migratory offshore.

Wetlands and Waters of the U.S.

Wetlands are regulated under the CWA. The definition of wetlands varies somewhat among federal and state agencies, but the U.S. Army Corps of Engineers (USACE) uses a three-parameter method that includes assessment of vegetation, hydrology, and soils. The National Wetland Inventory classifies all of the waters in the Harbor District as either estuarine or marine deepwater; however, no other wetlands have been mapped (USFWS 2019b). Small pockets of riparian vegetation, some mixed with invasive species, have been documented along the Cerritos Channel (see discussion in Section 3.3.1.2, Setting) (POLB 2018d).

3.3.2 Regulatory Setting

3.3.2.1 Federal Regulations

Bald and Golden Eagle Protection Act

Bald and golden eagles are protected by the Bald and Golden Eagle Protection Act. This act prohibits anyone, without a permit issued by the Secretary of the Interior, from taking bald eagles, including their parts, nests, or eggs. The act defines “take” as “pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, or disturb.”

Clean Water Act

The CWA (33 U.S.C. Section 1344 et seq.) provides for the restoration and maintenance of the physical, chemical, and biological integrity of the nation’s waters. The act sets up a system of water quality standards, discharge limitations, and permit requirements. Activities that have the potential to discharge dredge or fill materials into waters of the U.S., including wetlands, are regulated under Section 404 of the Act, as administered by USACE. A Section 401 Water Quality Certification or waiver from the governing Regional Water Quality Control Board (RWQCB) is also necessary for issuance of a Section 404 permit. A formal wetland and waters of the U.S. delineation is required in support of permit applications submitted to USACE and the RWQCB.

Executive Order 13112 (Invasive Species)

This Executive Order (EO), signed in 1999, requires federal agencies to identify actions that may affect the status of invasive species and, to the extent feasible, prevent the introduction of such species. Federal agencies whose actions may affect the status of invasive species are also required to control and monitor populations of invasive species, restore native species and habitat conditions in ecosystems that have been invaded, conduct research on prevention of introduction and control of invasive species, and promote public education on those species. Pursuant to this EO, federal agencies shall not fund, authorize, or carry out actions that would cause the introduction or spread of invasive species. The EO established an Invasive Species Council to prepare a National Invasive Species Management Plan.

Executive Order 13186 (Responsibilities of Federal Agencies to Protect Migratory Birds)

EO 13186, signed in 2001, directs federal agencies taking actions that either directly or indirectly effect migratory birds to develop an MOU, and to work with the USFWS and other federal agencies to promote conservation of migratory birds. The Council for the Conservation of Migratory Birds was established to help implement this EO.

Federal Endangered Species Act

The ESA of 1973 (16 U.S.C. Sections 1531−1543), as amended, provides for the conservation of endangered and threatened species, and the ecosystems they inhabit. The USFWS and NOAA Fisheries share responsibilities for administering the ESA. Section 9 prohibits taking of species federally listed as threatened or endangered. A “take” is defined as to harm, harass, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct, and it includes habitat modification or degradation that could potentially kill or injure wildlife by impairing essential behavioral patterns, including breeding, feeding, or sheltering. A take incidental to otherwise lawful activities can be authorized under Section 10 when there is no federal involvement; however, the nonfederal entity must obtain an incidental take permit and, as a condition for obtaining such permit, must prepare a habitat conservation plan.

When a federal activity may affect listed species, the federal lead agency must, under Section 7 of the ESA, consult with and seek the assistance of the Secretary of the Interior or Secretary of Commerce to ensure that actions authorized, funded, or carried out by federal agencies do not jeopardize the continued existence of threatened or endangered species, or result in the destruction or adverse modification of critical habitat for these species.

Magnuson-Stevens Fishery Conservation and Management Act

The 1996 amendments to the MSA (16 U.S.C. Section 1801 et seq.) require federal agencies that fund, permit, or carry out activities that may adversely impact EFH to consult with NOAA Fisheries regarding potential adverse effects of their actions on EFH and respond in writing to the recommendations of NOAA Fisheries. In addition, NOAA Fisheries is required to comment on any state agency activities that would impact EFH. Although the concept of EFH is similar to that of critical habitat under the federal ESA, measures recommended to protect EFH by NOAA Fisheries or a federally convened council are advisory, not mandatory. An effective EFH consultation process ensures that federal actions serve MSA resource management goals. The Inner and Outer Harbors are in an area designated as EFH for two FMPs: the Coastal Pelagics FMP and the Pacific Groundfish FMP.

Marine Mammal Protection Act

The MMPA (16 U.S.C. Section 1361 et seq.) prohibits the taking (including harassment, disturbance, capture, and death) of any marine mammals, except as set forth in the act. NOAA Fisheries and the USFWS administer the MMPA. Marine mammal species occurring within the San Pedro Bay Port Complex are under the jurisdiction of NOAA Fisheries.

Migratory Bird Treaty Act

The MBTA (Title 16 U.S.C. Section 703 et seq.), as amended, provides for the protection of migratory birds by making it illegal to possess, pursue, hunt, capture, or kill any migratory bird species, unless specifically authorized by a regulation implemented by the Secretary of the

Interior (e.g., designated seasonal hunting). The MBTA also applies to removal of nests occupied by migratory birds during the breeding season. Disturbance that causes nest abandonment or loss of reproductive effort (e.g., killing or abandonment of eggs or young) is considered “take” and is unlawful. Under certain circumstances, a depredation permit can be issued to allow limited and specified take of migratory birds. The administering agency of the MBTA is the USFWS.

In December 2018, the U.S. Solicitor issued Memorandum Opinion M-37050, which concluded that the MBTA does not criminalize the incidental take or unintentional killing of migratory birds (DOI 2017). On April 11, 2018, the USFWS issued a memorandum offering guidance on M-37050 (USFWS 2018). This guidance clarifies that the MBTA’s prohibitions on take apply when the purpose of the action is to take migratory birds, their eggs, or their nests. The take of birds, eggs, or nests that occurs as the result of an activity, the purpose of which is not to take birds, eggs, or nests, is not prohibited by the MBTA. The guidance memo also states that the USFWS will not withhold a permit, or request or require mitigation, based on incidental take concerns under the MBTA.

BCCs are a subset of MBTA-protected species identified by the USFWS as those in the greatest need of additional conservation action to avoid future listing under the ESA. BCCs have been identified at three geographic scales: National, USFWS Regions, and Bird Conservation Regions. Bird Conservation Regions are the smallest geographic scale at which BCCs have been identified, and the lists of BCC species are expected to be the most useful for governmental agencies to consider in complying with the MBTA.

National Invasive Species Act of 1996

Prior to February 6, 2009, ballast water was regulated solely by the U.S. Coast Guard (USCG) through regulations developed under authority of the National Invasive Species Act of 1996. USEPA also began regulating ballast water in 2009 after a court decision required ballast water and other discharges incidental to the normal operation of vessels to be regulated under the CWA. In August 2009, USCG proposed regulations to establish federal performance standards to regulate the amount of living organisms discharged from ships’ ballast water into U.S. waters.

On March 23, 2012, USCG published a Final Rule entitled “Standards for Living Organisms in Ships’ Ballast Water Discharged in U.S. Waters” (33 CFR Part 151, 45 CFR Part 162), which establishes a standard for the allowable concentration of living organisms in ballast water discharged from ships into waters of the U.S. The regulations for engineering equipment were amended by establishing an approval process for ballast water management systems. In addition, 33 CFR 151.2050 (g)(3) requires that the ballast water management plan be updated to include marine fouling and sediment management procedures. The new regulations became effective on June 21, 2012.

The new rule includes a phased schedule with implementation required for all new vessels constructed on or after December 1, 2013, and for older vessels by their first dry docking after 2014 or 2016, depending on vessel size. The rule applies to two groups of vessels discharging ballast water into waters of the U.S. (termed as qualifying vessels herein): seagoing vessels that operate beyond the Exclusive Economic Zone (EEZ), and seagoing vessels that do not operate beyond the EEZ, but take on and discharge ballast water in more than one Captain of the Port (COTP) Zone, and are greater than 1,600 gross register tons (3,000 gross tons International Tonnage Convention). Vessels that do not operate outside the EEZ must operate exclusively within one COTP zone in order to be exempt from meeting the ballast water discharge standard. Vessels that take on dock water/municipal water for ballast tanks are only exempt if the water is from a U.S. public water system. Certain other vessels also are exempt, including crude oil tankers engaged in coastwide trade, vessels of the U.S. armed forces subject to the Uniformed National Discharge Standards for Vessels of the Armed Forces, or foreign-owned vessels used for governmental and non-commercial purposes.

Qualifying vessels also are required to install a ballast water treatment system capable of meeting the phase-one ballast water discharge standard specified in the 2012 Final Rule, which is equivalent to that adopted by the IMO in 2004. Ballast water treatment is an emerging technology, and USCG provides an avenue for vessels to install and operate experimental ballast water treatment systems in U.S. waters through the Shipboard Technology Evaluation Program. Treatment methods may include biological (deoxygenation), chemical (e.g., chlorine, O_3, electrolysis), physical (e.g., filtration, heat treatment, cavitation), or a combination of methods (e.g., filtration plus ultraviolet treatment).

Ballast water reporting requirements apply for all qualifying vessels bound for ports or places of the U.S. regardless of whether a vessel operated outside of the EEZ, unless exempted by the rule.

Rivers and Harbors Appropriations Act

The Rivers and Harbors Appropriations Act regulates construction in navigable waters of the U.S., including dredging, filling, and obstructions. Navigable waters are defined as those subject to the ebb and flow of the tide and susceptible to use in their natural condition or by reasonable improvements as a means to transport interstate or foreign commerce. Section 10 of the Act requires permits for all structures (e.g., riprap) and activities (e.g., dredging) that could affect navigation. Under Section 10, USACE issues permits for construction, dumping, and dredging in navigable waters as well as construction of piers, wharves, weirs, jetties, outfalls, aids to navigation, docks, and other structures. Other agencies involved in the coordination of the Rivers and Harbors Appropriations Act include USEPA and state and local agencies.

3.3.2.2 State Regulations

California Coastal Act

The purpose of the California Coastal Act of 1976 (CCA) is to protect, maintain, and, where feasible, enhance and restore the overall quality of the coastal zone environment and its natural and artificial resources. Development activities at the Port are subject to discretionary review and approval. The Port issues Coastal Development Permits (CDPs) for non-federal projects that conform to the 1990 PMP and CCA, as amended. The California Coastal Commission (CCC) maintains jurisdiction for the portion of the coastal zone seaward of the mean high tide line. Public Resource Code (PRC) Section 30700 et seq. includes policies relevant to port development (Article 2), and preparation and implementation of a PMP (Article 3). Section 30711 specifies requirements associated with the preparation, adoption, and contents of a PMP. Particularly relevant is PRC Section 30711(a)(3), which requires an estimate of the effect of development on habitat areas and the marine environment; a review of existing water quality, habitat areas, and quantitative and qualitative biological inventories; and proposals to minimize and mitigate any substantial adverse impact.

Federal agency activities must be consistent with the CCA to the maximum extent practicable. This is achieved through a consistency review based on the policies set forth in Chapter 3 of the CCA and compliance with Section 307 of the Coastal Zone Management Act of 1972 (CZMA).

The resulting product is a Coastal Consistency Determination or Federal Consistency Certification.

California Endangered Species Act

CESA (California Fish and Game Code Section 2050 et seq.) provides for the protection of rare, threatened, and endangered plants and animals, as recognized by the CDFW, and prohibits the taking of such species without authorization by CDFW under Section 2081 of the Fish and Game Code. Lead agencies must consult with CDFW during the CEQA process if state-listed threatened or endangered species are present and could be affected by a project. For projects that could affect species that are both state- and federally listed, compliance with the federal ESA would satisfy the CESA if CDFW determines that the federal incidental take authorization is consistent with the CESA under California Fish and Game Code Section 2080.1. CDFW designates species considered indicators of regional habitat changes, or potential candidates for future state listing, as SSC.

California Fish and Game Code (Section 1602)

Pursuant to California Fish and Game Code Sections 1600 through 1607, CDFW regulates work that would substantially divert, obstruct, or change the natural flow of a river, stream, or lake; that would substantially change the bed, channel, or bank of a river, stream, or lake; or that would use material from a streambed. CDFW requires notification prior to activities that would substantially alter the bed, bank, or channel of a stream, river, or lake, including obstructing or diverting the natural flow. This applies to all perennial, intermittent, and ephemeral water bodies, as well as the associated riparian vegetation that is used by fish and wildlife resources. CDFW may or may not assert jurisdiction over coastal or port areas, including shipping channels. Activities that have the potential to affect jurisdictional areas can be authorized through issuance of a Streambed or Lake Alteration Agreement. The Agreement specifies conditions and mitigation measures that will minimize impacts on riparian or aquatic resources from proposed actions.

California Fish and Game Code (Sections 3503, 3503.5, 3111, and 3113)

Several sections of the California Fish and Game Code provide for protection of migratory birds and birds-of-prey. Section 3503 prohibits the take, possession, or needless destruction of the nest or eggs of any bird, except as otherwise provided by the code. Section 3503.5 prohibits the take, possession, or destruction of any birds in the orders Falconiformes or Strigiformes (birds-of-prey), or the take, possession, or destruction of the nest or eggs of any such bird. Section 3511(a)(1) specifies that fully protected birds or parts thereof may not be taken or possessed at any time. Section 3513 prohibits the take or possession of any migratory nongame bird as designated in the MBTA or any part of such migratory nongame bird except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the MBTA.

California Fish and Game Code (Sections 5650–5656)

California Fish and Game Code Sections 5650 through 5656 provide protection of waters by prohibiting the discharge, placement, or release of petroleum products, industrial wastes, garbage, dead mammals or birds, or other debris in waters of the state. It is illegal to release *cocculus indicus* (herbal poison used to stun fish) or any substance or material deleterious to fish, plant life, mammals, or bird life. It also is unlawful to place rubbish or refuse where it can pass into waters of the state; or to abandon, dispose of, or throw away, within 150 feet of the high water mark of the waters of the state, any cans, bottles, garbage, rubbish, refuse, debris, or motor vehicle or parts. Use of vacuum or dredge equipment in any river, stream, or lake is unlawful, except as authorized by permit. Section 5651 includes reporting requirements for continuing or chronic pollution (Section 5651), and Sections 5654 and 5655 specify actions to be taken by CDFW in the event of a discharge or spill with the potential to impact fishing. This may include closure of fishing areas, public notifications, and public HRA in the vicinity of the spill or discharge, or where the spilled or discharged material has spread or is likely to spread. In addition, the Office of Spill Prevention and Response (OSPR) is designated as having authority to direct (or delegate responsibility for) removal, abatement, response, containment, and cleanup efforts with regard to all aspects of any placement of petroleum or a petroleum product in the waters of the state, except as otherwise provided by law. Section 5655 also pertains to recovery of costs from the responsible party or parties for all reasonable costs incurred by the CDFW as a result of contamination testing, cleanup, or abatement. Section 5656 pertains to deposition of funds arising from recovery or settlement of money damages.

Marine Invasive Species Act of 2003, as Amended

California PRC 71200 et seq. is the authority for the state ballast water regulations. The 1999 Ballast Water Management for Control of Nonindigenous Species Act was revised, expanded, and renamed as the Marine Invasive Species Act by AB 433 in September 2003. This act requires ballast water management practices for all vessels, domestic and foreign, carrying ballast water into waters of the state after operating outside the EEZ. Specifically, the act prohibits ships from exchanging ballast water within port waters and requires that such exchanges occur outside the EEZ in deep, open ocean waters. Alternatively, vessels may retain water while in port, discharge to an approved reception facility, or implement other similar protective measures. Vessels are also required to report the ballast water management activities to the California State Lands Commission (CSLC). The CSLC sets fees for vessels entering California ports from outside California, has developed a Hull Husbandry Reporting Form to collect information on hull cleaning and vessel ports of call, and has set performance standards for ballast water discharges that went into effect starting in January 2009. The CSLC also has prepared a report on the efficacy, availability, and environmental impact of current ballast water treatment technologies (CSLC 2014). Statewide compliance with ballast water reporting was 97 percent for 2003, over 98 percent for 2004, and 97 percent for 2010 (Falkner 2005, Scianni 2013). Of the vessels reporting in 2004, 96 percent indicated that they complied with the mandatory management requirements, either through retaining ballast water on board or by exchanging ballast water prior to discharge. The Port of Long Beach and Port of Los Angeles collectively received 54 percent of the qualifying vessels (for a total of 5,445) in 2004. Analysis of other vectors for release of nonnative species from vessels is also required. Rules for vessels originating within the Pacific Coast Region took effect in March 2006.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (California Water Code Section 13000 et seq.) is the key water quality control law for California and operates in concert with the federal CWA. The Porter-Cologne Water Quality Control Act is implemented by the California State Water Resources Control Board (SWRCB) and its nine RWQCBs. These RWQCBs implement the permit provisions of Section 402 and certain planning provisions of Sections 205, 208, and 303 of the federal CWA. Permits for discharge of pollutants are called National Pollutant Discharge Elimination System (NPDES) permits. Anyone discharging waste or proposing to discharge waste that could affect the quality of state waters must file a “report of waste discharge” with the governing RWQCB. Additional water quality permitting requirements under the Porter-Cologne Water Quality Control Act may include an NPDES General Construction Activities Stormwater Permit.

3.3.3 Impacts and Mitigation Measures

3.3.3.1 Significance Criteria

Criteria for determining the significance of impacts on biota and habitats are based on the 2019 CEQA Guidelines, Appendix G (Environmental Checklist), and have been modified as necessary to reflect Port operations within a highly urbanized, industrial complex. Impacts during construction or operation would be considered significant if the Proposed Plan would:

- **BIO-1:** Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS;
- **BIO-2:** Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the CDFW or USFWS;
- **BIO-3:** Have a substantial adverse effect on state- or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;
- **BIO-4:** Interfere substantially with the movement of any native resident or migratory fish or wildlife species, or with established native resident or migratory wildlife corridors; or impede the use of native wildlife nursery sites;
- **BIO-5:** Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; and/or
- **BIO-6:** Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

3.3.3.2 Assessment Methodology

Impacts on biological resources as a result of the Proposed Plan and its alternatives were assessed by evaluating existing information on species and habitats, combined with best professional judgement concerning the potential for construction and operational activities to exceed thresholds defined previously for the significance criteria.

3.3.3.3 Proposed Plan

The Proposed Plan would include a new land and water use category, Environmental Protection, which would include upland and water areas reserved for environmental restoration and protection. The new Environmental Protection category would protect habitat sites (e.g., Gull Park), and other natural areas (Section 1.8.2.2, Proposed Planning Districts). In addition, the new Sediment Management Area water use would include plans for beneficial reuse of dredged material for ecosystem restoration and creation of shallow-water habitat (Section 1.8.2.2). The new Environmental Protection category and new Sediment Management Area could provide a benefit to species identified as candidate, sensitive, or special status in the area.

Impact BIO-1: Construction and operations would not have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species.

Impact Determination

Construction

Several species identified as a candidate, sensitive, or special status species are known to occur within the Harbor District (Table 3.3-1). Construction activities associated with the Proposed Plan projects (i.e., Administrative Building Site Support Yard [Expansion], Protective Boat Basin (Berth F202), Fourth Track at Ocean Boulevard, Pier D Street Realignment, Pier J Terminal Redevelopment, Pier S Mixed Use Development, Pier T Improvements, Pier W Terminal Development, and land use changes) would require demolition of existing and/or construction of new infrastructure in areas where candidate, sensitive, or special status species could occur. Of these projects, only the Pier S Mixed Use Development project has the potential to impact the documented pockets of southern tarplant on the south shoreline of the Cerritos Channel. Construction activities could generate or result in noise, habitat modification, and temporary changes to water quality that could cause direct, adverse effects (e.g., physical damage to an individual, loss of foraging habitat, or harassment to the extent that a species abandons part of its normal range or otherwise substantially changes its behavior). Construction could also cause indirect effects (e.g., changes that occur with decreased suitability of foraging habitat, or physical disturbance that results in avoidance behavior).

Five of the Proposed Plan projects (Protective Boat Basin [Berth F202], Pier J Terminal Redevelopment, Pier S Shoreline Enhancement, Pier T Improvements, and Pier W Terminal Development) would require in-water construction and/or dredging and fill activities with the potential for generating underwater noise (e.g., from pile driving), temporary changes to water and sediment quality, and habitat modification. These changes also have a potential to affect candidate, sensitive, or special status species in open-water habitats, especially fish, sea turtles, and marine mammals.

The POLB is authorized by the State Tidelands Grant to create new lands to foster the orderly and necessary development of the Port. Projects involving fill and that result in the loss of marine habitat are mitigated through the use of credits available from mitigation banks established by and governed according to a Memorandum of Agreement (MOA) between the Port and a number of resource and regulatory agencies. Mitigation for fill would be conducted in accordance with CWA Section 404 permit conditions and the Federal 2008 Compensatory Mitigation Rule. The goal of Section 404 is to avoid and minimize losses of wetlands and other waters and, if avoidance or minimization is not possible, to compensate for unavoidable loss through mitigation and/or restoration. As stated in the Federal 2008 Compensatory Mitigation Rule, the priority preference for mitigation, such as for fill, is to use mitigation banks or in-lieu fee programs.

Mitigation traditionally has been provided by the creation/restoration of tidal wetlands along the coast of Southern California because the resource agencies (USFWS, NMFS, and CDFW) consider tidal wetlands as providing “in-kind” mitigation, meaning that the resources being created are similar to the resources being lost due to the Port development. These wetland restoration projects generate mitigation “habitat credits.” Unused credits can be saved or “banked” for use in mitigating future projects.

The Port participated in the restoration of tidal wetlands in the Bolsa Chica lowlands and in exchange received mitigation credits to mitigate impacts from Port development projects. The banked credits from the Bolsa Chica Restoration project were vested via the inter-agency Bolsa Chica MOA that was negotiated in 1996 and amended in 2003. The parties to the MOA include six federal and state resource and wildlife agencies, USACE, USEPA, and the San Pedro Bay Ports.

Proposed Plan projects that involve fill would result in a total of 245.3 acres of new fill. The Port's mitigation credits currently total 235 acres per the Port's Mitigation Credit Ledger. After the credits needed for the permitted Middle Harbor Redevelopment Program (approximately 12 acres) and Pier G Terminal Redevelopment (approximately 17 acres) projects, but absent any future development, it is estimated that there will be about 206 mitigation credits left in the mitigation credit bank. Proposed Plan projects requiring mitigation for habitat losses will likely require more credits than are currently available to the Port. As additional mitigation credits are needed to mitigate for fill impacts from the Proposed Plan projects, the Port may purchase credits from mitigation banks that include the Port in their service areas and have the appropriate types of credits available. Any future credits purchased will not be part of the Bolsa Chica MOA process, but will instead be granted and maintained by the procedures described in the Mitigation Bank Enabling Instrument for each mitigation bank from which the Port purchases credits. The Port keeps an accounting of the credits available in the mitigation bank. Once details of the Proposed Plan projects requiring fill are available, the specific amount of credits to be deducted from the Port's Mitigation Credit Ledger will be determined in coordination with USACE and appropriate resource agencies. As impacts from fill would be mitigated, impacts would be less than significant.

Potential effects from the high-intensity sounds could impact marine species through alteration of behavior (Hastings and Popper, Effects of Sound on Fish 2005), tissue damage (Gaspin 1975), hearing loss frequencies (Hastings, Popper and Finneran, et al. 1996, Scholik and Yan 2001, McCauley, R. D., et al. 2000, McCauley, Fewtrell and Popper 2003), or physical injury or mortality to some species (e.g., fish) in the immediate project vicinity (NOAA 2016, NMFS 2010). Potential acoustic effects to marine species generally fall into five categories: 1) direct trauma; 2) auditory fatigue; 3) auditory masking; 4) stress response; and 5) behavioral reactions. Direct trauma refers to injury to organs or tissues of an animal as a direct result of an intense sound wave or shock wave impinging upon or passing through their body. Auditory fatigue may result from overstimulation of the delicate hair cells and tissues within the auditory system. Auditory masking occurs when the perception of a sound is interfered with by a second sound, with the probability of masking increasing as the two sounds increase in similarity and the masking sound increases in level. These effects depend on the intensity and characteristics of the sound; the distance and location of the species in the water column relative to the sound source; and the size, mass, and anatomical characteristics of the species (Hastings and Popper 2005, Caltrans 2015).

Water quality could be temporarily affected by the disturbance of bottom sediments in the vicinity of in-water construction projects. In general, changes such as elevated levels of turbidity are expected to be minor, localized, and short-term. This is because sediments suspended by construction activities typically settle to the bottom within periods of minutes to hours, depending on the particle size, settling rate, and mixing and dispersion by local currents (USACE and LAHD 1992, Los Angeles Regional CSTF 2005). In-water construction activities that disturb bottom sediments could also re-suspend sediment-associated contaminants into the water column, where they would be biologically available.

Turbidity and suspended sediment can affect sensitive species by disrupting normal feeding behavior (e.g., foraging by sensitive bird species), reducing growth rates, increasing stress levels, and reducing respiratory functions. Although some sediment and increased turbidity is expected to be suspended in the water column for a short period of time, it will eventually re-settle to the bottom. Dredging activities may also cause adverse effects to individual fish through direct mortality of juveniles (e.g., by entrainment in dredge intakes), and may impede their migration patterns. The potential for in-water construction activities to affect sensitive species is typically reduced by following the guidance in POLB's Sediment Management Handbook (Anchor QEA 2018a), implementing permit-specified best management practices (BMPs) to minimize potential water quality impacts, compliance with dredging and stormwater permits (see details in Section 3.7, Hydrology and Water Quality), and appropriate project planning and coordination.

A fuel (petroleum) spill from construction equipment could pollute feeding sources and subtidal habitats, thus impacting sensitive fish species and marine mammals. Potentials for fuel spills would be reduced by complying with a Spill Prevention, Control, and Countermeasure (SPCC) Plan.

Implementing stormwater permit-specified BMPs (see Section 3.7, Hydrology and Water Quality) and an SPCC Plan for upland and in-water projects, along with compliance with permit conditions, would reduce the potential for direct impacts on sensitive species and/or indirect impacts on their habitat.

Implementation of the OHSPER project would not require construction as the facility is already operable in its present configuration. Therefore, there is no risk that the OHSPER project would involve construction activities that would have a direct or indirect effect on sensitive species.

With the exception of the OHSPER site, for which no construction activities would occur and consequently no impacts on biological resources would occur, potential significant impacts on biological resources could occur from construction of the Proposed Plan projects or land use change, beyond those impacts avoided or minimized by adherence to project-specific permit requirements that would be part of future, project-specific approvals, such as CEQA evaluations and permitting. Implementation of **Mitigation Measures BIO-1 and BIO-2** as described in this section would additionally ensure that any impacts would be less than significant.

Operations

In general, existing operations in the Harbor District result in airborne and underwater noise, vessel and road traffic, and human activities that have the potential to alter behaviors of sensitive or special status species. Under the Proposed Plan, operations related to the Administrative Building Site Support Yard (Expansion), Pier J Terminal Redevelopment, Pier S Mixed Use Development, Pier T Improvements, Pier W Terminal Development, and land use changes could result in similar but localized disturbances (e.g., noise, lighting, vessel and truck traffic) to sensitive species. However, once a Proposed Plan project has been constructed, further potential for habitat modification and significant impacts on species would be unlikely. For example, as demonstrated by results from the 2013–2014 harbor-wide study (MBC and Merkel & Associates 2016), the San Pedro Bay Port Complex continues to support healthy and robust biological communities, and improvements in water, sediment, and habitat quality that began in the 1970s are continuing to the present despite concurrent increases in operational intensity. Thus, increases in operational intensity associated with the Proposed Plan are not expected to result in significant impacts on sensitive species.

No sensitive or special status species are known to directly use the OHSPER project site. However, the Outer Harbor, particularly the federal breakwater, supports kelp and associated habitat, which may contain sensitive or special status species. Additionally, protected federally listed, state-listed, and other marine fish species may travel through the OHSPER site.

Operation of the OHSPER site for placement of dredged material could result in temporary increases in turbidity levels that could affect foraging behavior of birds or marine mammals. However, these effects would be temporary and would not permanently alter the habitat. Site operations are not expected to affect kelp beds along the federal breakwater, because the elevated turbidity and suspended sediment conditions associated with sediment placement activities would be diluted rapidly within the site vicinity and unlikely to reach the kelp beds. Water quality monitoring would be conducted in accordance with the Operations Management and Monitoring Plan (OMMP) (Appendix C, OHSPER Technical Report) to verify that placement operations do not affect the kelp bed. Should results from monitoring document a potential for affecting the kelp bed, then an adaptive management approach would be used to modify placement procedures as appropriate to protect the kelp beds.

With the exception of the OHSPER site, for which conformance with the OMMP (Appendix C, OHSPER Technical Report) would help ensure there would be no significant impacts on biological resources from operations at the site, potential significant impacts on biological resources could occur from operation of the Proposed Plan projects and land use changes, beyond those impacts avoided or minimized by adherence to project-specific permit requirements that would be part of future, project-specific approvals, such as CEQA evaluations and permitting. Implementation of **Mitigation Measures BIO-1 and BIO-2** as described in the following section would additionally ensure that any impacts would be less than significant.

Mitigation Measures

The following measures would be implemented as applicable to minimize impacts associated with sensitive or special status species during construction and operations within the Harbor District.

BIO-1: Work Windows. Where appropriate, construction/demolition activities would be scheduled during season(s) when these activities would be least likely to affect protected avian species that would occur within the project area. If active nests for avian species are found, a suitable no-disturbance buffer will be established and avoided. If ground disturbance is scheduled to occur within a nest buffer area, the project operator will avoid the area by delaying ground disturbance until a qualified wildlife biologist has determined that the birds have fledged and are no longer reliant upon the nest or parental care for survival.

BIO-2: Minimize In-Water Pile Driving Noise. To minimize noise impacts from pile driving, the following are types of mitigation that may be required on a project-specific basis:

- Vibratory Hammer: During construction, a vibratory pile driver would be used whenever possible to drive steel piles, if used. Concrete piles would be driven with an impact hammer only.
- Noise Reduction Methods: Bubble curtains, cofferdams, isolation casings, cushion block, or other noise attenuation device(s) would be deployed during impact driving of steel piles to reduce underwater noise levels.
- Soft Starts for Pile Driving: During impact hammer pile driving operations for steel piles, the contractor shall conduct an initial set of strikes from the impact hammer at reduced energy, followed by a 30-second waiting period, then two subsequent sets, to allow marine species the opportunity to leave the area prior to the hammer operating at full capacity.

Significance of Impact after Mitigation

Most potential impacts, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species would be avoided or less than significant based on adherence to permit-specified requirements under CWA Sections 401 and 404. Further, dredging and fill projects would follow guidance in the Port's Sediment Management Handbook (Anchor QEA 2018a), which is intended to achieve the sediment management goals set forth under Control Measures S-1 and S-2 of the Water Resources Action Plan (WRAP) (POLA and POLB 2009b), and the Port's guide for Compensatory Mitigation under the Clean Water Act

(Anchor QEA 2019a). Any residual impacts on biological resources would be less than significant with implementation of **Mitigation Measures BIO-1 and BIO-2**.

Impact BIO-2: Construction and operations would not have a substantial adverse effect on any riparian habitat or other sensitive natural community.

Impact Determination

Construction

Very limited riparian habitat exists within the Harbor District, although small pockets were observed along Cerritos Channel in close proximity to the Pier S Mixed Use Development project. Eelgrass, which represents another potentially sensitive natural community, also has a very limited distribution in the Harbor District, covering less than 1 acre (MBC and Merkel & Associates 2016). However, EFH and MSA-managed fish species habitat occurs within the Harbor District and potentially could be affected by construction activities associated with the Proposed Plan projects. Construction activities could result in direct and indirect impacts, such as 1) direct removal/burial of organisms; 2) turbidity/siltation effects, including light attenuation from turbidity; 3) contaminant release and uptake, including nutrients, metals, and organics; 4) release of oxygen-consuming substances; 5) entrainment; 6) noise disturbances; 7) alteration to hydrodynamic regimes and physical habitat; and 8) introduction of invasive species (Federal Register 70, No. 170 [September 2, 2005]: 52488–52585).

Impacts on existing biological resources could also occur through the introduction of invasive species in both terrestrial and aquatic habitats. Invasive terrestrial species generally include plant species listed by the California Invasive Plant Council and any other species that can invade natural or restoration areas and replace or preclude the establishment of native or other more desirable species. In aquatic habitats, invasive species such as the Asian clam (*Theora lubrica*), macroalgal species (e.g., *Undaria* and *Sargassum*), and *Caulerpa* are a concern in the Harbor District. *Caulerpa* has not been identified in the Harbor District; however, there is high risk for this species to become established (Rincon Consultants 2016). Implementation of an invasive species/weed management plan and pre-construction surveys for *Caulerpa taxifolia* would be covered as part of permit-specified requirements under CWA Section 404 and minimize the potential for the introduction and spread of invasive species, and would not conflict with any local policies or ordinances protecting biological resources.

Implementation of the OHSPER project would not require construction as the facility is already operable in its present configuration. Therefore, there is no risk that the OHSPER project would involve construction activities that would affect riparian habitat or cause any significant environmental effects.

With the exception of the OHSPER site, for which no construction activities would occur and consequently no impacts on biological resources would occur, potential significant impacts on biological resources could occur from construction of the Proposed Plan projects and land use changes, beyond those impacts avoided or minimized by adherence to project-specific permit requirements that would be part of future, project-specific approvals, such as CEQA evaluations and permitting. Implementation of **Mitigation Measures BIO-1 and BIO-2**, as described in this section, would additionally ensure that any impacts would be less than significant.

Operations

Very limited riparian habitat exists within the Harbor District. While other potentially sensitive natural communities (including eelgrass, EFH, and MSA-managed fish species habitat) occur within the Harbor District, once a Proposed Plan project has been constructed, further potential for habitat modification would be unlikely. Thus, project operations would not be expected to result in significant impacts on riparian habitat or other sensitive natural communities.

The OHSPER site is located in the middle of the Outer Harbor and is not close to riparian habitat. Kelp beds are present along the federal breakwater; however, sediment placement operations are not expected to affect the kelp beds. Additionally, water quality monitoring during site operations, as described in the OMMP (Appendix C, OHSPER Technical Report), would be performed to confirm that site use does not affect the kelp beds. Therefore, operation of the OHSPER site would not affect riparian habitat or cause significant environmental effects.

Operation of the Proposed Plan projects and land use changes would result in less than significant impacts on riparian habitat or other sensitive natural community. As operations would not have a substantial adverse effect on these habitats or communities, no mitigation is required.

Mitigation Measures

Construction

Mitigation Measures BIO-1 and BIO-2 would apply to this impact.

Operations

As operations would not have a substantial adverse effect on any riparian habitat or other sensitive natural community, no mitigation is required.

Significance of Impact after Mitigation

Construction

Impacts on riparian habitat or other sensitive natural communities would be less than significant with implementation of **Mitigation Measures BIO-1 and BIO-2.**

Operations

As impacts on riparian habitat or other sensitive natural communities would be less than significant, no mitigation is required.

Impact BIO-3: Construction and operations would not have a substantial adverse effect on state- or federally protected wetlands.

Impact Determination

No state- or federally protected wetlands are located near the Proposed Plan projects. Consequently, construction and operations of the Proposed Plan projects would not have a substantial adverse effect on protected wetlands.

The OHSPER is located in the Outer Harbor within open water and is, therefore, not located adjacent to or within any state- or federally protected wetlands. Therefore, the OHSPER project operations would not affect protected wetlands.

Construction and operation of the Proposed Plan projects and land use changes would result in less than significant impacts on state and federally protected wetlands. As construction and operations would not have a substantial adverse effect on state- or federally protected wetlands, impacts would be less than significant and no mitigation is required.

Impact BIO-4: Construction and operations would not interfere substantially with the movement of any native resident, migratory fish, or wildlife species, or with established native resident or migratory wildlife corridors; or impede the use of native wildlife nursery sites.

Impact Determination

Construction

Construction activities associated with the Proposed Plan projects would require demolition and/or construction activities in terrestrial, aquatic, and/or open-water areas of the Harbor District. None of these activities are expected to result in installation of physical barriers that would permanently interfere with wildlife movement. However, construction-related noise and habitat modification could result in temporary conditions, which could temporarily (during construction duration) affect the movement of native resident, migratory fish, or wildlife species; affect established native resident or migratory wildlife corridors; or impede the use of native wildlife nursery sites.

Implementation of the OHSPER project would not require construction as the facility is already operable in its present configuration. Therefore, there is no risk that the OHSPER project would involve construction activities that would affect federally protected areas or interfere with any native resident or migratory wildlife corridors.

With the exception of the OHSPER site, for which no construction activities would occur and consequently no impacts on biological resources would occur, potential significant impacts on biological resources could occur from construction of the Proposed Plan projects and land use changes, beyond those impacts avoided or minimized by adherence to project-specific permit requirements that would be part of future, project-specific approvals, such as CEQA evaluations and permitting. Implementation of **Mitigation Measures BIO-1 and BIO-2**, as described in this section, would additionally ensure that any impacts would be less than significant.

Operations

The Harbor District provides habitat for many migratory species, as well as pathways for wildlife movement and links to nearby habitats. Open-water areas of the Harbor District provide important nursery and foraging habitat for coastal marine fish, and nesting and foraging habitat for many resident and migratory birds.

The Proposed Plan projects are not expected to result in the installation or operation of any physical barriers that would permanently interfere with wildlife movement. Once a Proposed Plan project has been constructed, further potential for habitat modification would be unlikely. Therefore, project operations are not expected affect the movement of native resident, migratory fish, or wildlife species; affect established native resident or migratory wildlife corridors; or impede the use of native wildlife nursery sites.

The OHSPER site and surrounding vicinity is located within open waters of the Outer Harbor, but inside the breakwater and, therefore, is not close to any sea-based migratory routes. Operation of the OHSPER project would not result in a physical barrier or otherwise interfere with the movement of any native resident, migratory fish, or wildlife species. Implementation of the proposed OHSPER project would not result in a substantial increase in vessel activity at the site, and consequently would not produce significant impacts on sensitive species such as the California least tern, which transit above the surface. Therefore, implementation of the proposed OHSPER project would have no impact on federally protected areas, and would not interfere with any native resident or migratory wildlife corridors.

As operation of the Proposed Plan projects and land use changes would result in less than significant impacts on wildlife movements, migratory pathways, or nursery sites, no mitigation is required.

Mitigation Measures

Construction

Mitigation Measures BIO-1 and BIO-2 would apply to this impact.

Operations

As operations would not interfere substantially with wildlife corridors or impede the use of native wildlife nursery sites, no mitigation is required.

Significance of Impact after Mitigation

Construction

Impacts on wildlife corridors and nursery sites would be less than significant with implementation of **Mitigation Measures BIO-1 and BIO-2**.

Operations

Impacts on wildlife corridors and nursery sites would be less than significant.

Impact BIO-5: Construction and operations would not conflict with any local policies or ordinances protecting biological resources.

Impact Determination

Applicable regulations protecting biological resources in the Harbor District (summarized in Section 3.3.2, Regulatory Setting) are administered by federal and state agencies. No applicable local policies or ordinances regulate biological resources other than the Southern California Eelgrass Mitigation Policy that is administered by NMFS. Construction and operations associated with the Proposed Plan projects would be conducted in accordance with all applicable regulations protecting biological resources, and would not conflict with local plans.

Implementation of the OHSPER project would not conflict with local policies or ordinances protecting biological resources. No construction activities would occur for the OHSPER project, because the site is operable in its present condition. The OHSPER project would incorporate and be consistent with existing policies regarding the protection of biological resources. Construction and operation of the Proposed Plan projects, operation of the OHSPER project, and land use changes would not conflict with local policies or ordinances, and would result in less than significant impacts. No mitigation is required.

As construction and operations would not conflict with any local policies or ordinances protecting biological resources, impacts would be less than significant and no mitigation is required.

Impact BIO-6: Construction and operations would not conflict with the provisions of an adopted Habitat Conservation Plan; Natural Community Conservation Plan; or other approved local, regional, or state habitat conservation plan.

<u>Impact Determination</u>

The Proposed Plan projects would not be located in any approved local, regional, or state Habitat Conservation Plan or Natural Community Conservation Plan area. Therefore, construction and operations associated with the Proposed Plan projects would not conflict with any plans and consequently there would be no significant impacts.

The OHSPER project would not be located in any approved local, regional, or state Habitat Conservation Plan or Natural Community Conservation Plan area. Therefore, the OHSPER project would not conflict with any plans and there would be no significant impacts.

As construction and operations would not conflict with an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan, impacts from the Proposed Plan would be less than significant and no mitigation is required.

3.3.3.4 Alternative 1 (No Plan Alternative)

Alternative 1 (No Plan Alternative) considers what would reasonably occur if the Port did not update the PMP to include updates to the planning districts and allowable land and water use designations within the Harbor District. Alternative 1 includes projects that are 1) consistent with the 1990 PMP as amended, 2) may or may not have been evaluated in a final CEQA document, and/or 3) could be implemented without approval of the Proposed Plan. Alternative 1 includes the following projects: Administrative Building Site Support Yard (Expansion), Fourth Track at Ocean Boulevard, Ocean Boulevard Bicycle Gap Closure, Pier B Street Support Yard, Pier D Street Realignment, Pier S Mixed Use Development, and Pier S Shoreline Enhancement. This alternative also includes the Pier T Echo Support Yard project, which would construct a 17-acre support yard (chassis, empties, or peel-off) that would serve the Pier T container terminal. In addition, use of the WASSS would continue as currently permitted (i.e., placement and reuse of clean sediments).

<u>Impact Determination</u>

Types of impacts on biological resources from construction and operations of individual projects under Alternative 1 would be the same as for the Proposed Plan. However, because Alternative 1 would not include any of the pier development/redevelopment projects (e.g., Piers J, T, and W) or the Protective Boat Basin (Berth F202) project that are part of the Proposed Plan, there would be no potential for impacts on biological resources from construction or operation of these projects. Additionally, Alternative 1 would not require any fill so there would be no loss of benthic habitat. There would still be the potential for impacts on riparian habitat identified near the Pier S Mixed Use Development project; however, these would be mitigated to be less than significant with implementation of **Mitigation Measures BIO-1 and BIO-2**. Other potential impacts on biological resources from Alternative 1 would be less than significant and mitigation measures are not required. From a programmatic perspective, the impacts from Alternative 1 would be comparatively less in magnitude than for the Proposed Plan due to the reduced construction and operational activities and the absence of fill.

Under Alternative 1, continued use of the WASSS as currently permitted would result in similar potentials for impacts on biological resources as those associated with the OHSPER project under the Proposed Plan. Impacts would be less than significant impacts and mitigation measures are not required.

3.3.3.5 Alternative 2 (No Terminal Development)

Alternative 2 (No Terminal Development) is similar to the Proposed Plan and would include updates to the planning districts and allowable land and water use designations in the Harbor District. However, Alternative 2 would not include terminal development projects at Pier T, Pier W, or Pier J. Alternative 2 would include the following projects: Administrative Building Site Support Yard (Expansion), Protective Boat Basin (Berth F202), OHSPER, Fourth Track at Ocean Boulevard, Ocean Boulevard Bicycle Gap Closure, Pier B Street Support Yard, Pier D Street Realignment, Pier T Echo Support Yard, Pier S Mixed Use Development, Pier S Shoreline Enhancement, and land use changes.

<u>Impact Determination</u>

Types of impacts on biological resources from construction and operations of individual projects under Alternative 2 would be the same as for the Proposed Plan. However, because Alternative 2 would not include any of the terminal development/redevelopment projects (e.g., Piers J, T, and W) that are part of the Proposed Plan*,* there would be no potential for impacts on biological resources from construction or operation of these projects.

The Pier S Mixed Use Development project would be in proximity to pockets of riparian vegetation on Cerritos Channel. The Protective Boat Basin (Berth F202) project would be the only Alternative 2 project that would require placement of fill in areas that are currently open water. This project is expected to result in 0.3 acre of fill and loss of benthic habitat associated with construction of a new breakwater. The Protective Boat Basin (Berth F202) or any other fill associated with Alternative 2 projects would be independently evaluated and would require permits from USACE and the RWQCB Compliance with these permits would further ensure that construction and operation of the project do not significantly impact biological resources. Impacts on biological resources would be less than significant with implementation of **Mitigation Measures BIO-1 and BIO-2**.

Overall, impacts on biological resources from construction and operation of Alternative 2 would be would be comparatively less in magnitude than for the Proposed Plan, due to the differences in construction and operational activities and size of the fill area.

3.3.3.6 Alternative 3 (Reduced Terminal Development)

Alternative 3 (Reduced Terminal Development) is similar to the Proposed Plan and would include updates to the planning districts and allowable land and water use designations in the Harbor District. Under Alternative 3, development of the Pier J terminal would be reduced compared to the Pier J Terminal Redevelopment under the Proposed Plan. The Pier J Reduced Development would include dredging and filling the 22-acre triangle, cutting a 9-acre notch, extending the north wharf to the east, and relocating the existing rail line and yard to Pier J South. No development of a new Pier W Terminal would occur. Alternative 3 would include the following projects: Administrative Building Site Support Yard (Expansion), Protective Boat Basin (Berth F202), OHSPER, Fourth Track at Ocean Boulevard, Ocean Boulevard Bicycle Gap Closure, Pier B

Street Support Yard, Pier D Street Realignment, Pier S Mixed Use Development, Pier S Shoreline Enhancement, Pier T Improvements, Pier J Reduced Development, and land use changes.

Impact Determination

Types of impacts on biological resources from construction and operation of individual projects under Alternative 3 would be the same as for the Proposed Plan. However, because Alternative 3 would not include the Pier W Terminal Development project and the Pier J Terminal Development project would be a reduced scale of the project that is part of the Proposed Plan, there would be a reduced potential for impacts from construction or operation of these projects.

The Pier S Mixed Use Development project would be in proximity to pockets of riparian vegetation on Cerritos Channel. The Protective Boat Basin (Berth F202), Pier T Improvements, and Pier J Terminal Redevelopment projects would be the only Alternative 3 projects that would require placement of fill in areas that are currently open water. Combined, these projects would result in 92.3 acres of fill and lost benthic habitat (see Chapter 1, Introduction and Project Description). The new land constructed for the Pier T and Pier J projects would impact benthic habitat and the biota within the project footprints. Impacts on biological resources would be less than significant with implementation of **Mitigation Measures BIO-1 and BIO-2**.

3.3.4 Cumulative Impacts

This section evaluates the potential for the Proposed Plan projects, together with other past, present, and reasonably foreseeable future projects, to make a cumulatively considerable contribution to a significant cumulative impact on biological resources. The region of influence for cumulative impacts on biological resources is the same as the analysis presented in Section 3.3.3.1 (Significance Criteria), which includes existing biological resources within the Harbor District. The significance criteria used for the cumulative analysis are the same as those used for the Proposed Plan and alternatives in Section 3.3.3.1.

- **BIO-1: Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS.**

Several species identified as a candidate, sensitive, or special status species are known to occur within the Harbor District. These species could be affected directly or indirectly by construction and operation of the Proposed Plan projects in combination with effects associated with the related projects. The most significant region-wide impacts on biological resources would be associated with habitat modification and loss. The potential for adverse impacts is directly dependent on the project-specific scope and location of the project(s).

Improvement projects outside the Harbor District, including the Port of Los Angeles, may also contribute to the loss or degradation of sensitive biological resources in a regional context. Indirect cumulative impacts can occur from the increased potential for invasive species (including invasive aquatic species). The level of cumulative impacts on biological resources depends on the project, the project location, whether the effects of disturbance are significant on a regional level, and the sensitivity of the resource.

A number of the Proposed Plan projects would involve cut and fill components that would modify aquatic habitats. Projects involving net fill would require mitigation to offset the loss of aquatic habitat. Related projects within the Port of Los Angeles could also require cut and fill components that would alter aquatic habitats. Mitigation for fill would be conducted in accordance with CWA

Section 404 permit conditions and the Federal 2008 Compensatory Mitigation Rule. The goal of Section 404 is to avoid ("no net loss of in-kind habitat value," where in-kind refers to marine tidal water of value to fish and birds) and minimize losses of wetlands and other waters and if avoidance or minimization is not possible, to compensate for unavoidable loss through mitigation and/or restoration. Given the infeasibility of undertaking any substantial on-site mitigation and the public interest mandate of accommodating maritime cargo conferred upon the Port by the CCA, off-site mitigation is allowed between Point Conception and the Mexican border. Implementation of mitigation measures occurs prior to or concurrent with project impacts. As stated in the Federal 2008 Compensatory Mitigation Rule, the priority preference for mitigation, such as for fill, is to use mitigation banks or in-lieu fee programs. Projects within the Port of Long Beach and Port of Los Angeles that involve fill would be mitigated by using credits from each Port's respective mitigation banks. The amount of credits to be deducted from the Port's mitigation credit ledger will be determined once details of the projects requiring fill are finalized. If additional mitigation credits are needed to mitigate for fill impacts, the Port may purchase credits from mitigation banks that include the Port in their service areas and have the appropriate types of credits available. Therefore, the Proposed Plan's contribution to impacts from fill projects would be less than cumulatively considerable.

Cumulative impacts could also result from pollutant loadings associated with construction and operation of projects within the San Pedro Bay Port Complex combined with nonpoint source loadings from the adjacent watershed (e.g., stormwater runoff and atmospheric deposition). Typically, construction-related changes to water, sediment, and habitat quality are temporary and do not represent a substantial contributor to cumulative impacts. Pollutant loadings from port operation, (e.g., vessel discharge) are closely regulated to prevent adverse impacts on aquatic habitats, including sensitive species.

The increase in vessel traffic from the Proposed Plan in combination with other cumulative projects would increase the risk of accidental leaks or spills. However, the probability of significant spills would remain low, because vessels are required to travel at slow speeds and tugs are used to guide large vessels to and from berths, both of which reduce the potential for vessel collisions. Further, in the event of a spill, rapid containment and clean up would occur in compliance with permit conditions and Port requirements.

Increased vessel calls in the Port as a result of the cumulative projects also have the potential to disrupt local biological communities through the introduction of nonnative invasive species. Vessels have introduced nonnative species into the San Pedro Bay Port Complex primarily through past ballast water discharges. Environmental control measures to reduce the potential for the introduction of invasive species are already in place through regulations under both federal and state laws (e.g., the National Invasive Species Act and the Marine Invasive Species Act). These laws require that ships entering federal or state waters comply with ballast water, marine biofouling, and sediment management requirements. The POLB additionally has rules and regulations in its tariffs prohibiting the discharge of bilge or ballast waters. Implementation of and adherence to these rules and regulations should reduce, but would not completely eliminate, the potential for the Proposed Plan projects and other Port-related projects to contribute to habitat impacts associated with invasive species. The potential consequences of invasive species introductions are considered serious, because there is no feasible mitigation to fully eliminate this risk.

Potential for Port operations to degrade water, sediment, and habitat quality are also addressed in existing Port policies, particularly the WRAP and Green Port Policy. The Port of Long Beach and the Port of Los Angeles collaborated with the RWQCB and USEPA in the development of the WRAP as a guide to attain full beneficial uses of San Pedro Bay water bodies and sediments by promoting science-based studies and BMPs. The WRAP establishes a framework and mechanisms by which the San Pedro Bay Ports will achieve USEPA and RWQCB total maximum daily load (TMDL) goals. Each Port developed, as a component of the WRAP, a sediment management policy and guidance manual to establish specific application of the Contaminated Sediment Task Force (CSTF) Long-Term Management Strategy to development projects for each respective port.

The WRAP identifies 14 control measures aimed at fulfilling each port's water resources mission and a Technology Advancement Program to evaluate and demonstrate new technologies that may enhance the protection and improvement of water and sediment quality in the San Pedro Bay Harbor Complex. Four basic types of sources are addressed by the WRAP through existing and proposed control measures: land use discharges, on-water discharges, sediments, and watershed discharges.

The Green Port Policy formalizes five guiding principles for the Port's environmental protection efforts: 1) protect the local community and environment from harmful Port impacts; 2) employ the best available technology to minimize Port impacts and explore advanced technology solutions; 3) promote sustainability in terminal design, development, and operations; 4) distinguish the Port as a leader in environmental stewardship and regulatory compliance; and 5) engage and educate the community about Port development and environmental programs.

Since 1998, the Port of Long Beach in collaboration with the Port of Los Angeles has been conducting a San Pedro Bay Port Complex-wide assessment of biological resources and habitat conditions on a recurring basis. As demonstrated by the results of the latest (2013–2014) harbor-wide assessment (MBC and Merkel & Associates 2016), the San Pedro Bay Port Complex continues to support healthy and robust biological communities, and improvements in water, sediment, and habitat quality that began in the 1970s (e.g., see Section 3.7, Hydrology and Water Quality) are continuing into the present despite concurrent increases in operational intensity. Thus, increases in operational intensity within the San Pedro Bay Port Complex have not resulted in declines in habitat quality. By extrapolation, future increases in operational intensity associated with the Proposed Plan in combination with other related port projects would not necessarily result in habitat degradation that would adversely affect sensitive species.

While the Proposed Plan as well as other past, present, and foreseeable future projects would incrementally increase vessel traffic and associated underwater sound in the harbor, cumulative impacts on marine mammals would be expected to be less than significant. The frequency of vessel sound events would increase; however, based on available data, the average underwater sound level would be expected to be below NOAA's (2013) acoustic threshold guidance for temporary harassment or permanent injury and would not be expected to substantially affect the hearing or behavior of marine mammals. In addition, the number of vessels in transit at any one time within the San Pedro Bay Port Complex is controlled by the design capacity of the channels and basins, and vessel speeds are slow in the harbor. While underwater, marine mammals may move away from a vessel passing nearby; however, such movements would be temporary and would affect few animals (small numbers are present and no breeding rookeries occur in the harbor). In any event, the Proposed Plan's contribution to underwater sound from the increase in vessel traffic would be less than cumulatively considerable.

Whale strikes outside the Port as a result of increases in vessel traffic are a possibility. Vessel speed is a primary factor related to the severity of injury or mortality to whales. For example, to reduce the risk of serious injury NOAA recommends maritime VSR in the range of 10 to 13 knots in areas where there is a higher risk of collision. While the potential for serious injury to whales is reduced by the Port's VSR program, there is no feasible mitigation to fully eliminate the risk of whale strikes outside the Port.

All of the Proposed Plan projects would follow the regulatory requirements (e.g., ESA, CEQA, etc.), for planning and, where appropriate, ESA Section 7 consultation with USFWS and NMFS, prior to project activities to minimize impacts on sensitive biological resources. Nevertheless, some of the Proposed Plan projects could result in significant but mitigable impacts on sensitive species and habitat. With mitigation, the Proposed Plan projects would not make a cumulatively considerable contribution to significant cumulative impacts. Additionally, beneficial cumulative impacts on biological resources could result from the protection of habitat sites (e.g., Gull Park), and other natural areas under the new Environmental Protection and new Sediment Management Areas included under the Proposed Plan.

- **BIO-2: Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the CDFW or USFWS.**

Very limited riparian habitat and eelgrass currently exists within the Harbor District, and construction and operation of the Proposed Plan projects would not directly affect these resources. Eelgrass also occurs in portions of the Port of Los Angeles. However, construction and operation of the Proposed Plan projects would not directly affect or contribute to cumulative effects on riparian habitat or eelgrass. For these reasons, combined with findings under Cumulative Impact BIO-1 discussed above, the Proposed Plan projects would not make a cumulatively considerable contribution to significant cumulative impacts on riparian habitat or other sensitive natural communities.

- **BIO-3: Have a substantial adverse effect on state- or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.**

The Proposed Plan projects would not cause substantial effects on state- or federally protected wetlands because none are located near any of the proposed projects. For this reason, combined with findings under Cumulative Impact BIO-1 discussed above, the Proposed Plan projects would not make a cumulatively considerable contribution to significant cumulative impacts on protected wetlands.

- **BIO-4: Interfere substantially with the movement of any native resident, migratory fish, or wildlife species, or with established native resident or migratory wildlife corridors; or impede the use of native wildlife nursery sites.**

No terrestrial or aquatic migration corridors occur within the Harbor District, and species such as birds could fly over or around construction or operational activities. The potential for interference with offshore migrations of marine mammals is low, because the area in which they migrate along the coast is large, thereby reducing the potential for overlap with and impacts from vessels. For these reasons, the Proposed Plan projects would not contribute to a cumulatively considerable impact on wildlife movement/migration corridors.

- **BIO-5: Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.**

The Proposed Plan projects would comply with all applicable regulations administered by federal and state agencies. However, no applicable local policies or ordinances regulate biological resources. For this reason, the Proposed Plan projects would not contribute to a cumulatively considerable impact associated with conflicts with local policies and ordinances protecting biological resources.

- **BIO-6: Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.**

The Proposed Plan projects would not be located within any approved local, regional, or state Habitat Conservation Plan or Natural Community Conservation Plan area. Therefore, construction and operation of the projects would not conflict with any habitat conservation plans. For this reason, the Proposed Plan would not contribute to a cumulatively considerable impact related to conflicts with habitat conservation plans.

3.3.5 Mitigation Monitoring Program

Implementation of **Mitigation Measures BIO-1 and BIO-2** would be required to reduce impacts associated with construction and/or operation of the Proposed Plan projects. These mitigation measures and monitoring requirements are summarized in Table 3.3-3.

TABLE 3.3-3. MITIGATION MONITORING PROGRAM

Mitigation Measure	Responsible Party	Timing/Frequency
BIO-1: Work Windows. Where appropriate, construction/demolition activities would be scheduled during season(s) when these activities would be least likely to affect protected avian species that would occur within the project area. If active nests for avian species are found, a suitable no-disturbance buffer will be established and avoided. If ground disturbance is scheduled to occur within a nest buffer area, the project operator will avoid the area by delaying ground disturbance until a qualified wildlife biologist has determined that the birds have fledged and are no longer reliant upon the nest or parental care for survival.	POLB	Once per project; during project planning
BIO-2: Minimize In-Water Pile Driving Noise. To minimize noise impacts from pile driving, the following are types of mitigation that may be required on a project-specific basis: • Vibratory Hammer: During construction, a vibratory pile driver would be used whenever possible to drive steel piles, if used. Concrete piles would be driven with an impact hammer only. • Noise Reduction Methods: Bubble curtains, cofferdams, isolation casings, cushion block, or other noise attenuation device(s) would be deployed during impact driving of steel piles to reduce underwater noise levels. • Soft Starts for Pile Driving: During impact hammer pile driving operations for steel piles, the contractor shall conduct an initial set of strikes from the impact hammer at reduced energy, followed by a 30-second waiting period, then two subsequent sets, to allow marine species the opportunity to leave the area prior to the hammer operating at full capacity.	POLB	During project construction

Key: POLB = Port of Long Beach

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3.4 HISTORICAL AND TRIBAL CULTURAL RESOURCES

This section describes the potential impacts on historical and tribal cultural resources that could result from implementation of the Proposed Plan and its alternatives.

3.4.1 Environmental Setting

3.4.1.1 Area of Influence

The area of influence for cultural resources is the Harbor District located in the southwest portion of the City. Cultural resources include historic-period buildings, structures, districts, and objects; archaeological sites and districts dating from either prehistoric, ethnographic, or historic times; and tribal cultural resources of importance to local Native American tribes (sites, features, places, cultural landscapes, sacred places, and objects of cultural value). Cultural resources may exist above ground (e.g., buildings, structures, bridges); be preserved on the ground surface (e.g., landscape features, rock art, water conveyance systems); be buried beneath the ground surface (e.g., archaeological remains, human remains); or be submerged under rivers, lakes, or the ocean (e.g., shipwrecks and deeply buried sites).

3.4.1.2 Setting

A brief summary of the cultural setting below provides the context for the assessment of archaeological, tribal cultural, and historic built-environment resources significance evaluations according to the California Register of Historical Resources (CRHR). The CRHR is a list of important cultural and historic properties in California maintained by the Office of Historic Preservation (OHP). The State Historic Preservation Officer determines what resources are eligible for the CRHR and should be added to this register. The register is a matter of public record. Some municipalities also maintain local registers of historical resources, including the City. The Native American Heritage Commission (NAHC) maintains the California Sacred Land Files. This is not an exhaustive list of significant tribal cultural resources and the NAHC generally recommends that tribes within the agency’s jurisdiction or project geographic area be contacted for information regarding sacred lands and other resources of tribal concern. The regulatory framework requiring the significance evaluation of known or anticipated important archaeological, tribal cultural, and historical resources within the Harbor District is provided below, followed by impact analysis and mitigation measures, as needed, to reduce significant impacts resulting from the Proposed Plan. This evaluation is based on technical documents, a records and literature search with the California Historical Resources Information Center, a sacred lands search with the NAHC, a shipwreck search with the CSLC, AB 52 Native American Consultation, and a windshield survey of culturally sensitive planning districts.

Various sources offer a detailed accounting and interpretation of local prehistory, the contact era, and history relevant to the development of the POLB, including *Port Town* by Cunningham and Cunningham (2016), *City of Long Beach Historic Context Statement* by Sapphos Environmental, Inc. (2009) and *Getting the Goods: Ports, Labor, and the Logistics Revolution* by Bonacich and Wilson (2008). As appropriate for the current discussion and evaluation, sections from these sources have been abstracted here and credited to the original authors. Much of the historical overview of the study area was first written by Applied EarthWorks Architectural Historians Aubrie Morlet and M. Colleen Hamilton in *Port of Long Beach Administration Building: Photographic, Architectural, and Historical Documentation* (2010).

The Harbor District is located within the southwestern portion of the Los Angeles Basin. The basin consists of a broad coastal plain of low relief that slopes gradually seaward (southwest and south) to the Pacific Ocean. The Harbor District is in the southern portion of San Pedro Bay, a natural embayment formed by a westerly protrusion of the coastline and the dominant onshore topographic feature. The Palos Verdes Hills are located to the west and northwest. The floor of the Los Angeles Basin is characterized by unconsolidated Holocene-age sediments, except for local exposures of the Pleistocene-age formations in the small hills and mesas throughout the basin (SAIC 2009). The topography of the Harbor District is generally flat, and sediments largely consist of imported fill.

The modern Harbor District is an urban setting characterized by transportation, industrial, and commercial uses and dominated by developed and ruderal (disturbed) lands. Vegetation consists of introduced landscape species and weedy grasses, with small pockets of native vegetation.

Prehistory

A few archaeological sites have been purported to be of great antiquity and offer evidence of an Early Man Period (in excess of 15,000 years) in Southern California. These sites are centered in the Mojave and Colorado deserts, or along the coast of Southern California. Perhaps the most widely publicized of these sites is the Calico Early Man Site in the desert of San Bernardino County (Schuiling 1979, Simpson 1980). However, no sites of great antiquity have been identified near downtown Los Angeles, and many archaeologists remain skeptical about the existence of such sites in Southern California.

The 12,000 to 7500 B.P. Interval (Terminal Pleistocene/Early Holocene Period)

This interval is characterized by a long period of human adaptation to environmental changes brought about by the transition from the late Pleistocene to the early Holocene geologic epochs. Between 13,000 and 10,000 years Before Present (B.P.), climatic conditions became warmer and more arid and Pleistocene megafauna (large animals) gradually disappeared. The early occupants of Southern California are believed to have been nomadic large-game hunters whose tool assemblage included percussion-flaked scrapers and knives; large, well-made stemmed, fluted, or leaf-shaped projectile points (e.g., Lake Mojave, Silver Lake); crescentics; heavy core/cobble tools; hammerstones; bifacial cores; and choppers and scraper planes.

The 7500 to 5000 B.P. Interval (Middle Holocene Period)

In the coastal regions of Southern California, this period of cultural development is marked by the technological advancements of seed grinding for flour and the first use of marine resources, such as shellfish and marine mammals. Overall, the general settlement-subsistence patterns of the Middle Holocene Period were exemplified by a greater emphasis on seed gathering. Adaptation to various ecological niches, further population growth, and an increase in sedentism typify the subsequent periods of cultural history in Southern California. This subsistence orientation, characterized by a heavy dependence on both hunting and plant gathering, continued into historical times resulting in greater local dependency. The artifact assemblage of this period is similar to that of the previous period, but was expanded to include large drills and large flake tools. This assemblage also includes large leaf-shaped points and knives, manos and milling stones used for grinding hard seeds, and nonutilitarian artifacts, such as beads, pendants, charmstones, discoidals, and cogged stones (Kowta 1969, True 1958, Warren and True 1961). The Topanga Complex is perhaps the best-known component of the so-called Milling Stone Horizon near the project region. Aside from the sites in Topanga Canyon, the only evidence of prehistoric occupation of the Los Angeles Basin dating to this interval is an occasional discoidal or cogged stone recovered from sites dating to more recent periods of prehistory. None of these sites have been found in or near the project area.

The 5000 to 1500 B.P. Interval (Middle to Late Holocene)

In general, cultural patterns remained similar in character to those of the preceding horizon. However, the cultural material at many coastal sites became more elaborate, reflecting an increase in sociopolitical complexity and efficiency in subsistence strategies (e.g., the introduction of the bow and arrow for hunting). The components at site CA-LAN-2 in Topanga Canyon are dated to this period. In addition, several sites south of Ballona Lagoon on the Del Rey bluffs contain a well-developed Intermediate Horizon, defined by Wallace and others as a period of diversified subsistence (Van Horn 1987, Van Horn and Murray 1985, Wallace 1978). Projectile points for the Ballona Bluffs sites are, in some cases, similar to those found at sites in the southeastern California deserts, specifically in the Pinto Basin and at Gypsum Cave. This suggests that the coastal occupants of this period were in close contact with cultures occupying the eastern deserts.

The Post 1500 B.P. Interval (Late Holocene)

Reliance on the bow and arrow during the Late Holocene for hunting, along with the use of bedrock mortars and milling slicks, mark the beginning of the subtradition referred to as the "Late Prehistoric Horizon" by (Wallace 1955) and the "Shoshonean Tradition" by (Warren 1968), dating from about 1500 B.P. (Anno Domini [A.D.] 500) to the time of Spanish contact (approximately A.D. 1769). Late prehistoric coastal sites are numerous. Diagnostic artifacts include small triangular projectile points, mortars and pestles, steatite ornaments and containers, perforated stones, circular shell fishhooks, and numerous and varied bone tools, as well as bone and shell ornamentation. Elaborate mortuary customs, along with generous use of asphaltum and the development of extensive trade networks, also characterize this period. The Late Prehistoric Horizon included increases in population size, economic and social complexity, and the appearance of social ranking.

Protohistory

During the late prehistoric period, the Los Angeles Basin was inhabited by the Gabrielino people. The Gabrielino are characterized as one of the most complex societies in native Southern California, second perhaps only to the Chumash, their coastal neighbors to the northwest. This complexity derives from their overall economic, ritual, and social organization (Bean and Smith 1978, Heizer 1978, Kroeber 1925). The Gabrielino, a Uto-Aztecan (or Shoshonean) group, may have entered the Los Angeles Basin as recently as 1500 B.P. Two theories prevail: perhaps they arrived from the southern Great Basin or interior California deserts, or that the Gabrielino peoples migrated into the Los Angeles region in successive waves over a lengthy period of time beginning as early as 4000 B.P. (Kroeber 1925).

In early protohistoric times, the Gabrielino reportedly occupied a large territory including the entire Los Angeles Basin. This region encompasses the coast from Malibu to Aliso Creek, parts of the Santa Monica Mountains, the San Fernando Valley, and the San Gabriel Valley and Mountains. They also occupied the islands of Santa Catalina, San Clemente, and San Nicolas. Within this large territory were more than 50 residential communities with populations ranging from 50 to 150 individuals. From this broad and diverse resource base, the Gabrielino developed an effective subsistence technology, a well-developed trade network, and a ritual system, and was among the most materially wealthy and culturally sophisticated cultural native groups in California at the time of contact organization (Bean and Smith 1978, Heizer 1978, Kroeber 1925).

History

Although Juan Rodriguez Cabrillo first discovered San Pedro Bay on October 8, 1542, it would be the landing of 1734 by Cabrera Buena that would give the bay its current name (Queenan 1986). Following a positive report from Buena, Spanish leaders eventually determined that development of Alta California was in their best interest. With Gaspar de Portolá leading the way, Father Junipero Serra established several missions during the exploration period including Mission San Diego de Alcala in 1769, Mission San Gabriel in 1771, and Mission San Juan Capistrano in 1776. These missions required a location from which they could receive goods from Spanish ships to supplement mission-produced products, and San Pedro Bay provided a safe harbor. Both the mission at San Gabriel and San Juan Capistrano utilized San Pedro Bay for trading (Queenan 1986).

In 1784, Manuel Perez Nieto, a veteran of the Portolá expedition, was granted a 300,000-acre section of land that includes what is now the City, including POLB. Following the death of Nieto in 1804, his son Juan José subdivided the land into five ranchos. In 1843, John Temple purchased Rancho Los Cerritos with several miles of its border along San Pedro Bay. Five years later, Temple, together with his partner Juan Alexander, purchased additional waterfront property from the Rancho Los Palos Verdes located on the west portion of the bay. This was the location of Alexander’s first general store and shipping company. As the transportation of passengers increased, Diego Sepulveda, an alcalde of the Pueblo of Los Angeles established a landing, wharf, storehouse, and passenger house on San Pedro Bay (Queenan 1986).

Phineas Banning, arriving around 1848 purchased Temple’s share of his shipping company. Banning immediately set out to enlarge the existing business. Banning relocated the business to another area on the bay. This portion of the San Pedro Bay was mostly mud but Banning drained the area and developed the land, naming the site after his home town of Wilmington, Delaware. Banning constructed flat-bottomed barges and shallow-draft steamers to overcome the shallow water that lay at his wharf. His ingenuity and improvements made Wilmington the busiest wharf on San Pedro Bay (Queenan 1986).

Elected state senator in 1865, Banning began pushing improvements for both Southern California and Wilmington. Los Angeles bonds financed the Los Angeles and San Pedro Railroad, completed in 1869. Three years later, the Southern Pacific Railroad purchased the line connecting it to their network of statewide lines and the transcontinental railroad. This rail line was vital to the development of local communities. For several decades, lumber would dominate the harbor’s commerce. Following the dredging of the San Pedro Bay channel in 1881, the Southern Pacific extended the Los Angeles and San Pedro line from Wilmington to San Pedro.

In 1884, Long Beach, named after the town’s 6-mile stretch of beach, received its first wharf. During that same year, a general merchandise store with a post office and the Long Beach Hotel were constructed. Over the next 3 years, the local population increased to 800. In 1888, the City voted to incorporate, only to reverse the decision in 1896 over liquor issues. As city services began to break down, the town voted to re-incorporate in 1897, the year that Congress approved the funding to build a breakwater in San Pedro Bay. The much-needed breakwater would not be completed until 1911.

During the construction of the breakwater, visions of a port on Long Beach surfaced in local newspapers. Funds appropriated in 1903 to deepen the harbor in Wilmington gained the interest of investors. Formed for the development of the harbor, the Long Beach Land and Navigation Company purchased 800 acres west of Long Beach with the intent of creating a shipping canal from the Cerritos Slough. In 1906, the Los Angeles Dock and Terminal Company purchased this land at the mouth of the Los Angeles River and dredged out three channels for dockage. The new development led to the relocation of the Craig Shipbuilding Company, which brought new enthusiasm to the Port project. In September 1909, the City passed a bond to purchase frontage on Channel Three (Queenan 1986). This purchase and subsequent development made the City see the benefits of operating a port. As commercial development increased on the Port, so grew the City. The population increased dramatically from 12,000 residents in 1905 to 40,000 in 1914 (Sanborn Map and Publishing Company 1905, 1914).

Officially founded on June 24, 1911, with a grant of trust from the State of California over the tidelands, the POLB received its first official cargo on Pier 1 from the *Steam Ship Iaqua*. Within the next year, passenger steamship service was established, and development projects continued to move forward (Queenan 1986). Several large industries moved into the Port during the first 5 years after opening, including the SCE Company's Long Beach Steam Plant, the Western Hardwood Lumber Company yards, the Long Beach Salt Company plant, American Potash plant, and a large fish canning plant. Other plants located nearby include the California Woolen Manufacture Company, Star Drilling Machine Company, and the California Glass Insulator Company (Sanborn Map and Publishing Company 1914). All of the commercial business increased ship activity at the new port, forcing the City to take on additional improvements.

The Los Angeles Dock and Terminal Company had problems with sand and silt continuously being deposited from the Los Angeles River into the port channels and restricting ship movement. Constant dredging of the channels was necessary, consuming time and financial resources. As a result, in 1916, the City took over the dredging projects and acquired the deeds to the channels and nearby land from the bankrupted Dock and Terminal Company (Queenan 1986). In 1917, the Los Angeles County Flood Control District was created to construct a silt diversion channel for the Los Angeles River that diverted floodwater filled with sand and silt into the ocean. These efforts assisted the Port in achieving "deep-water" status in 1926.

In 1924, a $5 million bond was approved to build a breakwater and other improvements intended to protect the harbor. Four years later, another bond measure passed to construct additional piers, wharves, and facilities, including Piers A and B in the Outer Harbor, and to reconstruct the older Municipal Wharf. In addition to the pier project, the City built a municipal rail line that connected to both the UPRR and the Pacific Electric Railroad, improving the movement of cargo around the Port (POLB 1981). While these much-needed improvements did result in unprecedented traffic, revenue to the Port could not be sustained. The Great Depression would keep the Port from realizing this traffic volume again until 1938.

In 1936, the General Petroleum Corporation discovered oil in the Long Beach Harbor. This event led to the hiring of the Westgate-Greenland Oil Company by the Long Beach Harbor Department to explore the harbor for oil. The first oil well, brought in on March 8, 1938, prompted the City to create a Petroleum Division, which contracted with the Long Beach Oil District Company. Some 126 wells were operating within the tidelands in the next five years. Revenue generated from the oil allowed the Port to pursue several important projects, including the construction of the first transit shed at Pier A, the hydraulic dredging of the Inner Harbor creating a nine-block landmass south of Seaside Boulevard that would become the Terminal Island Naval Base, and construction of a POLB Administration Building at the foot of Pier C in the then-popular Mission Style (POLB 1981).

In 1940, the U.S. Navy took control of 104 acres on the east side of Terminal Island and constructed "Victory Pier" along the southern end of Pier A (later renamed Pier F). The Navy had docked ships at the Long Beach Harbor since 1919, but did not officially open a base until 1942

(Queenan 1986). During World War II, all nonmilitary construction halted, giving the Navy full access to the Port. As the 1940s came to a close, the Port completed the expansion of Pier B and the addition of the new Pier C (POLB 1981). At the start of 1950, Piers A, B, and C made up the Outer Harbor.

While the City and harbor reaped the financial benefit of oil extraction, the grounds surrounding the harbor paid the consequences. In 1945, a U.S. Coast and Geodetic Survey reported that the ground had subsided 4.2 feet at the east end of Terminal Island. Further investigation revealed that other areas along the Long Beach waterfront had also subsided several feet. Subsidence damaged the Terminal Island Bridge, the Naval Shipyard, and buildings at the Craig Shipyard. In order to combat this problem, the Port began Operation Big Squirt in 1953. Following the successful testing of injecting saltwater into the areas depleted of oil, repressurization efforts intensified in 1958, reaching over 1 million barrels of water injected each day into the voids by 1960. That same year, the BHC reported in *Harbor Highlights* that subsidence had halted and several areas had now stabilized (POLB 1960).

While efforts to correct the subsidence issue were a priority, the compensation measures spurred new construction. The Port replaced old wooden wharves with new reinforced concrete facilities that were elevated to avoid future subsidence. Eight additional clear-span transit sheds were built, also of reinforced concrete, to create a fireproof environment attractive to the shipping industry. The expansion program developed and approved by the Harbor Commission in 1957 proposed the creation of four new piers off the southern end of Pier A. The plan, envisioning a build-out over the next 20 years, would add 41 berths to the existing 30. Following the approval of the new plan, the Port began dredging the existing Pier E (as the site for the new Richfield crude petroleum terminal) and used the fill to partially create the new landmass needed for Piers F and G (POLB 1957). It was during this build-out phase that the need for a new administration building was fully realized.

In September 1956, the Harbor Commission chose Friend and Dedrick to jointly design a new building. A preliminary design was approved in July 1957 that included a round reflecting pool in front of a mural that told the history of the harbor. By the time that specifications were issued in February 1958, the pool had been reduced to a curved reflecting pool that matched the dimensions of the mural. Once the contract was awarded in March, construction of the new administration building began in June 1958. The street that it faces was renamed Harbor Plaza in August 1959 (BHC 1959).

The construction of Piers F and G begun in 1958 as part of this building phase was completed one year after the administration building (in 1961). This initial expansion beyond the original Outer Harbor area changed the map for the POLB; truly it had emerged as the “World’s Most Modern Port.” The old Outer Harbor, consisting of Piers A, B, C, D, and E, became the Middle Harbor and the new Outer Harbor consisted of Piers F and G. The new transportation mode of “containerization” reached the Port in 1962. Cargo shipped in these large metal containers revolutionized the Port’s operation capacity by increasing available storage space (the containers could be stacked) and improving cargo movement out of the Port (with the ease of loading trucks and trains). Combined with the opening of Highway 710 in 1958, traffic moved efficiently in and out of the Port (POLB 1958). This new shipping tool urged the Port to begin construction of the new Pier J and the extension of Pier F in 1962. Completed in 1965, the new and expanded piers created over 300 acres of much-needed space for container unloading and storage. Pier J was expanded again in 1971 and 1975 to accommodate a container and an automobile shipping terminal (POLB 1981).

From the 1980s to the present, POLB has been improving its infrastructure and technology to expand containerization facilities. Containerization lead to intermodalism, the movement of cargo on a single bill of lading. Intermodalism allows for one transportation entity to manage the entire move, from a factory in Asia to a warehouse anywhere in the U.S. This has simplified trade tremendously, making it more efficient and requiring less labor. Due to intermodalism, during the 1990s and 2000s POLB was able to double its cargo volume each decade.

3.4.1.3 Cultural Resource Setting (Historical and Archaeological)

A California Historical Resources Information Center literature review and records search was conducted by the South Central Coastal Information Center, housed at the California State University, Fullerton on July 25, 2018. The search radius included the entire Harbor District. The objective of this records search was to determine whether any prehistoric or historical cultural resources have been recorded previously within the Port. A review was also completed of the California Points of Interest, the California Shipwreck Database, the California State Historical Landmarks, CRHR, the National Register of Historic Places (NRHP), and the City of Long Beach Register of Historic Landmarks (LBRHL) (LBMC, Title 2, Chapter 2.63.050, Criteria for Designation of Landmarks and Landmark Districts). Additionally, cultural resource reports on file with the Port were reviewed. The studies included several historical assessments, such as those on the POLB Administration Building and POLB Smokehouses.

Based on the above review, Table 3.4-1 lists the various historic architectural resources over 50 years of age recorded within the Harbor District that were previously determined eligible for listing or have been listed in the federal, state, and/or local registers.

TABLE 3.4-1. ELIGIBLE HISTORICAL RESOURCES IN THE HARBOR DISTRICT

Register	Name/Description	Proposed[1] Planning District
CRHR, NRHP	Long Beach Generating Station	3
CRHR, NRHP	SCE's Long Beach-Laguna Bell 60kV and 220 kV Transmission Lines	3
CRHR, NRHP	POLB Administration Building[2]	5
CRHR, NRHP	Royal Mail Ship *Queen Mary*	7

Key: CEQA = California Environmental Quality Act; CRHR = California Register of Historical Resources; kV = kilovolt; NRHP = National Register of Historic Places; POLB = Port of Long Beach; SCE = Southern California Edison
Note:
[1] These are noted from the new planning districts proposed under the Proposed Plan
[2] Demolition of the POLB Administration Building has been mitigated under a separate CEQA document.

Additionally, an intensive survey of unevaluated historical resources 50 years or older on Pier F in the Harbor District was conducted on January 30, 2019, by architectural historians who meet the U.S. Secretary of the Interior's Professional Qualifications Standards. The resources were selected based on historical aerials provided by POLB and through consultation with POLB. The historical significance and integrity of four unevaluated properties were assessed to determine each property's eligibility for listing in the CRHR and in the LBRHL (Table 3.4-2).

Significance is based on how well the resource represents one or more of the themes discussed in the historic context and its association with important historic events or people, as well as its inherent architectural and engineering qualities and potential to yield information important about the past. Moreover, in order to be considered representative of a particular historic theme, a resource not only had to possess significant associations but also retain integrity, meaning it had to possess the ability to convey its significance. The seven aspects of integrity are location, setting, feeling, association, workmanship, materials, and design. Based on this evaluation, the two properties recommended as eligible for listing in the CRHR and the LBRHL are the Koch Carbon Bulk Terminal (Koppel Grain Terminal) at Berth F211, and the Transit Shed at Berths F206–F207 (please refer to the Historical Resources Evaluation Report in Appendix F, Historic Resources Data).

TABLE 3.4-2. HISTORICAL RESOURCES EVALUATED IN THE HARBOR DISTRICT

Resource Name	Resource Type	Age	Address	Proposed Planning District	California Register of Historical Resources	Long Beach Register of Historic Landmarks
Koch Carbon Bulk Terminal (Koppel Grain Terminal)	Structure	1961–1964	1020 Pier F Avenue Berth F211	5	Eligible for Listing	Eligible for Listing
Transit Shed Berths F206–F207	Structure	1963	1480 Pier F Avenue Berths F203–F205	5	Eligible for Listing	Eligible for Listing
Jacobson Pilot Services, Inc. Pilot Station	Building	1968	1259 Pier F Avenue Berth F202	5	Not Eligible for Listing	Not Eligible for Listing
Warehouse Berths F204–F205	Structure	1966	1480 Pier F Avenue Berths F206–F207	5	Not Eligible for Listing	Not Eligible for Listing

A separate windshield survey, conducted on March 28, 2019, identified potential historic resources on the Navy Mole, the artificial peninsula that juts in front of the former Long Beach Naval Shipyard located at Pier T. These potential historical resources, which require additional analysis to determine their eligibility, consist of extant circa 1940s U.S. Naval built-environment properties in use by the U.S. Department of Transportation (USDOT) Maritime Administration and Sea Launch Co. Additionally, three potentially historic resources on Pier B, two potentially historic resources on Pier D, and one potentially historic resource on Pier S were identified. These resources are summarized in Table 3.4-3. This windshield survey was based on a review of historical aerials and selection of building/structures that potentially were over 50 years of age. While visited, these resources were not fully recorded during the brief site visits. Therefore, an intensive survey and formal evaluation will be needed under CEQA to determine eligibility for the CRHR and the LBRHL if a project that has the potential to affect the structure is considered in the future. The March 2019 windshield survey did not include structures on Pier H because there were no extant built-environment resources that appeared to date over 50 years, the age threshold for listing on the CRHR. The federal breakwater located in the Outer Harbor is over 50 years old and is a potentially eligible historic resource. As built-environment infrastructure, buildings, and structures reach 50 years of age within each planning district, they would require additional evaluation under CEQA to determine their eligibility for the CRHR.

There are no previously documented cultural resources within the planning districts currently listed in the LBRHL.

TABLE 3.4-3. POTENTIALLY ELIGIBLE HISTORICAL RESOURCES IN THE HARBOR DISTRICT

Property	Proposed Planning District	Resource Type	Potential Age	Address
Crescent Warehouse Company, Ltd.	2	Building	circa 1951	Pier D, Berth D50 Long Beach, CA 90802
Foss Maritime Company, LLC	2	Building	circa 1955	Pier D, Berths D48–D50
Georgia-Pacific Gypsum, LLC	2	Building(s)	circa 1940s	Pier D, Berths D45–D47
Tesoro Logistics Operations, LLC	2	Building(s) Structure(s)	circa 1920s–1950s	1350 Pier B Street Long Beach, CA 90813
National Gypsum Company, Inc.	2	Building(s) Structure(s)	circa 1965	Pier B, Berth B82
Nielsen-Beaumont	3	Building(s) Structure(s)	circa 1940s	100 Berth Street Long Beach, CA 90802
U.S. Department of Transportation Maritime Administration	4	Former Military Building(s) Structure(s)	circa 1940s	Nimitz Road, near Pier 15
Sea Launch Co.	4	Former Military Building(s) Structure(s)	Constructed circa 1940s; some modification in past 20 years	2700 Nimitz Road Long Beach, CA 90802

Additionally, no prehistoric or historic-period archaeological resources were identified in the California Historical Resources Information Center within the planning districts. However, shipwrecks have been identified within and in the vicinity of POLB. The CSLC maintains a database for shipwrecks. Per the CSLC, any shipwreck submerged more than 50 years is presumed to be of archaeological or historical significance and is protected under state law. The map of *California Shipwrecks,* as maintained by the CSLC, identifies seven shipwrecks within the Harbor District. The identity and general locations of shipwrecks within the Harbor District are summarized in Table 3.4-4. None of the shipwrecks in the vicinity of POLB have been previously documented. For wrecks of an unknown date, additional research would be needed to determine if they are potentially eligible for the NRHP, CRHR, or LBRHL.

TABLE 3.4-4. SHIPWRECKS IN THE POLB VICINITY

Ship Name	Planning District[1]/Location	Construction Year	Year Sunk
Tug Boat	3	Unknown	Unknown
Monterey	4	1878	1935
Lilly (Schooner)	5	1882	1935
Pierpoint Queen	5	Unknown	1951
Cabin Cruiser	6	Unknown	Unknown
Oregon Trader (Barge)	7	Unknown	1949
Eagle (Gas Screw)	7	1927	1937
Annie M. Rolph (Bark)	Off Long Beach – official location unknown	1918	1942

TABLE 3.4-4. SHIPWRECKS IN THE POLB VICINITY

Ship Name	Planning District[1]/Location	Construction Year	Year Sunk
Casino (Barkentine)	Off Long Beach breakwater – official location unknown	1901	1935
Centennial (Barge)	At Long Beach – location unknown	Unknown	1930
Indiana (Ship)	At Long Beach – official location unknown	1876	1936
Irene (Schooner)	At Long Beach – official location unknown	1900	1929
John H. Marion	Off Long Beach – official location unknown	Unknown	1946
Pirate Galleon (Ship)	Off Long Beach – official location unknown	1875	1930
Pliny (Steamship)	At Long Beach – official location unknown	Unknown	1882
R C Co #6 (Barge)	At Long Beach – official location unknown	1934	1943
Unknown	At Long Beach – official location unknown	Unknown	Unknown

Note:
[1] These are new planning districts proposed under the Proposed Plan.

3.4.1.4 Tribal Cultural Resources Setting (including Native American Human Remains)

No known tribal cultural resources or Native American human remains have been identified within the Harbor District.

The POLB has been consulting with local tribes on the PEIR since July 2018. In accordance with AB 52 requirements, the Port notified the Cultural Resources Director of the Soboba Band of Luiseño Indians of the Project on July 25, 2018, asking them to request consultation within 30 days. No response was received from the Soboba Band of Luiseño Indians.

As part of the PEIR scoping process, the NOP was distributed on August 17, 2018 to the NAHC and the Gabrielino Band of Mission Indians-Kizh Nation; Gabrielino/Tongva San Gabriel Band of Mission Indians; Gabrielino-Tongva Tribe; Gabrielino Tongva Indians of California Tribal Council; and the Gabrielino/Tongva Nation. A scoping comment letter was received on August 31, 2018 from the NAHC, which provided requirements for tribal consultation under AB 52 and Senate Bill (SB) 18. A scoping comment letter was also received from the Gabrielino Band of Mission Indians-Kizh Nation who requested tribal monitoring during any and all ground disturbances.

On May 2, 2019, in accordance with both AB 52 and SB 18, the Port sent letters via regular mail and email to the five tribes that were identified on NAHC's Los Angeles County tribal consultation list notifying them of the decision to undertake a project and the opportunity for consultation under AB 52 and SB 18. These five tribes included the Gabrielino Band of Mission Indians-Kizh Nation; Gabrielino/Tongva San Gabriel Band of Mission Indians; Gabrielino-Tongva Tribe; Gabrielino Tongva Indians of California Tribal Council; and the Gabrielino/Tongva Nation. No requests for consultation under AB 52 or SB 18 have been received as of August 2, 2019.

3.4.2 Regulatory Setting

The following federal, state, and local regulations apply to cultural, historical, and/or tribal resources.

3.4.2.1 Federal Regulations

Archaeological and Historic Architectural Resources

The National Historic Preservation Act (NHPA) establishes national policy for protecting significant cultural resources that are defined as "historic properties" under 36 CFR Section 60.4. The implementing regulations of the NHPA, known as Section 106 (36 CFR Section 800), require federal agencies to consider and evaluate the effect that federal projects may have on historic properties under their jurisdiction. Only historic properties are potentially subject to adverse effects under a federal undertaking. Archaeological sites and historic structures that are not historic properties are categorically considered not significant.

Historic Property Eligibility Criteria

The federal significance of an archaeological site or an architectural resource is defined in the NHPA implementing regulations (36 CFR Section 60.4). These criteria state that a resource must be at least 50 years old and provide as follows:

- The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:
    - Are associated with events that have made a significant contribution to the broad patterns of history;
    - Are associated with the lives of persons significant in the past;
    - Embody the distinctive characteristics of a type, period, or method of construction; represent the work of a master; possess high artistic values; or represent a significant and distinguishable entity whose components may lack individual distinction; or
    - Have yielded, or may be likely to yield, information important in prehistory or history.

If a particular resource meets at least one of these criteria and possesses integrity, it can be considered to be an eligible "historic property" for NRHP listing. Resources listed or determined eligible for listing in the NRHP are automatically listed in the CRHR in accordance with PRC Section 5020.1(p).

Tribal Cultural Resources

Prehistoric archaeological sites, artifacts, and human remains are considered important components of contemporary Native American heritage. The following three federal statutes apply:

- The Archaeological Resources Protection Act of 1979 (ARPA) describes the requirements that must be met before federal authorities can issue a permit to excavate or remove any archaeological resource on federal or Native American lands. Requirements for curation of artifacts, other materials excavated or removed, and the records related to the artifacts and materials are described. ARPA provides detailed descriptions of prohibited activities, including damage, defacement, and unpermitted excavation or removal of cultural resources on federal lands. Selling, purchasing, and other trafficking activities of cultural resources either within the U.S. or internationally are prohibited. ARPA also identifies stiff penalties that can be levied against convicted violators.

- The American Indian Religious Freedom Act of 1978 (42 U.S.C. Sections 1996–1996a) requires that locations identified as central to Native American religious practice be protected.
- The Native American Graves Protection and Repatriation Act of 1990 (25 U.S.C. Sections 3001–3013) requires that prehistoric human remains and burial-related artifacts of individuals recovered during ground disturbances be provided to those contemporary Native Americans who are recognized as descendants.

Paleontological Resources

The Paleontological Resources Protection Act of 2009 requires the Secretaries of the Interior and Agriculture to manage and protect paleontological resources on federal land using scientific principles and expertise. The Paleontological Resources Protection Act includes specific provisions addressing management of these resources by the BLM, NPS, Bureau of Reclamation, USFWS, and U.S. Forest Service of the Department of Agriculture.

3.4.2.2 State Regulations

California Environmental Quality Act – Historical Resources

CEQA Guidelines provide the basis for determining the significance of historical and tribal cultural resources, assessing impacts on significant resources and mitigating such impacts to a less-than-significant level, where feasible.

Section 15064.5(a)(3) of the CEQA Guidelines states that a resource shall be considered by the lead agency to be “historically significant” if the resource meets the criteria for listing on the CRHR (PRC Section 5024.1, Title 14 CCR, Section 4852). Criteria of eligibility for the CRHR include the following:

- Is associated with events that have made a significant contribution to the broad patterns of California’s history and cultural heritage;
- Is associated with the lives of persons important in our past;
- Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
- Has yielded, or may be likely to yield, information important in prehistory or history.

Cultural resources meeting one or more of these criteria are defined as “historical resources” under CEQA. Included in the definition of historical resources are prehistoric archaeological sites, historic archaeological sites, historic buildings and structures, traditional cultural properties important to a tribe or other ethnic group, cultural districts and landscapes, and a variety of other property types.

According to the CEQA Guidelines, a resource generally shall be considered “historically significant” if the resource meets the criteria for listing on the CRHR. The fact that a resource is not listed in, or determined to be eligible for, listing in the CRHR, not included in a local register of historical resources (pursuant to PRC Section 5020.1(k)), or identified in a historical resources survey (meeting the criteria in PRC Section 5024.1(g)) does not preclude a lead agency from determining that the resource may be a historical resource as defined in PRC Sections 5020.1(j) or 5024.1. Under CEQA, an impact on a historical resource is considered significant if the impact lessens the integrity of the qualities of the resource that qualify it for the CRHR. If the proposed project may cause damage to a significant historical resource, the project may have a significant effect on the environment.

California Senate Bill 18

Signed into law in September 2004, SB 18 requires local governments (cities and counties) to consult with California Native American tribes to aid in the protection of traditional tribal cultural places ("cultural places") during local land use planning. The requirements of SB 18 are separate from the CEQA process. SB 18 requires local governments to contact, provide notice to, refer plans to, and consult with tribes prior to the adoption or amendment of a general plan or a specific plan, or the designation of open space. (Government Code Section 65352.3). SB 18 also requires the Governor's Office of Planning and Research (OPR) to include in the *General Plan Guidelines* advice to local governments for how to conduct these consultations.

The intent of SB 18 is to provide California Native American tribes an opportunity to participate in local land use decisions at an early planning stage, for the purpose of protecting, or mitigating impacts on, cultural places. The purpose of involving tribes at these early planning stages is to allow consideration of cultural places in the context of broad local land use policy, before· individual site-specific, project-level land use decisions are made by a local government. SB 18 requires local governments to consult with tribes prior to making certain planning decisions and to provide notice to tribes at certain key points in the planning process. These consultation and notice requirements apply to adoption and amendment of both general plans (defined in Government Code Section 65300 et seq.) and specific plans (defined in Government Code Section 65450 et seq.). Although SB 18 does not specifically mention consultation or notice requirements for adoption or amendment of specific plans, existing state planning law requires local governments to use the same processes for adoption and amendment of specific plans as for general plans (see Government Code Section 65453). Therefore, where SB 18 requires consultation and/or notice for a general plan adoption or amendment, the requirement extends also to a specific plan adoption or amendment. Because the Proposed Plan is largely a planning document SB 18 applies.

California Assembly Bill 52

Signed into law in September 2014, AB 52 created a new class of resources—tribal cultural resources—for consideration under CEQA. Tribal cultural resources may include sites, features, places, cultural landscapes, sacred places, or objects with cultural value to a California Native American tribe. AB 52 requires that the lead agency consult in good faith with California Native American tribes requesting consultation regarding projects that may affect tribal cultural resources. Under AB 52, a project that has potential to impact a tribal cultural resource such that it would cause a substantial adverse change constitutes a significant effect on the environment unless mitigation reduces such effects to a less than significant level.

California Environmental Quality Act – Tribal Cultural Resources

CEQA also requires lead agencies to consider project impact to tribal cultural resources. PRC Section 21074 states the following:

a) "Tribal cultural resources" are either of the following:

1) Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either of the following:

A) Included or determined to be eligible for inclusion in the CRHR; or

B) Included in a local register of historical resources as defined in subdivision (k) of Section 5020.1.

2) A resource determined by the lead agency, at its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Section 5024.1. For the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.

b) A cultural landscape that meets the criteria of subdivision (a) is a tribal cultural resource to the extent that the landscape is geographically defined in terms of the size and scope of the landscape.

c) A historical resource described in Section 21084.1, a unique archaeological resource as defined in subdivision (g) of Section 21083.2, or a "nonunique archaeological resource" as defined in subdivision (h) of Section 21083.2 may also be a tribal cultural resource if it conforms to the criteria of subdivision (a).

d) In 2014, CEQA was amended with the passage of AB 52. AB 52 created a separate category of "tribal cultural resources" that must now be considered when proposing a project. A project that has the potential to effect or cause a substantial adverse change in the significance of a tribal cultural resource may be a project that results in a significant effect on the environment. Therefore, public agencies "shall, when feasible, avoid damaging effects to any tribal cultural resource" (PRC Section 21084.3 (a)).

California Coastal Act

Policy 30244 of the CCA requires the implementation of reasonable mitigation measures where development would adversely impact archaeological or paleontological resources, as identified by State Historic Preservation Officer.

Codes Governing Human Remains

The disposition of human remains is governed by Section 7050.5 of the California Public Health and Safety Code; PRC Sections 5097.94 and 5097.98; and the California Native American Historical, Cultural, and Sacred Sites Act. These legislations place the inadvertent discovery of human remains within the jurisdiction of the NAHC. If human remains are discovered, the county coroner must be notified immediately and there should be no further disturbance to the site where the remains were found. If the remains are determined by the coroner to be Native American, the coroner is responsible for contacting the NAHC within 24 hours. The NAHC, pursuant to Section 5097.98, must immediately notify those persons believes to be the Most Likely Descendants (MLD) from the deceased Native Americans so they can inspect the burial site and make recommendations for treatment or disposal.

3.4.2.3 Local Regulations

In 1978, the City created a Cultural Heritage Committee, which subsequently became the Cultural Heritage Commission, and adopted a Cultural Heritage Commission Ordinance in 1992 as part of the effort to become a Certified Local Government. The Cultural Heritage Ordinance was updated in 2015 and integrates historic preservation into planning procedures. Within its General Plan, the City of Long Beach adopted a Historic Preservation Element in 2010 that provides the framework for a comprehensive preservation program that integrates historic preservation into the City's planning procedures.

LBMC Chapter 2.63 establishes the procedures for the designation of individual landmarks and landmark districts. A cultural resource qualifies for designation as a landmark if it retains integrity and manifests one or more of the following criteria:

a) It is associated with events that have made a significant contribution to the broad patterns of the City's history;

b) It is associated with the lives of persons significant in the City's past;

c) It embodies the distinctive characteristics of a type, period, or method of construction, represents the work of a master, or it possesses high artistic values; or

d) It has yielded, or may be likely to yield, information important in prehistory or history.

A group of cultural resources qualify for designation as a Landmark District if it retains integrity as a whole and meets the following criteria:

a) The grouping represents a significant and distinguishable entity that is significant within a historic context; and/or

b) A minimum of 60 percent of the properties within the boundaries of the proposed Landmark District qualify as a contributing property (Chapter 2.63.050, 2015).

3.4.3 Impacts and Mitigation Measures

CEQA Guidelines states that a resource shall be considered by the lead agency to be "historically significant" if the resource meets the criteria for listing on the CRHR (PRC Section 5024.1, Title 14 CCR, Section 4852). Resources included in a local register of historical resources (pursuant to the PRC Section 5020.1(k)) or identified as significant in a historical resources survey (meeting the criteria in PRC Section 5024.8(g)) also are presumptively considered "historical resources" for the purposes of CEQA.

Under CEQA, if a project may cause a substantial adverse change in the characteristics of a resource that convey its significance or justify its eligibility for inclusion in the CRHR or a local register, either through demolition, destruction, relocation, alteration, or other means, then the project is judged to have a significant effect on the environment (CEQA Guidelines, Section 15064.5(b)). Direct impacts may occur by:

- Physically damaging, destroying, or altering all or part of the resource;
- Altering characteristics of the surrounding environment that contribute to the resource's significance;
- Neglecting the resource to the extent that it deteriorates or is destroyed. Indirect impacts primarily result from the effects of project-induced population growth. Such growth can result in increased construction as well as increased recreational activities that can disturb or destroy cultural resources; or
- The incidental discovery of cultural resources without proper notification.

For cultural resources, impact assessment is based on a comparison of known resource locations with the placement of ground-disturbing activities that have the potential to remove, relocate, damage, or destroy the physical evidence of past cultural activities. If such ground disturbance overlaps recorded site locations, then a direct impact may occur. Historical buildings and structures may be impacted if the nearby setting and context is modified substantially, even if the building or structure itself is not physically affected. Indirect impacts may occur if activities occur near, but not directly on, known cultural resources, or if impacts occur at some time after the project is implemented.

CEQA provides guidelines for mitigating impacts on significant archaeological and historical resources in Section 15126.4. Avoidance is the preferred manner of mitigating impacts. If avoidance cannot be achieved and data recovery excavation is the only feasible mitigation for significant archaeological resources, a data recovery plan must be prepared and adopted prior to any ground disturbance. For historical architectural resources, maintenance, repair, stabilization, restoration, preservation, conservation, or reconstruction in a manner consistent with the Secretary of the Interior's Standards and Guidelines (Grimmer 2017) generally will constitute mitigation of impacts to a less-than-significant level. CEQA also states that "In some circumstances, documentation of an historical resource, by way of historic narrative, photographs or architectural drawings, as mitigation for the effects of demolition of the resource will not mitigate the effects to a point where clearly no significant effect on the environment would occur" (Section 15126.4(b)(2)).

3.4.3.1 Significance Criteria

Criteria for determining the significance of impacts on aesthetics/visual resources are based on the 2019 CEQA Guidelines, Appendix G (Environmental Checklist), and have been modified as necessary to reflect Port operations within a highly urbanized, industrial complex. Impacts during construction or operation would be considered significant if the Proposed Plan would:

- **CR-1:** Cause a substantial adverse change in the significance of a historical resource pursuant to 14 CCR Section 15064.5;
- **CR-2:** Cause a substantial adverse change in the significance of an archaeological resource pursuant to 14 CCR Section 15064.5;
- **CR-3:** Disturb any human remains, including those interred outside of dedicated cemeteries; and/or
- **CR-4:** Cause a substantial adverse change in the significance of a tribal cultural resource as defined in PRC Section 21074.

3.4.3.2 Assessment Methodology

Impacts on cultural resources from the Proposed Plan and alternatives potentially would result from ground-disturbing activities, demolition, material alterations, or operational activities that contain or could contain any cultural resources defined as "historical resources" under CEQA.

Assessment of impacts on cultural resources resulting from the Proposed Plan and construction and operation of the Proposed Plan projects consisted of the following tasks:

- A California Historical Resources Information Center records and literature search within the POLB boundaries;
- A California Shipwreck Database records search within the POLB boundaries;

- Identification of extant previously documented cultural resources within the planning districts;
- Collection and review of previous cultural resource studies within the planning districts;
- Review of PortAtlas historic aerial photographs to identify built environment 50 years or older extant within the planning areas;
- Intensive survey on Pier F to identify and evaluate historical resources (50 years or older);
- Reconnaissance survey to identify potential historical resources (50 years or older) within or in the vicinity of the planning districts;
- Sacred Lands Search with the NAHC; and
- Native American consultation.

3.4.3.3 Proposed Plan

Impact CR-1: Construction and operations would not cause a substantial adverse change in the significance of a historical resource.

<u>Impact Determination</u>

Construction

Construction/development associated with the Pier B Street Support Yard and Pier D Street Realignment projects could disturb, damage, or demolish potentially eligible historical resources identified during the survey (Table 3.4-4). Impacts might include, but are not limited to, demolition, or material alteration, of known historic structures; structural reuse requiring rehabilitation, restoration, reconstruction, and/or additions; or new construction or in-fill that has the potential to change the local landscape by modifying the setting resulting in an impact to nearby significant cultural resources. Potential development impacts might also be associated with changes made to other resources not currently identified that will achieve significance within the next 20 years. These types of impacts could result in a substantial adverse change in the significance of a historical resource.

The Long Beach Generating Station and SCE's Long Beach-Laguna Bell 60 kilovolt (kV) and 220 kV Transmission Lines (Table 3.4-1) on Pier S have been determined eligible for listing in the NRHP and the CRHR (Table 3.4-1). Construction/development associated with the Pier S Mixed Use Development and the Pier S Shoreline Enhancement projects, which are in the general vicinity of the known historic structures, could disturb, damage, or demolish such historical resources as well as an additional potentially historic resource identified during the survey (see Table 3.4-3). Impacts might include, but are not limited to demolition or material alteration of known historic structures; structural reuse requiring rehabilitation, restoration, reconstruction, and/or additions; or new construction or in-fill that has the potential to change the local landscape by modifying the setting or nearby resources. Potential development impacts might also be associated with changes made to other resources not currently identified that will achieve significance within the next 20 years. Project-specific historical assessments would be conducted when project details are finalized to determine if these types of impacts could result in a substantial adverse change in the significance of a historical resource.

Construction/development associated with the Pier T Improvements and Pier W Terminal Development projects could disturb, damage, or demolish potential historical resources identified on the Navy Mole during the survey, which would require further analysis to determine eligibility

(Table 3.4-3). Impacts might include, but are not limited to, demolition, or material alteration, of known historic structures; structural reuse requiring rehabilitation, restoration, reconstruction, and/or additions; or new construction or in-fill that has the potential to change the local landscape by modifying the setting or nearby resources. Potential development impacts might also be associated with other resources not currently identified that will achieve significance within the next 20 years. Project-specific historical assessments would be conducted when project details are finalized to determine if these types of impacts could result in a substantial adverse change in the significance of a historical resource.

The Koch Carbon Bulk Terminal (Koppel Grain Terminal) at Berth F211 and Transit Shed at Berths F206–F207 have been recommended as eligible historical resources (Table 3.4-1 and Table 3.4-2). Construction/development associated with the Pier J Terminal Redevelopment project, such as cutting off the tip of Pier F, and the Protective Boat Basin (Berth F202) project could disturb, damage, or demolish such historical resources. Impacts might include, but are not limited to, demolition, or material alteration, of known historic structures; structural reuse requiring rehabilitation, restoration, reconstruction, and/or additions; or new construction or in-fill that has the potential to change the local landscape by modifying the setting or nearby resources. Potential development impacts might also be associated with changes made to previously unevaluated historical resources or other resources not currently identified that will achieve significance within the next 20 years. Project-specific historical assessments would be conducted when project details are finalized to determine if these types of impacts could result in a substantial adverse change in the significance of a historical resource.

No eligible historical resources occur within the OHSPER site. Further, the OHSPER project would not require construction or ground-disturbing activities. Therefore, the project would not disturb, damage, or degrade known or unknown intact, potentially significant historic built-environment resources.

Operations

Operation of Proposed Plan projects would not result in ground disturbances or structural modifications. Therefore, in the absence of ground disturbances, operations-related impacts on historical resources would not occur.

Operations at the OHSPER site would include placement and retrieval of clean dredged sediments, and placement and covering of contaminated sediments. However, there are no known significant historic built-environment resources within the site. The federal breakwater located in the Outer Harbor near the OHSPER site is over 50 years old and is a potential historical resource. Site operations would comply with the OHSPER OMMP (Appendix C, OHSPER Technical Report) and avoid potential impacts to the federal breakwater. Therefore, project operations would not cause a substantial adverse change to a historical resource.

Mitigation Measures

Construction

The following measures would be implemented as applicable to minimize impacts associated with historical resources within the Harbor District:

CR-1: Historical Resource Assessment. If an assessment prepared as part of the environmental review for a project determines that a historical resource would be impacted, to ensure continuing conformance with the Secretary of Interior's Standards for the Treatment of Historic Properties and/or avoidance of a material impairment of the historical resources within the area of direct and indirect impact, the project proponent shall determine the need to implement measures that could include, but would not be limited to, one or more of the following to further avoid, minimize, or substantially reduce the identified impacts:

- Prior to construction and construction monitoring activities, a preservation architect or architectural historian qualified under the Secretary of the Interior's Professional Qualifications Standards in historic architecture and/or architectural history shall participate in plan review and approval.
- Complete photographic documentation of the historical resource prior to implementation of the project in accordance with the standards and guidelines for Historical American Buildings Survey, Historic American Engineering Record, and Historic American Landscapes Survey documentation, as outlined in the latest guidelines set by the Heritage Documentation Programs instituted by NPS.

Operations

As operations would not cause a substantial adverse change in the significance of a historical resource, no mitigation is required.

Significance of Impact after Mitigation

Construction

For projects involving maintenance, repair, stabilization, rehabilitation, restoration, preservation, conservation, or reconstruction of a significant historical resource conducted in a manner that is consistent with the Secretary of the Interior's Standards for the Treatment of Historic Properties, impacts on the historical resource would be less than significant with implementation of **Mitigation Measure CR-1**.

Operations

Impacts on historical resources during operations would be less than significant.

Impact CR-2: Construction and operations would not cause a substantial adverse change in the significance of an archaeological resource.

Impact Determination

Construction

No known archaeological resources have been identified within the Harbor District. Furthermore, much of the Port has been extensively disturbed during the 20th-century by filling, cutting, and grading associated with the development and maintenance of the Port. Modern soils resulting from fill and channelization are not landforms that existed during Native American occupation of the area, and historic landforms appear to have been greatly modified. Construction of the Proposed Plan projects would not disturb, damage, or degrade known intact, potentially significant archaeological resources. However, unknown and unrecorded archaeological resources could be located within or adjacent to the Harbor District. Several shipwrecks have been identified within the Harbor District and are considered archaeological resources (Table 3.4-4). The shipwrecks have not been documented and exact locations are unknown; therefore, shipwrecks shall be treated as unanticipated archaeological resources. Therefore, any construction/development activities associated with the Proposed Plan projects that entail ground disturbance could disturb, damage, or degrade intact archaeological resources and result in significant impacts.

The OHSPER project would not require construction or ground-disturbing activities. Therefore, the project would not disturb, damage, or degrade known or unknown intact, potentially significant archaeological resources.

Operations

Operation of Proposed Plan projects as detailed in this PEIR, would not result in ground disturbances or structural modifications. Therefore, no operations-related impacts on archaeological resources would occur.

Mitigation Measures

The following measure would be implemented as applicable to minimize impacts associated with archaeological resources during construction within the Harbor District:

CR-2: Unanticipated Archaeological Discoveries. In the event potentially significant archaeological resources are encountered during earthmoving activities, the construction contractor shall cease such activity within 50 feet of the affected area until the discovery can be evaluated by a qualified archaeologist in accordance with the provisions of CEQA Section 15064.5 (c)(f). If the resources are found to be significant, they shall be avoided and/or mitigated consistent with OHP Guidelines. The POLB shall determine the need to implement measures that could include, but are not limited to, one or more of the following to further avoid, minimize, or substantially reduce the identified impacts: 1) subsurface testing after demolition of existing buildings; 2) recovery of archaeological or tribal cultural resources, based on a data recovery treatment plan prepared and approved by the agency before recovery excavations begin; and/or 3) post-construction documentation. For prehistoric archaeological resources, tribes requesting notification will be consulted in accordance with AB 52 and CEQA.

Significance of Impact after Mitigation

Impacts on archaeological resources during construction would be less than significant with implementation of **Mitigation Measure CR-2**.

Impact CR-3: Construction and operations would not disturb any human remains, including those interred outside of dedicated cemeteries.

Impact Determination

Construction

No known human remains have been identified within the Harbor District. When the Proposed Plan projects are defined, POLB, as lead agency, shall notify the tribes who have requested notification and consultation in accordance with AB 52 and CEQA.

Construction of the Proposed Plan projects would not disturb known human remains. However, unknown and unrecorded human remains could be located within or adjacent to the Harbor District. Buried resources, including human remains, could be inadvertently unearthed during ground-disturbing activities associated with the Proposed Plan projects, resulting in a significant impact.

No known human remains have been identified within the OHSPER site. Further, the OHSPER project would not require construction or ground-disturbing activities. Therefore, the project would disturb or damage human remains.

Operations

Operation of Proposed Plan projects, as detailed in this PEIR, would not result in ground disturbances or structural modifications. Therefore, no operations-related impacts on human remains are expected to occur.

Mitigation Measures

The following measure would be implemented as applicable to minimize construction impacts associated with human remains within the Harbor District:

CR-3: Unanticipated Human Remain Discoveries. If human remains are discovered, the Los Angeles County Coroner shall be notified immediately and there shall be no further disturbance to the site where the remains were found. An environmentally sensitive area shall be defined 50 feet surrounding the discovery where no ground disturbance or construction would occur. If the remains are determined by the coroner to be Native American, the coroner would be responsible for contacting the NAHC within 24 hours. The NAHC, pursuant to PRC Section 5097.98, shall immediately notify those persons believed to be the MLD so they can inspect the burial site and make recommendations for treatment or disposal. If the human remains are to be removed, relocated, or reburied, an agreement document, including a treatment plan, shall be developed in consultation with the MLD.

Significance of Impact after Mitigation

Impacts on unknown and unrecorded human remains during construction would be less than significant with implementation of **Mitigation Measure CR-3**.

Impact CR-4: Construction and operations would not cause a substantial adverse change in the significance of a tribal cultural resource.

Impact Determination

Construction

No known tribal cultural resources have been identified within the Harbor District. Construction of the Proposed Plan projects would not disturb known tribal cultural resources. However, unknown and unrecorded tribal cultural resources could be located within or adjacent to the Harbor District. Buried resources, including tribal cultural resources, could be inadvertently unearthed during ground-disturbing activities associated with construction of Proposed Plan projects, resulting in a significant impact.

No known tribal cultural resources have been identified within the OHSPER site. Further, the OHSPER project would not require construction or ground-disturbing activities. Therefore, the project would not disturb, damage, or degrade known or unknown intact, potentially significant tribal cultural resources.

Operations

Operation of Proposed Plan projects, as detailed this PEIR, would not result in ground disturbances or structural modifications. Therefore, no operations-related impacts on tribal cultural resources are expected to occur.

Mitigation Measures

The following measures would be implemented as applicable to minimize construction impacts associated with tribal cultural resources within the Harbor District:

Mitigation Measure CR-2 would apply to this impact, as well as **Mitigation Measure CR-4**.

CR-4: Unanticipated Tribal Cultural Resource Discoveries.

In the event potentially significant tribal cultural resources are encountered during earthmoving activities, the construction contractor shall cease such activity within 50 feet of the affected area until the discovery can be evaluated by a qualified archaeologist, Tribal representative, or other specialist as needed in accordance with the provisions of CEQA Section 15064.5 (c)(f). If the resources are found to be significant, they shall be avoided or shall be mitigated consistent with OHP Guidelines, as described further under **Mitigation Measure CR-2**.

Significance of Impact after Mitigation

Impacts on tribal cultural resources would be less than significant with implementation of **Mitigation Measures CR-2 and CR-4**.

3.4.3.4 Alternative 1 (No Plan Alternative)

Alternative 1 (No Plan Alternative) considers what would reasonably occur if the Port did not update the PMP to include updates to the planning districts and allowable land and water use designations within the Harbor District. Alternative 1 includes projects that are 1) consistent with the 1990 PMP as amended, 2) may or may not have been evaluated in a final CEQA document, and/or 3) could be implemented without approval of the Proposed Plan. Alternative 1 includes the following projects: Administrative Building Site Support Yard (Expansion), Fourth Track at Ocean Boulevard, Ocean Boulevard Bicycle Gap Closure, Pier B Street Support Yard, Pier D Street Realignment, Pier S Mixed Use Development, and Pier S Shoreline Enhancement. This alternative also includes the Pier T Echo Support Yard project, which would construct a 17-acre support yard (chassis, empties, or peel-off) that would serve the Pier T container terminal. In addition, use of the WASSS would continue as currently permitted (i.e., placement and reuse of clean sediments).

Impact Determination

Alternative 1 (No Plan Alternative) is similar to the Proposed Plan in that seven of eight proposed projects in Alternative 1 are also in the Proposed Plan (12 projects). However, this alternative would have less of an impact than the Proposed Plan as it includes four less projects and does not include container terminal development projects. This alternative considers what would reasonably occur if the Port did not update the PMP, and; therefore, all eight projects in the plan are consistent with the 1990 PMP as amended, may or may not have been evaluated in a final CEQA document, and/or could be implemented without approval of the Proposed Plan. This alternative is also less likely to pose an increased potential to significantly impact historical resources than Alternative 2 (No Terminal Development) or Alternative 3 (Reduced Terminal Development), that each include one and three more projects, respectively.

The Long Beach Generating Station and SCE's Long Beach-Laguna Bell 60 kV and 220 kV Transmission Lines have been determined eligible for listing in the NRHP and the CRHR (Table 3.4-1). Construction/development associated with the projects in this plan, like the Proposed Plan, could disturb, damage, or demolish these historical resources as well as an additional potentially historic resource identified during the survey (see Table 3.4-3). Impacts might include, but are not limited to, demolition or material alteration of known historic structures; structural reuse requiring rehabilitation, restoration, reconstruction, and/or additions; or new construction or in-fill that has the potential to change the local landscape by modifying the setting or nearby resources. Potential development impacts might also be associated with changes made to other resources not currently identified that will achieve significance within the next 20 years. These types of impacts could result in a substantial adverse change in the significance of a historical resource.

Under this alternative, construction and operational impacts on prehistoric archaeological sites, historic archaeological sites, historic buildings and structures, tribal cultural resources, traditional cultural properties important to a tribe or other ethnic group, cultural districts and landscapes, and a variety of other property types would be less than those described under Impacts CR-1 through CR-4 for the Proposed Plan. This result is because this alternative, unlike the Proposed Plan, does not include construction and the operational activity levels of the Pier W Terminal Development, the Protective Boat Basin (Berth F202), and the Pier J Terminal Redevelopment. The Protective Boat Basin (Berth F202) and Pier J Terminal Redevelopment projects have the potential to significantly impact two recommended eligible historical resources. The Pier W Terminal Development has the potential to significantly impact two potentially eligible historical resources identified during the survey, including a potential historical resource on the Pier T Navy Mole. Determination of eligibility would require additional analysis.

Accordingly, for projects involving maintenance, repair, stabilization, rehabilitation, restoration, preservation, conservation, or reconstruction of a historical resource conducted in a manner that is consistent with the Secretary of the Interior’s Standards for the Treatment of Historic Properties, impacts on the historical resource would be less than significant with implementation of **Mitigation Measure CR-1**.

3.4.3.5 Alternative 2 (No Terminal Development)

Alternative 2 (No Terminal Development) similar to the Proposed Plan and would include updates to the planning districts and allowable land and water use designations in the Harbor District. However, Alternative 2 would not include terminal development projects at Pier T, Pier W, or Pier J. Alternative 2 would include the following projects: Administrative Building Site Support Yard (Expansion), Protective Boat Basin (Berth F202), OHSPER, Fourth Track at Ocean Boulevard, Ocean Boulevard Bicycle Gap Closure, Pier B Street Support Yard, Pier D Street Realignment, Pier T Echo Support Yard, Pier S Mixed Use Development, and Pier S Shoreline Enhancement.

Impact Determination

Alternative 2 (No Terminal Development) is similar to, but would have less of an impact compared to the Proposed Plan. All nine of the proposed projects in this alternative are also in the Proposed Plan, which has an additional three projects that could cause impacts on historical resources. Seven of the nine projects included in this alternative are also in Alternative 1 (No Plan). However, while this alternative does not include terminal development or redevelopment, it does include a project, the Protective Boat Basin (Berth F202) that could have a potentially significant impact on two historical resources recommended eligible for listing in the CRHR and NRHP (see Table 3.4-2).

Construction/development associated with the projects in this plan (see Figure 1.8-2), like the Proposed Plan, could disturb, damage, or demolish potentially historic resources identified during the 2019 survey (see Table 3.4-3). Impacts might include, but are not limited to, demolition or material alteration of known historic structures; structural reuse requiring rehabilitation, restoration, reconstruction, and/or additions; or new construction or in-fill that has the potential to change the local landscape by modifying the setting or nearby resources. Potential development impacts might also be associated with changes made to other resources not currently identified that will achieve significance within the next 20 years. These types of impacts could result in a substantial adverse change in the significance of a historical resource.

Under this alternative, construction and operational impacts on prehistoric archaeological sites, historic archaeological sites, historic buildings and structures, tribal cultural resources, traditional cultural properties important to a tribe or other ethnic group, cultural districts and landscapes, and a variety of other property types would be slightly less than those described under Impacts CR-1 through CR-4 for the Proposed Plan. This result is because this alternative does not include construction or the operational activity levels of Pier W Terminal Development and Pier J Terminal Redevelopment, which have the potential to significantly impact other potentially historical resources, including one potential historical district (Table 3.4-3). Additionally, it does not include construction and operational activity levels of three other projects that are included in the Proposed Plan.

Accordingly, for projects involving maintenance, repair, stabilization, rehabilitation, restoration, preservation, conservation, or reconstruction of a historical resource conducted in a manner that is consistent with the Secretary of the Interior’s Standards for the Treatment of Historic Properties, impacts on the historical resource would be less than significant with implementation of **Mitigation Measure CR-1**.

3.4.3.6 Alternative 3 (Reduced Terminal Development)

Alternative 3 (Reduced Terminal Development) is similar to the Proposed Plan and would include updates to the planning districts and allowable land and water use designations in the Harbor District. Under Alternative 3, development of the Pier J terminal would be reduced compared to the Pier J Terminal Redevelopment under the Proposed Plan. The Pier J Reduced Development would include dredging and filling the 22-acre triangle, cutting a 9-acre notch, extending the north wharf to the east, and relocating the existing rail line and yard to Pier J south. No development of a new Pier W terminal would occur. Alternative 3 would include the following projects: Administrative Building Site Support Yard (Expansion), Protective Boat Basin (Berth F202), OHSPER, Fourth Track at Ocean Boulevard, Ocean Boulevard Bicycle Gap Closure, Pier B Street Support Yard, Pier D Street Realignment, Pier S Mixed Use Development, Pier S Shoreline Enhancement, Pier T Improvements, and Pier J Reduced Development.

Impact Determination

Alternative 3 (Reduced Terminal Development) is similar to, but would have less of an impact compared to the Proposed Plan. Ten of the proposed projects in this alternative are also in the Proposed Plan, which has an additional project that could cause impacts on historical resources. Additionally, while both the Proposed Plan and this alternative contain development to Pier J, this alternative includes a modified, reduced development plan for this terminal. It also does not include cutting off the tip of Pier F associated with the full Pier J Terminal Redevelopment.

Construction/development associated with the projects in this plan, like the Proposed Plan, could disturb, damage, or demolish these potentially historic resources identified during the 2019 survey. Impacts might include, but are not limited to, demolition or material alteration of known historic structures; structural reuse requiring rehabilitation, restoration, reconstruction, and/or additions; or new construction or in-fill that has the potential to change the local landscape by modifying the setting or nearby resources. Potential development impacts might also be associated with changes made to other resources not currently identified that will achieve significance within the next 20 years. These types of impacts could result in a substantial adverse change in the significance of a historical resource.

Under this alternative, construction and operational impacts on prehistoric archaeological sites, historic archaeological sites, historic buildings and structures, tribal cultural resources, traditional cultural properties important to a tribe or other ethnic group, cultural districts and landscapes, and a variety of other property types would be slightly less than those described under Impacts CR-1 through CR-4 for the Proposed Plan. This result is because this alternative does not include construction and the operational activity levels of Pier W Terminal Development, which has the potential to significantly impact other potentially historical resources, including one potential historical district. Additionally, it includes a reduced development of Pier J.

Accordingly, for projects involving maintenance, repair, stabilization, rehabilitation, restoration, preservation, conservation, or reconstruction of a historical resource conducted in a manner that is consistent with the Secretary of the Interior's Standards for the Treatment of Historic Properties, impacts on the historical resource would be less than significant with implementation of **Mitigation Measure CR-1**.

3.4.4 Cumulative Impacts

The following discussion evaluates whether cultural and tribal cultural resource impacts of the Proposed Plan would be cumulatively significant within the context of impacts caused by other past, present, or reasonably foreseeable future projects in the vicinity of the Harbor District.

3.4.4.1 Geographic Extent/Context

Because the number of cultural and historical resources is finite, limited, and non-renewable, any assessment of cumulative impacts must take into consideration the impacts of the Proposed Plan on the resources within the general region, the extent to which those impacts degrade the integrity of the region's resource base, and impacts other projects may have on the regional resource base. If these impacts, taken together, result in a collective degradation of the resource base, then those impacts would be cumulatively considerable.

For cultural resources, the geographic extent of cumulative impacts encompasses a relatively broad area because the importance of any individual resource can be judged only in terms of its regional context and relationship to other resources of a similar nature. Hence, the significance of impacts on any given resource or group of resources must be examined in light of the integrity of the regional resource base. For the Proposed Plan, that area would include the POLB, Los Angeles Harbor, and the San Pedro Bay. This extensive embayment area is connected by the Cerritos Channel. The regional context also takes into account projects being considered by the City of Long Beach, City of Los Angeles (communities of Wilmington and San Pedro), City of Carson, and agencies active in the regions (California Transportation Department, Los Angeles County Metropolitan Transportation Authority (Metro), Port of Los Angeles, Department of the Navy, Alameda Corridor Transportation Authority, Intermodal Container Transfer Facility (ICTF), SCAQMD, and Joint Power Authority).

3.4.4.2 Existing Cumulative Condition

Cultural and Tribal cultural resources are highly threatened in this region, including those at the Port, due to rapid expansion and development. Currently, only four cultural resources are eligible and/or listed in the NRHP, CRHR, and/or the LBRHL within the Harbor District. Built-environment resources (buildings, structures, and infrastructures) constructed in the Port during the late 1960s are now exceeding 50 years of age, and during the next 20 years, resources constructed during the 1970s and 1980s will become potential historical resources. Some resources that were recorded in the past have been destroyed, so the resource base has already suffered from expansion and technological changes. The local terrain has been extensively modified through grading, dredging, cutting, and filling. Tribal cultural and archaeological resources associated with disturbed areas may have been either destroyed or buried. Nonetheless, some resources potentially remain deeply buried below alluvium or recent fill.

Reasonably Foreseeable Projects

Table 2.1-1 (Related Projects) identifies projects that are either underway, reasonably foreseeable, or are expected to be constructed or operated during the life of the Proposed Plan. The list includes 5 industrial and/or marine projects; 41 residential, commercial, institutional, or recreational projects; and 44 infrastructure projects (bridge replacement, road expansion/ realignment, utility pipelines, etc.).

Of the 90 projects listed in Table 2.1-1, only eight projects were designated by the presenting agency as having possible cultural impacts. It is assumed where *Relevant Potential Cumulative Environmental Factors* have been assigned by the presenting agency that all possible impacts were considered. Those not listing cultural resources as an *Environmental Factor* were dismissed from further consideration. However, the following eight projects are discussed below with regard to potential impacts on cultural resources utilizing available project information.

Southern California Edison Transmission Tower Replacement Project, currently in progress**,** will replace existing power transmission lines crossing the Cerritos Channel within the POLB, including the removal of six historic lattice steel towers. The project area is located within a highly industrialized area of the Port.

The lattice steel towers and the Long Beach Generating Station (P-19-018798) have been determined eligible for listing in the NRHP and CRHR. Their period of significance is 1924 to 1975 encompassing the transmission towers date of replacement in 1928, Plant No. 3 placement into service in 1927, and its continued use through 1975 when it was upgraded. The historical significance of the property rests in its ability to convey steam electric-generating technology during this period.

The SCE Long Beach-Laguna Bell 66 kV and 220 kV Transmission Lines (P-19-192309) would also be impacted. They appear eligible for listing in the NRHP and the CRHR based on a survey completed by SCE in 2016 (Williams 2016).

Impacts on other contemporary industrial resources have the potential to degrade the integrity of these resources and result in cumulative impacts for the context and time that they represent.

Queen Mary Island Project includes a commercial and recreational redevelopment of Queen Mary Island to support the existing historic Queen Mary luxury liner and Carnival Cruise Line. While there are no specific details, the project may include rehabilitation and/or restoration of the NRHP-listed Queen Mary, which could result in significant impacts on this cultural resource unless the Secretary of the Interior's Standards for the Treatment of Historic Properties are met (Grimmer 2017). Additionally, the buildings on the Queen Mary site, which were constructed circa 1969–1973, have not been evaluated as a potential historical resource.

100 East Ocean Boulevard Project includes development of a new hotel with new landscaping, hardscaping, and improvements to a portion of Victory Park.

Port of Los Angeles Berths 226–236 (Everport) Project proposes redevelopment of an existing container terminal, including improvements to wharves, adjacent backland, crane rails, lighting, utilities, new gate complex, and modification of adjacent roadways and railroad tracks. This project would also result in the demolition of two unused buildings and other small accessory structures at the former Canner's Steam Plant in the Fish Harbor area of the Port of Los Angeles.

Fish Harbor was the focus of commercial fishing and canning beginning in the 1910s. In 2013, the Los Angeles Conservancy and the Los Angeles Office of Historic Resources challenged the Los Angeles Harbor Department's (LAHD's) decision not to include the Japanese-American Fishing Village and the Canner's Steam Plant in their Master Plan PEIR update. They also challenged LAHD's finding that the Canner's Steam Plant was not a historical resource. The Los Angeles Conservancy and Los Angeles Office of Historic Resources state that both resources are eligible on a national level. Demolition of all or part of the Canner's Steam Plant buildings or those associated with this early industry would result in significant impacts on cultural resources.

Port of Los Angeles Berth 164 [Valero] Marine Oil Terminal Wharf Improvements Project is proposed by an unnamed outside developer. It would involve demolishing an existing 19,000-square-foot timber wharf and construction of a new steel and concrete loading platform, access trestles, pipeline trestle, mooring structures, berthing structures, catwalks, topside equipment, and necessary utilities to comply with the Marine Oil Terminal Engineering and Maintenance Standards (MOTEMS). If the 19,000-square-foot timber wharf and electric utilities are of historic age, the project could result in impacts on significant cultural resources of an industrial nature.

Port of Los Angeles Berths 191–194 Dry Bulk Terminal Project includes the construction and operation of a new dry bulk terminal for vessel unloading; milling; and storage and trucking of ground, granulated blast furnace slag.

Port of Los Angeles Outer Harbor Cruise Terminal and Outer Harbor Park includes construction of two new cruise terminals and parking at Berths 45–47 and 49–50 in the Outer Harbor. The proposed Outer Harbor Park would encompass approximately 6 acres at the Outer Harbor. This project was evaluated in the San Pedro Waterfront Project EIS/EIR. No significant historical resources beyond archaeological remains of Mexican Hollywood were found. The project would not result in impacts on standing structures and project impacts on significant archaeological remains and cultural resources would be mitigated to a less-than-significant level.

3.4.4.3 Cumulative Impacts and Mitigation Measures

Projects in the Port of Long Beach and Port of Los Angeles areas would be of concern when evaluating cumulative impacts because of their proximity to the resources evaluated for the Proposed Plan. The level of impacts for the reasonably foreseeable projects outlined above is not fully understood as many of the environmental documents are still pending completion. Nonetheless, the Proposed Plan potentially involves demolition, reuse, upgrade, redevelopment, or localized new construction on many of these projects being considered. CEQA defines a substantial adverse change in the significance of a historical or cultural resource to mean the physical demolition, destruction, relocation, or alteration of a resource or its immediate surroundings, such that the significance on the baseline project could be materially altered (e.g., SCE Long Beach-Laguna Bell Transmission Line; Long Beach Generating Station; and Canner's Steam Plant in the Fish Harbor area). The potential alterations proposed for these projects could disturb previously unknown significant cultural and historical resources. These disturbances could, without appropriate controls, represent cumulatively significant impacts on cultural and historical resources. Although both ports have active cultural resource protection programs in place, the potential alterations proposed for these projects could result in substantial changes to cultural and historical resources. These disturbances could, without appropriate analysis and mitigation controls, represent cumulatively significant impacts on significant cultural and historical resources.

For impacts associated with construction of Proposed Plan projects that could degrade or destroy unknown archaeological resources or tribal cultural resources, project-level impacts would be less than significant with implementation of **Mitigation Measures CR-2, CR-3, and CR-4**. Similar measures would be required for any past, present, or reasonably foreseeable projects; therefore, this impact would be cumulatively considerable.

For the OHSPER project, as detailed in this PEIR, there will be no expansion or excavation that has the potential to disturb native sediments; therefore, there would be no additional contribution to cumulative impacts.

3.4.5 Mitigation Monitoring Program

Implementation of **Mitigation Measures CR-1, CR-2, CR-3, and CR-4** would be required to reduce impacts associated with construction and/or expansion of Proposed Plan projects within the Harbor District. These mitigation measures and monitoring requirements are summarized in Table 3.4-5.

TABLE 3.4-5. MITIGATION MONITORING PROGRAM

Mitigation Measure	Responsible Party	Timing/Frequency
CR-1: Historical Resource Assessment. If an assessment prepared as part of the environmental review for a project determines that a historical resource would be impacted, to ensure continuing conformance with the Secretary of Interior's Standards for the Treatment of Historic Properties and/or avoidance of a material impairment of the historical resources within the area of direct and indirect impact, the project proponent shall determine the need to implement measures that could include, but would not be limited to, one or more of the following to further avoid, minimize, or substantially reduce the identified impacts: • Prior to construction and construction monitoring activities, a preservation architect or architectural historian qualified under the Secretary of the Interior's Professional Qualifications Standards in historic architecture and/or architectural history shall participate in plan review and approval. • Complete photographic documentation of the historical resource prior to implementation of the project in accordance with the standards and guidelines for Historical American Buildings Survey, Historic American Engineering Record, and Historic American Landscapes Survey documentation, as outlined in the latest guidelines set by the Heritage Documentation Programs instituted by NPS.	POLB	Prior to project construction
CR-2: Unanticipated Archaeological Discoveries. In the event potentially significant cultural resources are encountered during earthmoving activities, the construction contractor shall cease such activity within 50 feet of the affected area until the discovery can be	POLB	During project construction

TABLE 3.4-5. MITIGATION MONITORING PROGRAM		
Mitigation Measure	**Responsible Party**	**Timing/Frequency**
evaluated by a qualified archaeologist in accordance with the provisions of CEQA Section 15064.5 (c)(f). If the resources are found to be significant, they shall be avoided and/or mitigated consistent with OHP Guidelines. The POLB shall determine the need to implement measures that shall include, but are not limited to, one or more of the following to further avoid, minimize, or substantially reduce the identified impacts: 1) subsurface testing after demolition of existing buildings; 2) data recovery of archaeological or tribal cultural resources, based on a data recovery treatment plan prepared and approved by the agency before recovery excavations begin; and/or 3) post-construction documentation. For prehistoric archaeological resources, tribes requesting notification will be consulted in accordance with AB 52 and CEQA.		
CR-3: Unanticipated Human Remain Discoveries. If human remains are discovered, the county coroner shall be notified immediately and there shall be no further disturbance to the site where the remains were found. An environmentally sensitive area shall be defined 50 feet surrounding the discovery where no ground disturbance or construction would occur. If the remains are determined by the coroner to be Native American, the coroner would be responsible for contacting the NAHC within 24 hours. The NAHC, pursuant to Section 5097.98, shall immediately notify those persons believed to be the MLD so they can inspect the burial site and make recommendations for treatment or disposal. If the human remains would be removed, relocated, or reburied, an agreement document including a treatment plan shall be developed in consultation with the MLD.	POLB	During project construction
CR-4: Unanticipated Tribal Cultural Resource Discoveries. In the event potentially significant cultural resources are encountered during earthmoving activities, the construction contractor shall cease such activity within 50 feet of the affected area until the discovery can be evaluated by a qualified archaeologist, tribal representative, or other specialist in accordance with the provisions of CEQA Section 15064.5 (c)(f). If the resources are found to be significant, they shall be avoided or shall be mitigated consistent with OHP Guidelines, as described further under **Mitigation Measure CR-2**.	POLB	During project construction
Key: AB = Assembly Bill; CEQA = California Environmental Quality Act; MLD = Most Likely Descendants; NAHC = Native American Heritage Commission; OHP = Office of Historic Preservation; POLB = Port of Long Beach		

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3.5 GEOLOGY, SOILS, AND SEISMIC CONDITIONS

This section describes the potential impacts on geology, soils, and seismic conditions that could result from implementation of the Proposed Plan and its alternatives.

3.5.1 Environmental Setting

3.5.1.1 Area of Influence

The area of influence for geology, soils, and seismic conditions consists of the Inner Harbor and Outer Harbor as well as upland portions of the Harbor District. The land portion of the Harbor District generally consists of artificial fill and has been substantially altered by industrial construction; as such, there are no natural/topographic features. Further, no rare or unique geological resources exist within the Harbor District. However, the Harbor District includes a number of oil operating areas that are devoted to the continued production of oil from the Long Beach and Wilmington Oil Fields. With the exception of oil and gas reserves and potential geothermal and paleontological resources, there is no area of influence with respect to impacts on the geologic environment.

3.5.1.2 Setting

General Geology and Stratigraphy

The Harbor District is located within the coastal, northwestern portion of the geologically complex Peninsular Ranges geomorphic province. A geomorphic province is a region of unique topography and geology readily distinguished from other regions based on its landforms and tectonic history (Bates 2005). The Peninsular Ranges form a general northwest-trending geomorphic province that extends approximately 825 miles from the tip of the Baja California peninsula in the southeast to the east-west trending mountain ranges and valleys of the Transverse Ranges geomorphic province to the north of downtown Los Angeles (Norris and Webb 1976, DeCourten 2010). The western slope of the Peninsular Ranges descends gradually to the lowland coastal plain of Southern California, which includes the Los Angeles Basin. The region surrounding the Harbor District consists largely of sediments sourced from the Los Angeles Basin that accumulated in and near San Pedro Bay from rivers during the Neogene (23 to 2.6 million years old) and Quaternary (2.6 million years old to recent) periods.

Long Beach Harbor is located in the southern portion of San Pedro Bay, a natural embayment formed by a westerly protrusion of the coastline and the dominant onshore topographic feature, the Palos Verdes Hills. Located approximately 3.5 miles west and northwest of the harbor, the hills form an uplifted, terraced peninsula approximately 1,400 feet high.

The topography of the Harbor District is generally flat and slightly undulating but slopes gently toward the adjacent harbor waters, including the Inner Harbor, Back Channel, East Basin, Slip 1, and Slip 3. The channelized Los Angeles River, located in the eastern portion of the Harbor District, drains the Los Angeles River Watershed and discharges into the Queensway Bay portion of San Pedro Bay. Principal structural elements near the harbor include the northwest-trending, doubly plunging anticline (a folded, dome-like structure) that underlies the Palos Verdes Hills; the adjacent, steeply dipping Palos Verdes Hills Fault Zone; and the northwest-trending Newport-Inglewood Structural Zone (NISZ) (Figure 3.5-1) (Yerkes, et al. 1965).

According to the published geologic map of the region (CGS 2010), much of the Harbor District's geological setting was created artificially by human activity (Figure 3.5-2). The present shoreline and harbor foundations consist of nonnative artificial fill (shown as unit "af" in Figure 3.5-2) created from dredging of underwater sediments from the San Pedro Bay.

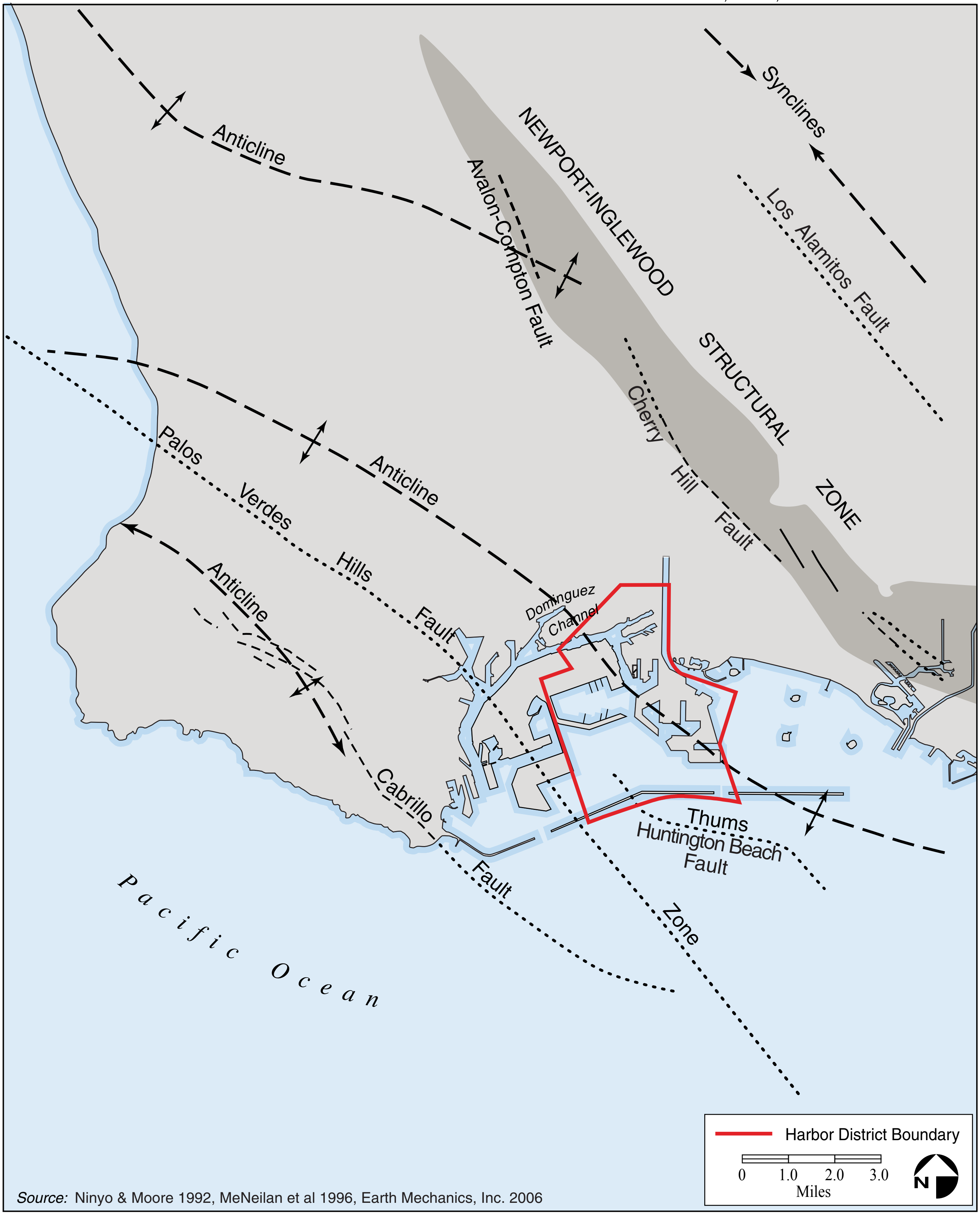

Figure 3.5-1. Local Faults and Geologic Structures – West Los Angeles Basin

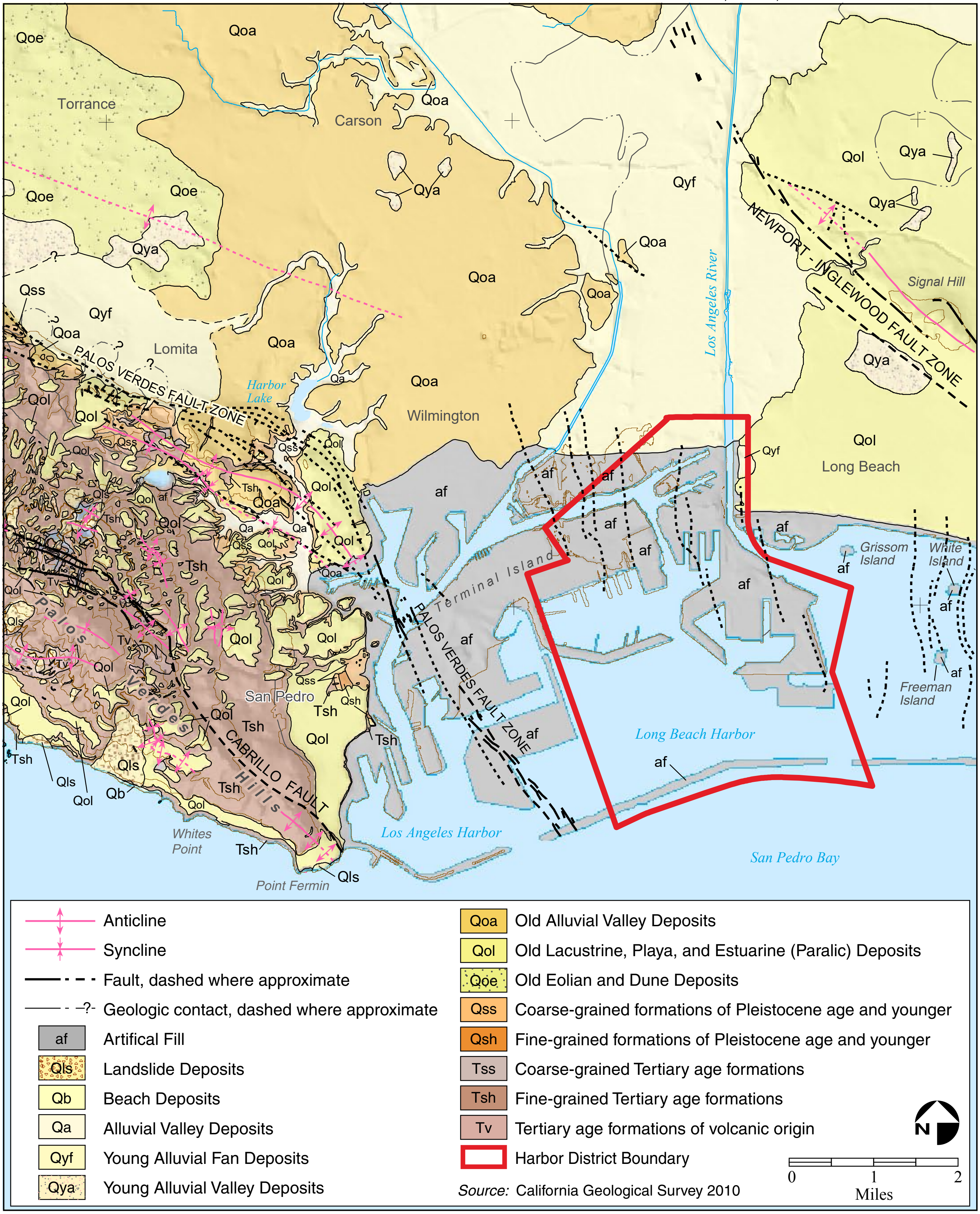

Figure 3.5-2. Geologic Map of Area

The native, surficial geologic deposits in the Harbor District consist of Quaternary-age units from both the Pleistocene (2.6 million to 11,700 years old) and Holocene (11,700 years old to recent) epochs. The young alluvium unit (“Qyf” in Figure 3.5-2), of Late Pleistocene- to Holocene-age, is mapped onshore in the northernmost margin of the Harbor District in Planning Districts 1 and 2; this unit consists of alluvial deposits that likely constituted a former north-south oriented shoreline currently obscured by artificial fill. The submerged majority of the Harbor District constitutes the seafloor of the San Pedro Shelf, consisting of Pleistocene- and Late Holocene-age deposits of sand and silt (Saucedo, et al. 2016).

Outside of the Harbor District, there are two other nearby surficial units of Middle to Late Pleistocene-age. These units are “Qol” and “Qoa” (CGS 2010), also shown in Figure 3.5-2. The old shallow marine deposits (Qol) are mapped just east of the northern portion of the Harbor District, east of the Los Angeles River, while the old alluvium (Qoa) is mapped to the west of the Harbor District, west of the Dominguez Channel. These units border the young alluvium (Qyf) on the west and east, respectively. Their similar age and the geographic placement of the deposits suggest the presence of a former west-east oriented shoreline currently obscured by the overlying young alluvium (Qyf).

Historically, subsidence due to oil extraction has been a major problem in the Harbor District. Between 1926 and 1967, approximately 29 feet of total subsidence was recorded near the eastern end of Terminal Island in Long Beach. A maximum annual rate of subsidence of 2.4 feet was recorded between 1951 and 1952 and coincided with the period of maximum oil production (Randell, et al. 1983). During this period, extraction of hydrocarbon fluids within the Wilmington Oil Field caused reduced subsurface fluid pressure, resulting in compaction of oil-producing sediments and surface land subsidence. In 1958, secondary injection of water into oil-depleted zones was initiated, resulting in an eventual reduction of subsidence. The State of California mandated that injection continue to prevent subsidence from recurring in the future (City of Long Beach 2007).

Soils

The Harbor District lies within the southern coastal margin of the Los Angeles Coastal Plain, a sedimentary basin filled with Tertiary sedimentary rock capped by 500 to 1,000 feet of Quaternary sediments. Prior to the development of the Harbor District, extensive estuarine deposits were present at the mouth of Bixby Slough, Dominguez Channel, and the Los Angeles River. The organic-rich tidal muds originally overlaid naturally deposited alluvial soils that, in turn, overlaid the Malaga mudstone of the Miocene Monterey Formation. The mud and alluvial soils were extensively dredged or covered with fill during harbor development to create extensive land masses of dredged fill material that support numerous harbor facilities. Accordingly, much of the surface soil in the harbor area now consists of older fill material underlain by dredged material, engineered construction fill, and in some places, old alluvial soils and muds.

Mineral Resources

Based on guidelines adopted by California State Mining and Geology Board, areas known as Mineral Resource Zones (MRZs) are classified according to the presence or absence of significant nonfuel mineral resources deposits (SMBG 2000). Nonfuel mineral resources include metals such as gold, silver, iron, and copper; industrial metals such as boron compounds, rare-earth elements, clays, limestone, gypsum, salt, and dimension stone; and construction aggregate including sand, gravel, and crushed stone. These classifications indicate the potential for a specific area to contain significant mineral resources. Areas associated with current Planning Districts 1, 2, 4, 5, and 7 are classified as “MRZ-1,” which is defined as an area where adequate information indicates that no significant mineral deposits (i.e., aggregate deposits) are present or where it is judged that little likelihood exists for their presence (Kohler, Loyd and Anderson 1982a). A small portion of the lower southwest corner of Planning District 3 is also classified as “MRZ-1.” However, most of Planning District 3 is designated as either “MRZ-3” or “MRZ-4” (Kohler, Loyd and Anderson 1982b). MRZ-3 is an area containing mineral deposits, the significance of which cannot be evaluated from available data and MRZ-4 is an area of no known mineral occurrences where geologic information does not rule out the presence or absence of significant mineral resources. There is no designation for Planning District 6 in the open water of the harbor. Much of the area within the MRZ sites in Long Beach and the harbor area was developed with structures prior to the MRZ classification and, therefore, is unavailable for extraction.

Mineral resources include commercially viable oil and gas reserves, but are not part of the Surface Mining and Reclamation Act. Oil and gas production is an existing permitted use in the Port, and the Harbor District includes a number of oil operating areas that are devoted to the continued production of oil from the Long Beach and Wilmington Oil Fields. Active oil wells along with associated buried pipelines (oil, gas, and water) and storage tanks exist within these areas (see Figure 3.6-2 in Section 3.6, Hazards and Hazardous Materials). State legislation requires the City, as tidelands trustee, to operate oil production activities in the best interests of the State of California, including managing the extraction of oil and gas from the state tidelands. The state has an interest in the revenues derived from oil operations in the Port. Oil and gas operations will exist in the Port until the resources are depleted or become uneconomical to produce. Current estimates predict the tidelands portion of the Wilmington Oil Field to operate until 2037, although the useful life of the field could extend beyond current estimates depending on recovery technology and the price of oil.

Sources of geothermal energy underlie oil fields of the Los Angeles Basin, including the Wilmington Oil Field, for which geopressured conditions exist and temperatures are sufficiently high to provide reasonable power generation potential (Bennett, Li and Horne 2011, Bennett 2012, Glassley, et al. 2013). Geothermal sources, both natural and produced by oilfield operations on and adjacent to the former Long Beach Naval Shipyard and Naval Station (Pier T area) parcels, have been studied (Higgins 1984).

Paleontological Resources

Paleontological resources are the fossilized remains, imprints, or traces of past plants and animals as preserved in the geologic record. Paleontological resources do not include any materials associated with an archaeological resource or any cultural items, both of which are covered in Section 3.4 (Historical and Tribal Cultural Resources).

Fossils are the evidence of once-living organisms that have undergone preservation in the rock record (fossilization). They include the remains of ancient plants and animals and the traces thereof (trackways, imprints, burrows, etc.). In most fossils, much of the original biological matter is no longer present, as it has been replaced by minerals over time. Fossils typically are preserved in sedimentary rocks, which form from the physical deposition of sediments (e.g., sand, clay, organic matter) or the precipitation of chemical compounds (e.g., calcium carbonate) on the floors of rivers, oceans, and other bodies of water. The cumulative effects of burial pressure and cementation of these sediments and precipitates lead to their eventual lithification into rocks, a process that typically requires several thousand to tens of thousands of years. Sedimentary rocks formed of fine grains (e.g., clay, silt, fine sand) in low-energy environments and/or where rapid burial can occur (e.g., river deltas) usually provide the most suitable conditions for fossilization.

In regions where sediments are deposited, the sedimentary formations that preserve fossils generally are not found at the immediate ground surface. They are obscured by younger surficial sediments or layers of soil. The surficial sediments are relatively recent deposits from streams, rivers, landslides, and wind that may be only a few thousand years old and are not completely lithified. Soil is formed from physical and chemical weathering processes that break down and redistribute materials in the upper layers of sediment. Fossils are unlikely to be preserved in these near-surface layers as there either has not been enough time for mineralization and, thus, fossilization to occur or the environmental conditions conducive to preservation are compromised by physical and chemical weathering during soil formation.

Fossilized hard parts (e.g., shells, carapaces) of common invertebrates are prevalent in many types of sedimentary deposits and are not considered in paleontological impact evaluations. In contrast, uncommon fossils such as well-preserved vertebrate bones and any fossilized soft tissues of plants and animals are considered in these evaluations. Each paleontological evaluation must determine the general types of fossils in the context of the project's local geology that would be of the most importance for assessing paleontological impacts. For much of Southern California, the widespread deposits of alluvium are known to preserve important vertebrate fossils.

McLeod (2018) conducted a search of recorded vertebrate fossil localities based on records from the Natural History Museum of Los Angeles County (LACM) and reported no vertebrate fossil localities recorded within the Harbor District. The younger Quaternary alluvium mapped in the northern portion of the Harbor District and the artificial fill that makes up much of the harbor are unlikely to yield significant vertebrate fossils (McLeod 2018). The alluvium is regarded to be too young to preserve fossils, while the fill consists of sediments that have been displaced from their primary geologic context; therefore, any fossils that occur therein would be unlikely to provide useful scientific information. However, McLeod (2018) suggests these deposits may overlie potentially fossiliferous older Quaternary deposits at relatively shallow depths.

Further, McLeod (2018) noted that vertebrate fossil localities are associated with a nearby locality from a sedimentary unit that occurs at the surface in the Harbor District as well as several localities from sedimentary units that potentially occur in the subsurface (Table 3.5-1).The vertebrate fossil localities closest to the Harbor District are LACM 1144, 3550, 6896, and 4587. LACM 1144, 3550, and 6896 (listed in Table 3.5-1) are located adjacent to the northeast portion of the Harbor District. LACM 1144 and 3550 yielded specimens of sea lion (*Zalophus*), camel (*Camelops*), and bison (*Bison*), from depths less than 48 feet below ground surface (bgs), whereas LACM 6896 yielded a specimen of whale (*Cetacea*) from a depth less than 100 feet bgs. All these localities occur in areas mapped as Middle to Late Pleistocene age, representing old, shallow marine deposits. LACM 4587 is southwest of the southern portion of the Harbor District in an area currently mapped at the surface as artificial fill. LACM 4587 was reported from Terminal Island northwest of Fish Harbor. Spoils piles from dredging off the southeastern coast of the island yielded fossil specimens of ground sloth (*Xenarthra*), fur seal (*Arctocephalus*), and whale (*Cetacea*). Although the Late Pleistocene- to Holocene-age young alluvium (Qyf) in the northernmost portion of the Harbor District is unlikely to yield fossils (McLeod 2018), a specimen recovered from what may be the same unit suggests the unit is potentially fossiliferous locally. LACM 1163 near the Harbor District suggests that young alluvium (Qyf) is potentially fossiliferous, although the unit requires further evaluation. Regardless, the presence of other nearby fossiliferous deposits ranging from depths less than 48 feet to 100 feet bgs indicates that there is a strong likelihood of similar deposits occurring below the surficial deposits in the Harbor District. Within San Pedro Bay, the artificial fill that forms the foundation of the harbor likely overlies Pleistocene- and Late Holocene-age shelf sediments. While dredging in the bay may have removed large portions from the Late Holocene-age unconsolidated shelf deposits, these sediments, at least in the upper layers (i.e., the immediate seafloor), are likely too young to bear fossils (McLeod 2018). Rather, the fossils from spoils may have been derived from the lowermost layers or the underlying Pleistocene-age sedimentary deposits (McLeod 2018).

TABLE 3.5-1. LACM VERTEBRATE FOSSIL LOCALITIES REPORTED NEAR THE HARBOR DISTRICT

Locality No.	Location	Depth	Taxa
LACM 1144 and 3550	East of Los Angeles River, near intersection of Loma Vista Drive and Crystal Court (1144); near intersection of 12th Street and Pine Avenue (3550)	Less than 48 feet	*Zalophus* (sea lion) *Camelops* (camel) *Bison* (bison)
LACM 6896	East of Los Angeles River, near intersection of Magnolia Avenue and Ocean Boulevard	Less than 100 feet	*Cetacea* (whale)
LACM 1005	East of Los Angeles River, east of Bixby Park, and south of Ocean Boulevard	60 feet	*Mammuthus columbi* (mammoth) *Nothrotheriops shastensis* (ground sloth)
LACM 1163	West of Dominguez Channel, near intersection of Anaheim Street and Henry Ford Avenue	5 feet	*Bison* (bison)
LACM 4587	San Pedro Bay, Terminal Island, northwest of Fish Harbor; spoils from seafloor southeast of Terminal Island	Unknown depth (spoils)	Xenarthra (ground sloth) *Arctocephalus* (fur seal) *Cetacea* (whale)
LACM 4167	San Pedro Bay, Reservation Point (formerly Deadman's Island)	Unknown depth	*Sebastes* (rockfish)

Source: (McLeod 2018)
Key: LACM = Natural History Museum of Los Angeles County

Seismicity

Regional Seismicity

Southern California is a seismically active area. The Long Beach region has a number of active local faults, which make the area susceptible to earthquake-related hazards.

The Southern California region has been subjected to at least 52 moderate to major earthquakes (event of Richter magnitude 6.0 or greater) since 1796. The Richter scale is a logarithmic scale used to express the magnitude of a seismic disturbance (i.e., earthquake) as a range of numerical values that indicates the amount of energy dissipated during the event. Values generally range from 0 to 10. At least 189 earthquakes of magnitudes larger than 5.0 were registered in the last 200 years within a radius of 300 kilometers around the Harbor District (METRANS Transportation Center 2016).

Each whole number in Richter magnitude represents a tenfold increase in the wave amplitude generated by the earthquake, which is a representation of the size of an earthquake. For each full-point increase in Richter magnitude, the corresponding amount of energy released increases 31.6 times. Thus, a magnitude 6.3 earthquake is 10 times larger in wave amplitude than a magnitude 5.3 earthquake and releases 31.6 times more energy. Earthquakes of magnitude 5.0 to 5.9 are classified as "moderate," those between magnitude 6.0 and 6.9 are classified as "strong," earthquakes between magnitude 7.0 and 7.9 are classified as "major," and those of magnitude 8.0 and greater are classified as "great." Damage to structures caused by an earthquake typically begins at about magnitude 4.5.

Ground motion in the region along fault lines is generally the result of sudden movements of large blocks of the earth's crust. Great earthquakes, such as the 1857 San Andreas Fault earthquake, are quite rare in Southern California. Earthquakes of magnitude 7.8 or greater occur at the rate of about two or three per 1,000 years, which is a 6 to 9 percent probability of occurrence in a 30-year period. However, the probability of a magnitude 7.0 or greater earthquake occurring in Southern California before the year 2024 is estimated at 85 percent (WGCEP 1995).

There has not been a concentration or clustering of earthquakes in the region, except along the NISZ where a series of aftershocks from a 1933 event occurred. The largest earthquake within the Los Angeles Basin was the 1933 Long Beach earthquake of magnitude 6.4. The 1971 San Fernando (6.7) earthquake occurred outside of the basin along the northern margin of the San Fernando Valley within a zone of mapped surface faults. The more recent 1987 Whittier Narrows earthquake (magnitude 5.9) and the 1994 Northridge (magnitude 6.7) earthquake occurred outside of the basin under the San Gabriel Valley and the San Fernando Valley, respectively.

Local Faults

The following describes the principal active local faults in the Los Angeles region that might contribute to ground shaking in the Harbor District. The Palos Verdes and NISZ faults have the most significant seismic potential for the Harbor District. Other listed faults are nearby and represent less active seismic sources. All faults listed were used in the latest ground motion study (Earth Mechanics, Inc. 2015). Figure 3.5-1 shows the locations of these faults.

Palos Verdes Fault. The Palos Verdes fault extends through the Port of Los Angeles from the east side of the Palos Verdes Peninsula southeasterly to the Lasuen Knoll area offshore and northwesterly into the Santa Monica Bay, for a total length of approximately 62 miles. Under the north part of the San Pedro Shelf, the fault zone includes several strands, with the main strand dipping west (POLB and Caltrans 2010). The Palos Verdes Fault is one of the most active faults in the Los Angeles region; it is capable of a magnitude 6.9 to 7.2 earthquake (Earth Mechanics, Inc. 2015).

Newport-Inglewood Structural Zone. The NISZ consists of the northwest-southeast trending series of faults and folds forming an alignment of hills in the western Los Angeles Basin extending from the Baldwin Hills on the north to Newport Beach on the south. The NISZ includes several individual faults and other branch faults (POLB and Caltrans 2010). The fault is capable of approximately a magnitude 7.0 to 7.2 earthquake (Earth Mechanics, Inc. 2015).

Cabrillo Fault. The Cabrillo Fault forms a prominent northeast-facing scarp in the 100,000-year-old terrace in the San Pedro-Point Fermin area. The fault trends northwesterly inland for approximately 4.3 miles. South from Cabrillo Beach, the fault extends offshore for a distance of approximately 6.8 miles, where it appears to merge with the Palos Verdes Fault (POLB and Caltrans 2010). The Cabrillo fault is capable of approximately a magnitude 6.6 to 6.7 earthquake (Earth Mechanics, Inc. 2015).

San Pedro Basin Fault. The San Pedro Basin fault trends southeasterly from the base of the Malibu-Santa Monica shelf, past the subsea Redondo Knoll, to approximately the Avalon Knoll east of Catalina Island. The fault is approximately 43 to 50 miles and is highly segmented. The fault is expressed as a complicated association of folds, flower structures, and tensional (normal) structures. The fault dips steeply to nearly vertical (POLB and Caltrans 2010). It is capable of approximately a magnitude 7.1 to 7.2 earthquake (Earth Mechanics, Inc. 2015).

Los Alamitos Fault. The Los Alamitos fault is a subsurface fault along the northeast side of the NISZ that trends to northwest-southeast. The fault is not well known because it is not exposed at the surface. The fault extends from the basement rocks upward to an elevation of approximately −300 feet mean sea level (MSL) and is subparallel to the NISZ from Seal Beach to Rosecrans (POLB and Caltrans 2010). The fault is capable of approximately a magnitude 6.5 earthquake (Earth Mechanics, Inc. 2015).

Compton Thrust Ramp. The THUMS-Huntington Beach Fault is included as part of the Compton Thrust Ramp. This fault trends to the southeast, extending offshore from the Palos Verdes Fault in the Los Angeles Harbor area along the southwest flank of the Wilmington Anticline, past the Huntington Beach oil field to the Newport Beach area where it converges with the NISZ. Current interpretation indicates this is an approximately 24-mile large blind thrust fault. The Compton Thrust Ramp is capable of approximately a magnitude 7.1 to 7.2 earthquake (Earth Mechanics, Inc. 2015).

Seismic Design Basis

Seismic design recommendations in the California Building Code (CBC) (2016) are based on the seismic criteria in American Society of Civil Engineers (ASCE) Standard 7-10. According to ASCE 7-10, the Design Earthquake ground motion is based on the Risk Targeted Maximum Considered Earthquake ground motion. Since most sites in the Harbor District have high liquefaction potential due to presence of hydraulic fills, a site-specific procedure in accordance with Chapter 21 of the ASCE 7-10 was adopted (Earth Mechanics, Inc. 2015). The Maximum Considered Earthquake description and location for active local faults in the Los Angeles region that might contribute to ground shaking in the Harbor District area are presented in Table 3.5-2.

TABLE 3.5-2. MAXIMUM CONSIDERED EARTHQUAKE FOR FAULTS USED IN PROBABILISTIC SEISMIC HAZARD ANALYSIS

Fault	MCE	Description and Location in Relation to Project Site
Palos Verdes	6.9 – 7.2	Northwest-southeast-trending fault zone; 2.4 miles west
NISZ	7.0 – 7.2	Northwest-southeast trending series of faults and folds; 3.6 miles east-northeast
Cabrillo	6.6 – 6.7	Trends northwesterly inland, as well as portion of the fault extending offshore
San Pedro Basin	7.1 – 7.2	Southeasterly; east-trending fault, highly segmented
Los Alamitos	6.5	Subsurface fault along northeast side of the NISZ trending northwest-southeast
Compton Thrust	7.1 – 7.2	Splays southeastward from the Palos Verdes Fault Zone

Key: MCE = Maximum Considered Earthquake; NISZ = Newport-Inglewood Structural Zone

Three levels of strong ground motion are used in design (Earth Mechanics, Inc. 2006a, Earth Mechanics, Inc. 2008, Earth Mechanics, Inc. 2015):

- An Operational Level Earthquake (OLE) is a design event with a 50 percent exceedance probability in 50 years. The OLE is defined as the seismic event that produces ground motions associated with a 72-year return period.
- The Contingency Level Earthquake (CLE) is a design event with a 10 percent exceedance probability in 50 years. The CLE is defined as the seismic event that produces ground motions associated with a 475-year return period.
- The Code-Level Design Earthquake shall comply with the Design Earthquake requirements of the current CBC.

An OLE event occurs more frequently than CLE and Design Earthquake events and has a lower intensity. A Design Earthquake event occurs less frequently than OLE and CLE events and has a higher intensity than the other two events.

The typical design philosophy for permanent facilities and structures is to provide sufficient protection such that, in accordance with the National Institute of Standards and Technology Grant/Contract Report 12-917-19 Program Plan for the Development of Seismic Design Guidelines for Port Container, Wharf, and Cargo Systems (NIST 2012):

- An OLE would not cause enough structural damage to significantly disrupt normal operations.
- A CLE would cause significant but repairable damage, and the facility should not experience catastrophic failure or collapse. A temporary disruption of operations would occur for a limited time.
- A Design Earthquake would cause severe damage, and the intent of the code is to safeguard life and prevent major structure failures. The damage should not cause major structural failure to safeguard life.

A probabilistic seismic hazard analysis was completed for the Harbor District. The methodology used in the probabilistic seismic hazard analysis was similar to that of the original Port-wide ground motion study (Earth Mechanics, Inc. 2006b) but used the latest revisions of ground attenuation models commonly used in California and updated (Earth Mechanics, Inc. 2008) ground motion prediction equations (Earth Mechanics, Inc. 2015). Current Port-wide ground motion recommendations comply with the Design Earthquake requirements per CBC 2013 (California Building Standards Commission 2016) and Pacific Earthquake Engineering Research/Lifelines Next Generation Attenuation Project ground motion prediction equations and incorporate the latest revisions to 2014 U.S. Geological Survey local fault activity rates data (USGS 2014). Soil deposits in the Harbor District are very deep, such that extending the site response analysis model to bedrock is impractical. An assessment of ground conditions was completed to establish appropriate depths to reach firm ground conditions and to assess appropriate seismic design. The depth to firm ground was established to be approximately 100 feet in compliance with Section 21.1.2 of ASCE 7-10 (Earth Mechanics, Inc. 2015).

Earthquake-Related Effects

Other earthquake-related effects that could result in damage to structures and facilities include liquefaction, seismically induced settlement, tsunamis, and seiches.

Liquefaction

Liquefaction occurs when pore-water pressure in loose, saturated, granular soils exceeds confining pressure due to earthquake-induced ground shaking. Pore-water pressure is the pressure of groundwater that is held within the gaps of particles of a rock or soil. When this happens, soil strength dramatically decreases, resulting in a near-liquid state. Liquefaction can cause damage to foundations or other structures. Liquefaction occurs most commonly where loose, cohesionless, granular sand and silty sand deposits coincide with shallow groundwater conditions. The Harbor District is underlain by loose to medium, dense granular (sand) and firm fine-grained (silts and clays) soils. During harbor development, the mud and alluvial soils (generally unconsolidated, soft, and saturated) were extensively dredged or covered with fill to create extensive land masses of fill material that support the many harbor facilities. Hydraulic fills are very vulnerable to potential failure or collapse under seismic loading (Earth Mechanics, Inc.

2015). Accordingly, the liquefaction potential in the Harbor District is high.

Seismically Induced Settlement

Seismically induced settlement is the compaction or consolidation of soils as a result of ground shaking. Loose, sandy, and/or silty soils are typically most susceptible to seismic settlement. Differential compaction may occur during settlement and result in serious damage to structures. This would occur in areas of the Harbor District where oil extraction activities occur and the balance of oil extraction and water injection is disrupted due to seismic motion. Seismically induced settlement could also occur where fill and native materials become water saturated and cause a net decrease in pore pressure and contained water that allows the soil grains to pack closer together, resulting in less volume and lowering of the ground surface. The potential for seismic settling to occur in the Harbor District is high.

Tsunamis

Tsunamis are gravity waves of long wavelengths generated by sudden disturbance in a body of water. Typically, oceanic tsunamis are the result of sudden vertical movement along a fault rupture in the ocean floor, submarine landslides or subsidence, or volcanic eruption where the sudden displacement of water sets off transoceanic waves with wavelengths of up to 125 miles and with periods generally from 5 to 60 minutes. The trough of the tsunami wave arrives first, leading to the classic retreat of water from the shore as the ocean level drops. This is followed by the arrival of the crest of the wave, which can run up on the shore in the form of bores or surges in shallow water or simple rising and lowering of the water level in relatively deeper water such as in harbor areas.

Tsunamis are a relatively common natural event, although most of the events are small in amplitude and not particularly damaging. However, in the event of a large submarine earthquake or landslide, coastal flooding may be caused by either run-up of broken tsunamis in the form of bores and surges or by relatively dynamic flood waves. In the process of bore/surge-type run-up, the onshore flow (up to tens of feet per second) can cause tremendous dynamic loads on the structures onshore in the form of impact forces and drag forces, in addition to hydrostatic loading. The subsequent drawdown of water after run-up can exert opposite drag on structures and wash loose/broken structures and debris to sea; the floating debris brought back on the next onshore flow can be a significant cause of extensive damage after successive run-ups and drawdowns. As has been shown historically, the potential loss of human life in the process can be great if such events occur in populated areas.

Tsunamis are associated with large submarine earthquake faults and massive landslides. A tsunami wave model was developed for the San Pedro Bay Port Complex using a methodology that generates a tsunami wave from a hypothetical magnitude 7 earthquake on the Santa Catalina Fault (Moffatt & Nichol 2007c). The Santa Catalina Fault is noted as a catalyst example for a tsunami at the Port, but this fault is not considered a significant local fault. The Long Beach/Los Angeles Port Complex Model incorporates consideration of the landfill configurations, bathymetric features, and the interaction of the tsunami wave within the complex to predict tsunami water levels. The report concluded that the maximum tsunami wave height in the Harbor District would be approximately +7.8 feet above mean lower low water (MLLW). Tsunamis caused by submarine landslides are a viable local tsunami hazard. Available evidence indicates tsunamigenic landslides would be extremely infrequent and probably occur less often than large earthquakes in the area. This suggests recurrence intervals for such landslide events would be longer than the 10,000-year recurrence interval estimated for magnitude 7.5 earthquakes. This implies recurrence intervals for tsunami-generating slides on the order of about 10,000 years would be reasonable (Moffatt & Nichol 2007c).

The National Tsunami Warning Center (NTWC) operates the federal data collection and warning system for tsunami hazards in its area of responsibility (AOR), which includes the West Coast of the U.S. The NTWC collects seismic data from various seismic networks throughout its AOR. The data are processed, automatically and interactively, to quickly determine the tsunami potential of an earthquake, and bulletins are issued based on this first analysis of seismic data. If a tsunami could have been generated, sea level data, tsunami models, and historical tsunami information are analyzed to estimate the impact level.

The NTWC issues tsunami warnings within 10 minutes of an earthquake occurrence when a potentially tsunami-producing earthquake is greater than 7.0 on the Richter scale (greater than magnitude 7.0) in the Pacific AOR. Warnings also may be issued when potentially tsunami-producing earthquakes (greater than magnitude 7.5) outside the AOR occur and are likely to affect the AOR. The geographic extent of the warning is based on the size of the earthquake, tsunami travel times throughout the AOR, and expected impact zones.

Tsunami bulletins and warnings are broadcast by NTWC through standard National Weather Service dissemination methods such as NOAA Weather Radio All Hazards, the Emergency Alert System, and the Emergency Managers Weather Information Network. State emergency service agencies receive the message through the Federal Emergency Management Agency's (FEMA) National Warning System and the NOAA Weather Wire Service. The states immediately pass warnings to local jurisdictions. USCG also relays the message via radio.

The Seismic Safety Element of the City of Long Beach General Plan identifies the entire Harbor District as an area within the tsunami and seiche influence area (City of Long Beach 1988). "Alert Long Beach" is the City's emergency notification system, which notifies the community of hazardous or other emergency situations by telephone/email/text alerts (Kane 2018). Fire, Police, Disaster Preparation, and Public Health Departments of the City of Long Beach would be the agencies making the decisions to issue an emergency notification through Alert Long Beach.

Seiches

Seiches are standing-wave oscillations that surge back and forth in an enclosed basin and are potentially destructive to structures along the shore of the water body. Earthquakes or the mass movement of soil or rock into the water body can cause seiches. The nearest bodies of enclosed or semi-enclosed water to the Harbor District are Dominguez Channel (located on the western edge of the area) and the Los Angeles River. The waters of the Inner Harbor could also be subjected to seismically induced seiches and any significant wave front could cause damage to seawalls and docks. Modern shoreline protection techniques are designed to resist seiche damage. The Long Beach/Los Angeles Port Complex Model determined that impacts from a tsunami would be equal to or more severe than those from a seiche.

Flooding

See Section 3.7 (Hydrology and Water Quality) for flooding information not related to tsunamis or seiches.

Sea Level Rise

See Section 3.16 (Global Climate Change) for information related to sea level rise (SLR).

3.5.2 Regulatory Setting

The only regulations that apply to geology are state and local regulations. There are no applicable federal regulations.

3.5.2.1 State Regulations

Alquist-Priolo Act

California's Alquist-Priolo Act (PRC 2621 et seq.), originally enacted in 1972 as the Alquist-Priolo Special Studies Zone Act and renamed in 1994, is intended to reduce the risk to life and property from surface fault rupture during earthquakes. The act prohibits the location of most types of structures intended for human occupancy across the traces of active faults and strictly regulates construction in the corridors along active faults. It also defines criteria for identifying active faults, giving legal weight to terms such as "active," and establishes a process for reviewing building proposals in and adjacent to active faults.

Under the Alquist-Priolo Act, faults are zoned and construction along or across those faults is strictly regulated if the faults are "sufficiently active" and "well defined." A fault is considered sufficiently active if one or more of its segments or strands shows evidence of surface displacement during the Holocene epoch (defined for the purposes of the act as within the last 11,000 years). A fault is considered well defined if its trace can be clearly identified by a trained geologist at the ground surface or in the shallow subsurface, using standard professional techniques, criteria, and judgment.

The criteria used to estimate fault activity in California are described in the Alquist-Priolo Special Studies Zones Act of 1972. This act only addresses the hazard of surface fault rupture and is not directed toward other earthquake hazards. The act defines an "active fault" as a fault that has had surface displacement within the Holocene epoch (approximately the last 11,000 years).

Seismic Hazard Mapping Act

The Seismic Hazards Mapping Act of 1990 (PRC Section 2690 and following as Division 2, Chapter 7.8) addresses nonsurface fault rupture earthquake hazards, including liquefaction and seismically induced landslides. Special Publication 117A (Revised), Guidelines for Evaluating and Mitigating Seismic Hazards in California (CGS 2008), constitutes the guidelines for evaluating seismic hazards other than surface fault rupture and for recommending mitigation measures as required by PRC Section 2695(a).

California Building Code

The State of California provides minimum standards for building design through the CBC. The CBC is based on the International Building Code (formerly known as the Uniform Building Code), established by the International Code Council (formerly known as the International Council of Building Officials), which is used widely throughout the U.S. (generally adopted on a state-by-state or agency-by-agency basis), and has been modified for conditions within California. The 2016 Edition of the California Building Standards Code adopted by the California Building Standards Commission was published July 1, 2016. Chapter 16, Structural Design, of the CBC contains definitions of seismic sources and the procedures used to calculate seismic forces on structures. Chapter 17 includes information on structural test and special inspections. The CBC is updated every three years by order of the California legislature, with supplements published in intervening years.

The CBC is maintained by the California Building Standards Commission, which is granted the authority to oversee processes related to the California building codes by California Building Standards Law. Building codes provide minimum standards regulating a number of aspects of construction that are relevant to geology and geologic hazards. These include excavation, grading, and fill placement; foundations; mitigation of soil conditions such as expansive soils; and, seismic design standards for various types of structures. Additionally, permits must be obtained before many construction activities can occur.

Surface Mining and Reclamation Act

The Surface Mining and Reclamation Act of 1975 was enacted to promote conservation of the state's mineral resources and to ensure adequate reclamation of mined lands. Among other provisions, the Surface Mining and Reclamation Act requires the State Geologist to classify land in California for mineral resource potential. The four categories are MRZ-1, an area where available geologic information indicates there is little or no likelihood for presence of significant mineral resources; MRZ-2, an area where adequate information indicates that significant mineral deposits are present or where it is judged that a high likelihood for their presence exists; MRZ-3, an area containing mineral deposits of undetermined mineral resource significance; and MRZ-4, an area of no known mineral occurrences where geologic information does not rule out the presence or absence of significant mineral resources.

The distinction between these categories is important for land use considerations. The presence of known mineral resources, which are of regional significance and possibly unique to that particular area, could potentially result in nonapproval or changes to a given project if it were determined that those mineral resources would no longer be available for extraction and consumptive use. To be considered significant for the purpose of mineral land classification, a mineral deposit, or a group of mineral deposits that can be mined as a unit, must meet marketability and threshold value criteria adopted by the California State Mining and Geology Board. The criteria vary for different minerals depending on the following: 1) whether the minerals are strategic or nonstrategic, 2) the uniqueness or rarity of the minerals, and 3) the commodity-type category (metallic minerals, industrial minerals, or construction materials) of the minerals. The State Geologist submits the mineral land classification report to the California State Mining and Geology Board, which transmits the information to appropriate local governments that maintain jurisdictional authority in mining, reclamation, and related land use activities. Local governments are required to incorporate the report and maps into their general plans and consider the information when making land use decisions.

Marine Oil Terminal Engineering and Maintenance Standards

MOTEMS were approved by the California Building Standards Commission on January 19, 2005, and are codified as part of CCR Title 24, Part 2, Marine Oil Terminals, Chapter 31F. These standards apply to all existing marine oil terminals in California and include criteria for inspection, structural analysis and design, mooring and berthing, geotechnical considerations, fire, piping, mechanical and electrical systems, and liquid natural gas terminals. MOTEMS became effective on January 6, 2006 (CSLC 2005). The process of developing MOTEMS has produced parallel guidelines and recommended provisions. The *Seismic Design Guidelines for Port Structures* (PIANC 2001) uses text virtually identical to that found in MOTEMS. The language for Port International Navigation Association and MOTEMS is derived from the Naval Facilities Engineering Service Center Technical Report (TR-2103-SHR) *Seismic Criteria for California Marine Oil Terminals* (Priestley 2000).

California Public Resource Code

The California PRC states under PRC Section 5097.5 that no person shall willingly or knowingly excavate, remove, or otherwise destroy a vertebrate paleontological site or paleontological feature without the express permission of the overseeing public land agency. It further states under PRC 30244 (the CCA) that any development that would adversely impact archaeological or paleontological resources, as identified by the State Historic Preservation Officer, shall require reasonable mitigation. These regulations apply to developments on “public lands,” which it defines as lands owned by or under the jurisdiction of the state or city, county, district, or other public agency, such as the Harbor District.

3.5.2.2 Local Regulations

City of Long Beach General Plan Seismic Safety Element

Geologic resources and hazards in the Harbor District are governed primarily by the City. The purpose of the Seismic Safety Element of the City of Long Beach General Plan (City of Long Beach 1988) is to provide a comprehensive analysis of seismic factors so as to reduce loss of life, injuries, damage to property, and social and economic impacts resulting from future earthquakes. The Seismic Safety Element focuses on current developmental policies as well as the allocation of future land uses and, as such, is a planning tool. The element provides recommended guidelines to reduce the level of seismic risk for siting, design, and construction of local buildings and facilities.

City of Long Beach Municipal Code

The LBMC was codified through Ordinance No. ORD-19-0001, enacted January 8, 2019, first adopted December 14, 2010 (ORD-10-0037). Title 18 is the Long Beach Building Standards Code, within which Chapters 18.67-18.75 provide regulations required for construction and demolition recycling program; earthquake hazard regulations; voluntary earthquake hazard reduction, flood-resistant design, and construction; low-impact development standards; and grading, excavations, and fills. Chapter 18.40 of the LBMC is the building code.

Title 12, Long Beach Oil Code (ORD-16-0027), regulates, “the drilling and redrilling for and the production of petroleum so that these activities may be conducted in conformance with the California Fire Code adopted in Chapter 18.48, state statutes, regulations of the Division of Oil, Gas and Geothermal Resources (DOGGR), in harmony with other City land uses, and to minimize the economic effect of lessening land values in areas wherein drilling and redrilling for the production of petroleum constitutes an activity which is at variance with the predominate land use” (City of Long Beach 2019a). Chapter 12.26 specifically discusses natural gas-related activities.

The management of oil activities in the Port is the responsibility of the Long Beach Energy Resources Department (LBER); Port policies governing oil production within the Harbor District are set forth in the Long Beach City Charter, Sections 1203c and 1203d. The Port has an MOU with LBER, approved in 1992 and amended in 2004, that provides guidelines for ongoing oil operations within the Harbor District.

City of Long Beach Building Code

Every 3 years, Long Beach Development Services is required by state law to adopt and enforce the most current edition of the CBC, in this case 2016, to establish uniform standards for the construction and maintenance of buildings, electrical systems, plumbing systems, mechanical systems, and fire and life safety systems. The code became effective at the local level on January 1, 2017. Once the CBC is adopted locally, the City's building official administers the building code. The duties and powers of the building official are identified under 18.03.020 of the Long Beach building code (City of Long Beach 2017).

Harbor District Guidelines

The Harbor District uses the CBC as a basis for seismic design for land-based structures. However, with respect to wharf construction, the Harbor District standards and specifications would be applied to the design of individual projects, and a Harbor Development Permit (HDP) is required. City of Long Beach Harbor Department Engineering Design Division's *Design Criteria Manual* (City of Long Beach 2014) establishes the basic guidelines and minimum design criteria for projects within the Harbor District.

3.5.3 Impacts and Mitigation Measures

3.5.3.1 Significance Criteria

Criteria for determining the significance of impacts on geology, soils, and seismic conditions are based on the 2019 CEQA Guidelines, Appendix G (Environmental Checklist), and have been modified as necessary to reflect Port operations within a highly urbanized, industrial complex. Impacts during construction or operation would be considered significant if the Proposed Plan would:

- **GEO-1:** Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:
  - Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map;
  - Strong seismic-ground shaking;
  - Landslides, lateral spreading, subsidence, liquefaction, or collapse; and/or
  - Tsunamis or seiches.
- **GEO-2:** Result in substantial soil erosion or the loss of topsoil.
- **GEO-3:** Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property.
- **GEO-4:** Directly or indirectly destroy a unique geologic feature or result in the permanent loss of, or loss of access to, a paleontological resource of regional or statewide significance.
- **GEO-5:** Known mineral (petroleum or natural gas) resources would be rendered inaccessible.

3.5.3.2 Assessment Methodology

Impacts from the Proposed Plan and alternatives were evaluated by considering the potential for destroying or interfering with access to local geological resources and the potential to exacerbate existing geological hazards that may result in substantial damage to structures or infrastructure or expose people to substantial risk of injury.

The assessment of impacts was conducted after first considering the effects of applying regulatory controls. Project improvements would be designed and constructed in accordance with the CBC, City building code requirements and Seismic Safety Element, MOTEMS design criteria, and Harbor District guidelines to minimize impacts associated with seismically induced geohazards.

Assessment of impacts on paleontological resources resulting from the construction and operation of the Proposed Plan and alternatives consisted of the following:

- Review of the most current published geologic map covering the Harbor District and identification of the surficial geologic units present within and near the Harbor District;
- Analysis of temporal and geographic relationships between geologic units for evaluation of potential subsurface geology;
- A museum records search from the LACM of previously documented vertebrate fossil localities within and near the Harbor District; and
- Evaluation of documented fossil localities for determination of paleontological sensitivity within the geologic context of the Harbor District.

3.5.3.3 Proposed Plan

Impact GEO-1: Construction and operations would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault; strong seismic-ground shaking; landslides, lateral spreading, subsidence, liquefaction, or collapse; tsunamis or seiches.

<u>Impact Determination</u>

Construction

The Long Beach region is susceptible to earthquake-related hazards due to the presence of active local faults, such as the Palos Verdes Fault and NISZ. Additionally, because much of the Harbor District was constructed using hydraulic and alluvial fill, land portions are subject to strong seismic-ground shaking, lateral spreading, subsidence, liquefaction, or collapse. The topography of the Harbor District is generally flat; therefore, construction of the Proposed Plan projects would not exacerbate fault line activity or landslide hazards.

The Harbor District region historically has been subject to tsunamis and seiches. Although relatively rare, a large tsunami or seiche could cause substantial damage and injuries in exposed onshore or nearshore locations. Tsunamis and seiches are derived from wave action, and the risk of damage or injuries from these events at any particular location is lessened if the location is high enough above sea level, far enough inland, or protected by manufactured structures such as dikes or concrete walls. While impacts due to seismically induced tsunamis and seiches are typical for the entire California coastline, the risks of adverse effects would not be increased by construction of Proposed Plan projects.

Construction activities for Proposed Plan projects would be conducted in accordance with applicable state and local building code requirements and standards, such as the CBC and City building codes, as well as Harbor District guidelines and the Seismic Safety Element of the City of Long Beach General Plan. These mandatory building codes and criteria provide requirements for construction, grading, excavations, use of fill, foundation work, including type of materials, design, procedures, and structural seismic requirements that address risks from seismically induced hazards, such as strong seismic-ground shaking; lateral spreading, subsidence, liquefaction, or collapse; or tsunamis or seiches. Necessary permits, plan checks, and inspections are also specified in the building codes. Therefore, construction of the Proposed Plan projects in accordance with building codes and land use changes would not exacerbate risks from geologic hazards.

Implementation of the OHSPER project would not require construction as the facility is already operable in its present configuration. Because the site already exists, the OHSPER project would not exacerbate risks from geologic hazards.

Operations

The Proposed Plan projects would be designed, constructed, and operated in accordance with mandatory state and local building code requirements and standards, such as the CBC, as well as the Seismic Safety Element of the City of Long Beach General Plan (City of Long Beach 1988) that address loss of life, injuries, damage to property, and social and economic impacts resulting from future earthquakes. This would ensure that operation of the Proposed Plan projects would not exacerbate the risks of loss, injury, or death from seismically induced hazards, tsunamis, or seiches.

The OHSPER site could be susceptible to strong seismic-ground shaking. However, it is unlikely this would lead to loss, injury, or death because there are no structures on the site and it is unoccupied. To account for potential sediment shifting during a major seismic event, the following measures are required by the OMMP developed for the OHSPER site (see Appendix C, OHSPER Technical Report). Per the OMMP, POLB would implement the following measures as soon as possible following a major seismic event:

- Event-related monitoring would occur following a major seismic event.
- Monitoring would determine if any contaminated sediments became exposed during the event.
- If contaminated sediments are exposed, measures such as placement of cap material would be implemented to remediate the adverse conditions.

Consequently, operation of the OHSPER site would not exacerbate risks from geologic hazards.

As construction and operations would not directly or indirectly exacerbate risks involving rupture of a known earthquake fault, strong seismic-ground shaking, landslides, or tsunamis or seiches, impacts would be less than significant and no mitigation is required.

Impact GEO-2: Construction and operations would not result in substantial soil erosion or the loss of topsoil.

<u>Impact Determination</u>

Construction

Direct impacts at the Proposed Plan project sites from soil erosion or loss of topsoil are addressed in Section 3.7 (Hydrology and Water Quality). With the exception of the OHSPER site and potentially the Pier B Street Support Yard projects, which would not disturb upland soils, all the other Proposed Plan projects would likely involve construction activities within upland (backland) portions of the project sites. Depending on the nature and extent of the activities, construction in the upland portions of the Proposed Plan projects would have the potential to result in substantial soil erosion or the loss of topsoil if the construction site is not appropriately managed for erosion, dust, and runoff. There is the potential for construction activities to disturb site soils and/or alter site grading or flow patterns in a manner that potentially could result in soil erosion and loss of topsoil. Excavation activities or stockpiling soils or other equipment at a project construction site could also result in localized alterations of drainage patterns that would possibly result in erosion of exposed soils.

Compliance with the NPDES Construction General Permit (CGP) and project-specific Stormwater Pollution Prevention Plan (SWPPP) would be mandatory and would ensure that any runoff from a construction site would not cause substantial soil erosion or loss of topsoil. Standard, permit-specified BMPs for soil stabilization can include use of vegetation, soil binders, mulches, geotextiles, plastic covers, and erosion control blankets. These measures are typically utilized during and immediately following construction until paving is completed and vegetation is established, thereby reducing erosion. Construction contractors would be required to implement BMPs to prevent/contain releases of soils. Monitoring of the BMPs to ensure compliance is included in the SWPPP as controls. Construction activities would comply with POLB guidance and applicable permits and applicable sections of the LBMC and CBC.

Implementation of the OHSPER project would not require construction activities because the site already exists. Therefore, this project would result in no soil erosion or loss of top soil.

Operations

In general, once a project has been constructed and existing surfaces have been covered by concrete, asphalt, and building foundations, the potential risks for subsequent soil erosion associated with project operations would be minimal. However, heavy vehicle loads at intermodal, Port, and bulk transfer yards associated with some of the Proposed Plan projects, such as the Fourth Track at Ocean Boulevard, Pier B Street Support Yard, Pier J Terminal Redevelopment, Pier S Mixed Use Development, Pier T Improvements, Pier W Terminal Development, could cause ruts, potholes, or degradation and ultimately pavement failure that could result in minor and localized soil erosion. Embankments adjacent to tracks are especially prone to erosion. Technologies that stabilize and protect surface layer soils from severe erosion, slides, and washouts post-construction would be implemented through POLB guidance, permits, and applicable sections of the LBMC and CBC. Operations activities associated with the Proposed Plan projects would not result in substantial soil erosion.

Use of the OHSPER site for managing Port sediments in accordance with the OMMP would not result in erosion or loss of top soils.

As Proposed Plan project construction and operations and land use changes would not result in substantial soil erosion or the loss of topsoil, impacts would be less than significant and no mitigation is required.

Impact GEO-3: Construction and operations would not be located on expansive soil, creating substantial direct or indirect risks to life or property.

Impact Determination

Construction

Natural alluvial and estuarine deposits, as well as artificial fill consisting of dredged materials or imported soils, would be encountered during construction activities within all planning districts except Planning District 6 (Anchorage and Open Water), which includes the OHSPER site. The surface soil in the harbor area is older dredged fill material underlain by dredged material, engineered construction fill, and in some places, old alluvial soils and muds. These soil conditions have the potential to shift and settle. Structural damage may result over a long period of time; such damage could result from inadequate soil and foundation engineering or the placement of structures directly on expansive soils. Locations of expansive soils are site-specific and can generally be remedied through standard engineering practices. As discussed in Section 3.7 (Hydrology and Water Quality), groundwater is locally present within the Harbor District. Groundwater elevations are typically less than 10 feet bgs (CH2M 2016). Materials near and below the shallow groundwater table would be relatively fluid, potentially resulting in soil collapse, which in turn could result in damage to adjacent structures. The Dominguez Gap Seawater Intrusion Barrier, maintained by the Los Angeles County Department of Public Works, maintains water table elevations near sea level and prevents seawater intrusion from migrating inland (Los Angeles County Public Works 2018). Additionally, subsidence due to oil extraction was a major problem in the Harbor District; however, the present balance between fluid injection and hydrocarbon withdrawal is maintained such that future subsidence would not recur (City of Long Beach 2007).

The CBC provides minimum standards regulating a number of aspects of construction that are relevant to geology and geologic hazards, including mitigation of soil conditions such as expansive soils. Geologic resources and hazards in the Harbor District are governed primarily by the City of Long Beach. Construction activities would be required to comply with POLB guidance, permits, and applicable sections of the LBMC and CBC. Local grading ordinances establish detailed procedures for excavation and earthwork required during construction. MOTEMS apply to all existing marine oil terminals in California and include criteria for inspection, structural analysis and design, and geotechnical considerations. Based on conformance with the various codes and standard engineering practices, Proposed Plan project construction activities would not be affected by expansive soil.

Implementation of the OHSPER project would not require construction activities because the site already exists. Therefore, this project would not be affected by expansive soil.

Operations

Potential risks associated with expansive soils could be encountered during construction of one or more of the Proposed Plan projects, such as the Pier J Terminal Redevelopment, Pier S Mixed Use Development, Pier T Improvements, and Pier W Terminal Development, but this would be remedied through application of standard engineering practices. The CBC provides minimum standards regulating a number of aspects of construction that are relevant to geology and geologic hazards, including mitigation of soil conditions such as expansive soils. Compliance with the codes would be mandatory and would be applicable to Proposed Plan project operations.

Due to the OHSPER location offshore in the marine environment, project operations would not be affected by expansive soils.

As the Proposed Plan project construction and operations and land use changes would not create substantial direct or indirect risks to life or property associated with expansive soil, impacts would be less than significant and no mitigation is required.

Impact GEO-4: Construction and operations would not directly or indirectly destroy a unique geologic feature or result in the permanent loss of, or loss of access to, a paleontological resource of regional or statewide significance.

Impact Determination

Construction

There are no rare or unique geological resources within the Harbor District other than the oil operating areas devoted to the continued production of oil from the Long Beach and Wilmington Oil Fields (addressed by Impact GEO-5). However, portions of the Harbor District may contain paleontological resources, as discussed below. The Seismic Safety Element of the City of Long Beach General Plan contains policies for the protection of geologic features. New construction associated with the Proposed Plan projects performed in accordance with the City of Long Beach General Plan would not result in the direct or indirect destruction of any unique geologic feature.

The paleontological sensitivity of the Harbor District was evaluated in accordance with the Society of Vertebrate Paleontology's sensitivity criteria (SVP 2010) (Table 3.5-3). The evaluation considers the sensitivity of the geologic units that occur at the ground surface as well as those likely in the subsurface of the Harbor District. At the ground surface across the Harbor District, the Late Holocene-age unconsolidated shelf sediments and artificial fill were determined to have low potential for fossils as these units are either too young to yield significant fossils or consist of displaced and engineered sediments with little to no geologic context. In contrast, the Pleistocene-age sedimentary deposits of the continental shelf are determined to have high potential for fossils as they are temporally and lithologically suitable for fossil preservation and have potentially yielded significant fossils as reported from dredging spoils. The Late Pleistocene- to Holocene-age young alluvium (Qyf) is currently undetermined based on the presence of a single near-surface fossil specimen that may have been associated with this unit.

TABLE 3.5-3. PALEONTOLOGICAL SENSITIVITY CLASSIFICATION

Resource Potential	Criteria
No potential	Rock units that have no potential for paleontological resources are those that are formed under or exposed to immense heat and pressure, such as high-grade metamorphic rocks and plutonic igneous rocks.
Low	Rocks units from which few fossils have been recovered or are generally unsuitable for preservation of fossils are considered to have a low potential. These units typically yield fossils only on rare occasions and under unusual circumstances (e.g., basalt flows, recent colluvium).
High	Rock units from which vertebrate or significant specimens of other fossil types have been recovered are considered to have a high potential. Rock units with high potential also may include rock units that are temporally or lithologically suitable for the preservation of fossils (e.g., Middle Holocene and older, argillaceous and carbonate-rich paleosols, fine-grained marine sandstones).
Undetermined	In some cases, available literature on a particular rock unit is scarce and a determination of whether or not it is fossiliferous or potentially fossiliferous is difficult to make. Under these circumstances, further study is needed to determine the unit's paleontological resource potential.

The subsurface of the entire Harbor District is determined to have high potential for fossils. For the purposes of this evaluation, the subsurface is considered to be deeper than 5 feet below the top of native sediments rather from the top surface of artificial fill. Onshore areas currently covered by young alluvium (Qyf) and artificial fill in Planning Districts 1, 2, and 3 are likely underlain by potentially fossiliferous deposits that include the Middle to Late Pleistocene-age old alluvium (Qoa) and shallow marine deposits (Qol). All offshore areas currently covered by artificial fill and the Late Holocene-age unconsolidated shelf sediments of the immediate seafloor are likely underlain by potentially fossiliferous, Pleistocene-age sedimentary deposits. The depths to fossiliferous deposits below the present ground surface are presently unknown and likely vary depending on location within the Harbor District.

The permanent loss of, or loss of access to, a paleontological resource may occur in marine, nearshore, and terrestrial locations associated with ground-disturbing projects under the Proposed Plan. Projects involving ground disturbance in artificial fill and shallow native sediments with low potential are unlikely to impact significant paleontological resources. Geologic units at or within the top 5 feet bgs in the Harbor District have low, high, or undetermined potential for paleontological resources. Project impacts on paleontological resources may occur from shallow ground disturbance at depths of 5 feet bgs or less, including dredging, into undisturbed, native sediments with high or undetermined potential. Projects that would cause ground disturbance deeper than 5 feet bgs, including dredging, into native sediments with high potential could cause the permanent loss of, or loss of access to, these paleontological resources.

Project-related ground disturbance at depths more than 5 feet bgs throughout the Harbor District has the potential to impact significant subsurface paleontological resources. Therefore, the following sections focus only on the possible project-specific impacts on paleontological resources at depths of 5 feet bgs or less.

Native sediments and artificial fill that cover the majority of the surface in the vicinity of Piers B, C, and D have low potential for fossils. Excavations and other ground-disturbing activities at depths less than or equal to 5 feet bgs are not likely to impact significant paleontological resources under the Fourth Track at Ocean Boulevard and Pier D Street Realignment projects and the west terminus of the Ocean Boulevard Bicycle Gap Closure project.

Significant paleontological resources may be present in geologic deposits near the ground surface in the northern portion of Pier B. Specifically, impacts on significant paleontological resources may occur during the Pier B Street Support Yard project if excavations and other ground-disturbing activities are planned in undisturbed sediments at depths less than or equal to 5 feet bgs.

The native sediments and artificial fill as mapped for all the present ground surface of Pier S have low potential for fossils. Project-related ground-disturbing activities associated with the Pier S Mixed Use Development and Pier S Shoreline Enhancement at depths less than or equal to 5 feet bgs are not likely to impact significant paleontological resources.

The native sediments and artificial fill as mapped for all of the present ground surface in the vicinity of the proposed Pier T Improvements and Pier W Terminal Development projects have low potential for fossils. Project-related ground-disturbing activities at depths less than or equal to 5 feet bgs, including dredging, are not likely to impact significant paleontological resources.

Significant paleontological resources may be present in geologic deposits just offshore of Pier J. Dredging and other seafloor disturbances at depths less than or equal to 5 feet bgs could potentially disturb significant paleontological resources within the Pier J Terminal Redevelopment project area. Excavations, dredging, and other ground-disturbing activities at depths less than or equal to 5 feet bgs are unlikely to impact significant paleontological resources under Fourth Track at Ocean Boulevard, Protective Boat Basin (Berth F202), and Administrative Building Site Support Yard (Expansion) project areas because the sediments and artificial fill as mapped across the remainder of the ground surface have low potential for fossils.

The Ocean Boulevard Bicycle Gap Closure project will be limited largely to the Gerald Desmond Bridge. The present ground surface at the east terminus consists of artificial fill with low potential for fossils. Project-related excavations and other ground-disturbing activities at depths less than or equal to 5 feet bgs are not likely to impact significant paleontological resources.

The seafloor within the North Lobe and the South Lobe of the OHSPER site has already been impacted, and the site has a low potential for fossils. However, the adjacent seafloor and subsurface have been determined to have high potential for paleontological resources. The OHSPER project would expand the current site boundaries but would not require any disturbance of adjacent areas with the potential to destroy significant paleontological resources.

Operations

Operations of Proposed Plan projects would not result in ground disturbances with the potential to impact paleontological resources.

Operation of portions of the OHSPER site as a Confined Aquatic Disposal (CAD) site would involve capping contaminated sediments with uncontaminated material. The source of uncontaminated cap sediment is presently unknown but would be evaluated at the time a proposed project that is expected to generate contaminated sediments and use the OHSPER for sediment management is identified. Regardless, cap material would not be obtained from areas adjacent to the OHSPER site with high sensitivity for significant paleontological resources (see Appendix C, OHSPER Technical Report).

As construction and operations would not directly or indirectly destroy a unique geologic feature, impacts would be less than significant. However, construction of some of the Proposed Plan projects, such as the Pier J Terminal Redevelopment and the Pier B Street Support Yard, could disturb soils and/or sediments that contain paleontological resources, inadvertently resulting in the permanent loss of resources. From a programmatic perspective, this impact would be significant, but it could be reduced to less than significant with mitigation. Per the PRC 30244 (the CCA), any development that would adversely impact paleontological resources as identified by the State Historic Preservation Officer requires reasonable mitigation.

Mitigation Measures

The following measure would be implemented as applicable to minimize impacts associated with paleontological resources within the Harbor District associated with construction of the Proposed Plan projects.

GEO-1: Paleontological Resources Discovery Plan. In the event that any unanticipated paleontological resource is encountered during construction activities, construction work in the immediate area shall be temporarily halted until the significance of the find can be assessed by a qualified paleontologist. Additional monitoring recommendations may be made at that time. If the resource is found to be significant, the paleontologist shall prepare and complete a standard Paleontological Resources Mitigation Program for the salvage and curation of identified resources.

Significance of Impact after Mitigation

Impacts on paleontological resources would be less than significant with implementation of **Mitigation Measure GEO-1**.

Impact GEO-5: Construction and operations would not render known mineral (petroleum or natural gas) resources inaccessible.

<u>Impact Determination</u>

Construction

Proposed Plan projects constructed adjacent to oil and natural gas production and storage areas would be subject to the Port's existing MOU with LBER that provides guidelines for minimizing disruption to oil production areas within the Harbor District. Additionally, Goal #2 under "Oil Operations" in the Proposed Plan is to avoid damage and/or mutual interference between Port activities and oil and gas production. The primary land use policies that guide oil and gas production activities within the Harbor District have not changed since the 1990 PMP.

Accordingly, construction of the Proposed Plan projects would not render known mineral (petroleum or natural gas) resources inaccessible.

Implementation of the OHSPER project would not involve construction activities or render known mineral (petroleum or natural gas) resources inaccessible because none exist in the immediate site vicinity.

Operations

Proposed Plan projects operating adjacent to oil and natural gas production and storage areas would be subject to the Port's existing MOU with LBER that provides guidelines for minimizing disruption to oil production areas within the Harbor District. Additionally, Goal #2 under "Oil Operations" in the Proposed Plan is to avoid damage and/or mutual interference between Port activities and oil and gas production. Accordingly, Proposed Plan project operations would not render known mineral (petroleum or natural gas) resources inaccessible.

OHSPER project operations would not render known mineral (petroleum or natural gas) resources inaccessible because none occur in the immediate site vicinity.

As Proposed Plan project construction and operations and land use changes would not render known mineral (petroleum or natural gas) resources inaccessible, impacts would be less than significant and no mitigation is required.

3.5.3.4 Alternative 1 (No Plan Alternative)

Alternative 1 (No Plan Alternative) considers what would reasonably occur if the Port did not update the 1990 PMP as amended to include updates to the planning districts and allowable land and water use designations within the Harbor District. Alternative 1 includes projects that are 1) consistent with the 1990 PMP as amended, 2) may or may not have been evaluated in a final CEQA document, and/or 3) could be implemented without approval of the Proposed Plan. Alternative 1 includes the following projects: Administrative Building Site Support Yard (Expansion), Fourth Track at Ocean Boulevard, Ocean Boulevard Bicycle Gap Closure, Pier B Street Support Yard, Pier D Street Realignment, Pier S Mixed Use Development, and Pier S Shoreline Enhancement. This alternative also includes the Pier T Echo Support Yard project, which would construct a 17-acre support yard (chassis, empties, or peel-off) that would serve the Pier T container terminal. In addition, use of the WASSS would continue as currently permitted (i.e., placement and reuse of clean sediments).

Impact Determination

Impacts on geology, soils, and seismic conditions from construction and operation of individual projects under Alternative 1 would be the same as for the Proposed Plan. Overall, impacts on geology, soils, and seismic conditions from Alternative 1 would be significant due to the potential for any project that disturbs soil or sediment within a high sensitivity area of the Harbor District to result in the permanent loss of, or loss of access to, a paleontological resource. This impact would be reduced to less than significant with implementation of **Mitigation Measure GEO-1**. However, because Alternative 1 would not include any of the pier development/redevelopment projects (e.g., Piers J, T, and W) or the Protective Boat Basin (Berth F202) project included in the Proposed Plan, there would be no potential for impacts on paleontological resources from construction or operation of these projects. Further, Alternative 1 would not require any fill that could otherwise result in loss of access to a paleontological resource. Even though the impacts from both Alternative 1 and the Proposed Plan would be less than significant with mitigation, from a programmatic perspective, the impacts from Alternative 1 would be comparatively less in magnitude due to the reduced construction and operational activities and absence of fill.

Under Alternative 1, continued use of the WASSS as currently permitted would result in similar potentials for impacts on geology, soils, and seismic conditions as those associated with the OHSPER project under the Proposed Plan. As impacts would be less than significant, no mitigation is required.

3.5.3.5 Alternative 2 (No Terminal Development)

Alternative 2 (No Terminal Development) is similar to the Proposed Plan and would include updates to the planning districts and allowable land and water use designations in the Harbor District. However, Alternative 2 would not include terminal development projects at Pier T, Pier W, or Pier J. Alternative 2 would include the following projects: Administrative Building Site Support Yard (Expansion), Protective Boat Basin (Berth F202), OHSPER, Fourth Track at Ocean Boulevard, Ocean Boulevard Bicycle Gap Closure, Pier B Street Support Yard, Pier D Street Realignment, Pier T Echo Support Yard, Pier S Mixed Use Development, and Pier S Shoreline Enhancement.

Impact Determination

Impacts on geology, soils, and seismic conditions from construction and operations of individual projects and land use changes under Alternative 2 would be the same as for the Proposed Plan. Overall, impacts on geology, soils, and seismic conditions from Alternative 2 would be significant due to the potential for any project that disturbs soil or sediment within high sensitivity areas of the Harbor District to result in the permanent loss of, or loss of access to, a paleontological resource. This impact would be reduced to less than significant with implementation of **Mitigation Measure GEO-1**. However, because Alternative 2 would not include any of the pier development/redevelopment projects (e.g., Piers J, T, and W) that are part of the Proposed Plan; there would be no potential for impacts on paleontological resources from construction or operation of these projects.

The Protective Boat Basin (Berth F202) project could result in placement of 0.3 acre of fill associated with construction of a new breakwater. This would be the only Alternative 2 project that would require placement of fill in areas that are currently open water. This project would not result in significant impacts on paleontological resource because the site is located in low paleontological sensitivity portion of the Harbor District.

Even though the impacts from Alternative 2 would be less than significant with mitigation, from a programmatic perspective, the impacts from Alternative 2 would be comparatively less in magnitude that the Proposed Plan due to the differences in construction and operational activities and size of the fill area.

Under Alternative 2, operations associated with the OHSPER project would result in similar impacts on geology, soils, and seismic conditions as those associated with the OHSPER project under the Proposed Plan. As impacts would be less than significant, no mitigation is required.

3.5.3.6 Alternative 3 (Reduced Terminal Development)

Alternative 3 (Reduced Terminal Development) is similar to the Proposed Plan and would include updates to the planning districts and allowable land and water use designations in the Harbor District. Under Alternative 3, development of the Pier J terminal would be reduced compared to the Pier J Terminal Redevelopment under the Proposed Plan. The Pier J Reduced Development would include dredging and filling the 22-acre triangle, cutting a 9-acre notch, extending the north wharf to the east, and relocating the existing rail line and yard to Pier J South. No development of a new Pier W terminal would occur. Alternative 3 would include the following projects: Administrative Building Site Support Yard (Expansion), Protective Boat Basin Project (Berth F202), OHSPER, Fourth Track at Ocean Boulevard, Ocean Boulevard Bicycle Gap Closure, Pier B Street Support Yard, Pier D Street Realignment, Pier S Mixed Use Development, Pier S Shoreline Enhancement, Pier T Improvements, and Pier J Reduced Development.

<u>Impact Determination</u>

Impacts on geology, soils, and seismic conditions from construction and operations of individual projects and land use changes under Alternative 3 would be similar to the Proposed Plan. Overall, impacts on geology, soils, and seismic conditions from Alternative 3 would be significant due to the potential for any project that disturbs soil or sediment within high sensitivity areas of the Harbor District to result in the permanent loss of, or loss of access to, a paleontological resource. This impact would be reduced to less than significant with implementation of **Mitigation Measure GEO-1**.

The Protective Boat Basin (Berth F202), Pier T Improvements, and Pier J Reduced Development projects would be the only Alternative 3 projects that would require placement of fill in areas that are currently open water. Combined, these projects would result in 92.3 acres of fill (see Chapter 1, Introduction and Project Description). The Protective Boat Basin (Berth F202) and Pier T Improvements projects would not result in significant impacts on paleontological resources because these sites are located in low paleontological sensitivity portions of the Harbor District. However, the Pier J Terminal Redevelopment project would be located in a high paleontological sensitivity portion of the Harbor District. Therefore, placement of fill for this project could result in the permanent loss of access to a paleontological resource. This would represent a potentially significant impact, but it could be mitigated to less than significant with implementation of **Mitigation Measure GEO-1**.

Even though the impacts from Alternative 3 would be less than significant with mitigation, from a programmatic perspective, the impacts from Alternative 3 would be comparatively less in magnitude that the Proposed Plan due to the differences in construction and operational activities and size of the fill area.

Under Alternative 3, operations associated with the OHSPER project would result in similar impacts on geology, soils, and seismic conditions as those associated with the OHSPER project under the Proposed Plan. As impacts would be less than significant, no mitigation is required.

3.5.4 Cumulative Impacts

This section evaluates the potential for the Proposed Plan projects, together with other past, present, and reasonably foreseeable future projects, to make a cumulatively considerable contribution to a significant cumulative impact to geology, soils, and seismic conditions. The region of influence for cumulative impacts is the Inner Harbor and Outer Harbor and immediately adjacent upland areas within and outside of the Harbor District.

The significance criteria used for the cumulative analysis are the same as those used for the Proposed Plan in Section 3.5.3.1 (Significance Criteria).

- **GEO-1: Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:**
  - Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map;
  - Strong seismic-ground shaking;
  - Landslides, lateral spreading, subsidence, liquefaction, or collapse; and
  - Tsunamis or seiches.

Construction and operation of the Proposed Plan projects would be in accordance with applicable state and local building code requirements and standards, such as the CBC and City building codes, as well as Harbor District guidelines and the Seismic Safety Element of the City of Long Beach General Plan. These mandatory building codes and criteria provide requirements for construction, grading, excavations, use of fill, foundation work, including type of materials, design, procedures, and structural seismic requirements that address existing risks from seismically induced hazards, such as strong seismic-ground shaking; lateral spreading, subsidence, liquefaction, or collapse; or tsunamis or seiches. Therefore, the Proposed Plan projects would not exacerbate risks from geologic hazards, and impacts would be less than significant. Because impacts would be less than significant, the Proposed Plan would not make a cumulatively considerable contribution to risks associated with geological hazards.

Operations for the OHSPER project would not exacerbate risks from geological hazards and impacts would be less than significant. Because impacts would be less than significant, the OHSPER project would not make a cumulatively considerable contribution to risks associated with geological hazards.

- **GEO-2: Result in substantial soil erosion or the loss of topsoil.**

The Proposed Plan projects would be constructed in compliance with applicable permits and applicable sections of the LBMC and CBC. Stormwater runoff and potentials for substantial soil erosion or loss of topsoil would be managed in accordance with the NPDES CGP and project-specific SWPPP. Once construction of the Proposed Plan projects is completed, potentials for future soil disturbance that could result in erosion or loss of topsoil are negligible. Thus, the Proposed Plan projects would have a less than significant impact on substantial soil erosion or the loss of topsoil. Because impacts would be less than significant, the Proposed Plan would not make a cumulatively considerable contribution to a significant cumulative impact to erosion or loss of topsoil.

Operations for the OHSPER project would not result in erosion or loss of topsoil, and impacts would be less than significant. Because impacts would be less than significant, the OHSPER project would not make a cumulatively considerable contribution to erosion or loss of topsoil.

- **GEO-3: Be located on expansive soil, creating substantial direct or indirect risks to life or property.**

New construction associated with the Proposed Plan projects would be subject to applicable sections of the LBMC and CBC and other relevant guidance and permits. Compliance with applicable building codes would reduce the potential direct or indirect risks to life or property associated with expansive soils. Thus, the Proposed Plan projects would not exacerbate risks related to expansive soils. Because impacts would be less than significant, the Proposed Plan would not make a cumulatively considerable contribution to a significant cumulative risk associated with expansive soils.

Operations for the OHSPER project would not result in risks related to expansive soils, and impacts would be less than significant. Because impacts would be less than significant, the OHSPER project would not make a cumulatively considerable contribution to risks associated with expansive soils.

- **GEO-4: Directly or indirectly destroy a unique geologic feature or result in the permanent loss of, or loss of access to, a paleontological resource of regional or statewide significance.**

Other than oil and gas resources, there are no rare or unique geological resources within the Harbor District. However, based on available information, the soils and sediment within Harbor District may contain paleontological resources. Paleontological resources are finite, nonrenewable resources with a geographic extent that is generally poorly constrained. It is not possible to know whether they occur within an undisturbed portion of a particular geologic deposit, even if resources have been recovered from the same deposits elsewhere. The likelihood of a paleontological resource occurring within a geologic deposit can only be judged on the basis of the documentation of previously recorded resources nearby and the suitability of the sediments for fossil preservation.

Construction of the Proposed Plan projects could result in loss of, or loss of access to, paleontological resources. This impact would be significant but can be mitigated to less than significant with implementation of **Mitigation Measure GEO-1**. Reasonably foreseeable future projects that could contribute to cumulative impacts on paleontological resources may involve ground disturbance within natural terrestrial or aquatic depositional environments (i.e., excluding modern created land and redevelopment in the ports), including submerged locations. Most notably, projects in the Port of Long Beach and Port of Los Angeles areas would be of concern when evaluating cumulative impacts because of their proximity to the resources evaluated for the Proposed Plan. These disturbances could, without appropriate controls, represent cumulatively significant impacts on paleontological resources. Even though implementation of **Mitigation Measures GEO-1** would diminish the collective potential for degradation of paleontological resources within the Harbor District, some loss of resources is largely unavoidable given the current uncertainty regarding the distribution of resources. Therefore, the Proposed Plan could have a significant contribution to a cumulative impact that is significant and unavoidable.

Operations for the OHSPER project would not result in damage, or loss of access, to unique geological features or paleontological resources because none occur at the site. Thus, impacts would be less than significant. Because impacts would be less than significant, the OHSPER project would not make a cumulatively considerable contribution to damage, or loss of access, to unique geological features or paleontological resources.

- **GEO-5: Known mineral (petroleum or natural gas) resources would be rendered inaccessible.**

Construction and operations of the Proposed Plan projects would be subject to the Port's existing MOU with LBER that provides guidelines for minimizing disruption to oil production areas within the Harbor District. Accordingly, the Proposed Plan projects would not render known mineral (petroleum or natural gas) resources inaccessible. Because impacts would be less than significant, the Proposed Plan would not make a cumulatively considerable contribution to a significant cumulative impact to oil and gas resources.

Operations for the OHSPER project would not interfere with access to oil and gas resources because none occur at the site. Thus, impacts would be less than significant. Because impacts would be less than significant, the OHSPER project would not make a cumulatively considerable contribution to interferences with access to oil and gas resources.

3.5.5 Mitigation Monitoring Program

Implementation of **Mitigation Measure GEO-1** would be required to reduce impacts associated with construction and/or operation of Proposed Plan projects within the Harbor District. These mitigation measures and monitoring requirements are summarized in Table 3.5-4.

TABLE 3.5-4. MITIGATION MONITORING PROGRAM

Mitigation Measure	Responsible Party	Timing/Frequency
GEO-1: Paleontological Resources Discovery Plan. In the event that any paleontological resource is encountered during construction activities, construction work in the immediate area shall be temporarily halted until the significance of the find can be assessed by a qualified paleontologist. Additional monitoring recommendations may be made at that time. If the resource is found to be significant, the paleontologist shall prepare and complete a standard Paleontological Resources Mitigation Program for the salvage and curation of identified resources.	POLB	As needed during construction

Key: POLB = Port of Long Beach

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3.6 HAZARDS AND HAZARDOUS MATERIALS

This section describes the potential impacts on hazards and hazardous materials that could result from implementation of the Proposed Plan and its alternatives.

3.6.1 Environmental Setting

A "hazardous material" is any item or agent (biological, chemical, physical) that has the potential to cause harm to humans, animals, or the environment, either by itself or through interaction with other factors. Hazardous materials are defined and regulated in the U.S. primarily by laws and regulations administered by USEPA, the Occupational Safety and Health Administration (OSHA), the USDOT, and the U.S. Nuclear Regulatory Commission. Each has its own definition of "hazardous material."

OSHA's definition includes any substance or chemical that is a "health hazard" or "physical hazard," including: chemicals that are carcinogens, toxic agents, irritants, corrosives, sensitizers; agents that act on the hematopoietic system; agents that damage the lungs, skin, eyes, or mucous membranes; chemicals that are combustible, explosive, flammable, oxidizers, pyrophorics, unstable-reactive or water-reactive; and chemicals that in the course of normal handling, use, or storage may produce or release dusts, gases, fumes, vapors, mists, or smoke that may have any of the previously mentioned characteristics.

USEPA incorporates the OSHA definition and adds any item or chemical that can cause harm to people, plants, or animals when released by spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment. The Emergency Planning and Notification regulation (40 CFR Part 355) contains a list of more than 350 hazardous and extremely hazardous substances.

USDOT defines a hazardous material as any item or chemical that when being transported or moved is a risk to public safety or the environment and is regulated as such under the Hazardous Materials Regulations (49 CFR Parts 100−180); International Maritime Dangerous Goods Code; Dangerous Goods Regulations of the International Air Transport Association; Technical Instructions of the International Civil Aviation Organization; and U.S. Air Force Joint Manual, Preparing Hazardous Materials for Military Air Shipments.

The U.S. Nuclear Regulatory Commission regulates items or chemicals that are "special nuclear source" or byproduct materials or radioactive substances (10 CFR Part 20).

Hazardous materials are handled, stored, and transported to/from the Port by marine vessel, truck, train, and pipeline primarily as liquid bulk or in containers. Current facilities that handle hazardous materials are discussed in Section 3.6.1.3 (Harbor District).

3.6.1.1 Area of Influence

The area of influence for hazards associated with releases of hazardous materials (e.g., spills and leaks) and existing soil, groundwater, and sediment contamination would include the Harbor District, adjacent harbor waters, major roadways, and rail lines in the Port area.

3.6.1.2 Regional Setting

Existing Public Emergency Services

Emergency response/fire protection for the Port is provided by seven Long Beach Fire Department (LBFD) stations. Other organizations that provide emergency assistance include the

Long Beach Police Department (LBPD), USCG, U.S. Department of Homeland Security (DHS), U.S. Customs and Border Protection (CBP), Federal Bureau of Investigation, and CDFW. Public services are discussed in detail in Section 3.11 (Public Services and Safety).

Since 2009, the POLB has operated the JCCC that brings together the POLB Security Divisions, Harbor Patrol, LBPD, and LBFD. The JCCC focuses on maritime domain awareness in coordination and collaboration with the Port of Los Angeles, USCG, CBP, and other agencies. The JCCC monitors hundreds of cameras throughout the San Pedro Bay Port Complex, as well as access control, radar, and sonar detection systems. These systems provide above water, underwater and on-water detection capability. The JCCC utilizes a “virtual port” system to monitor Port activities (POLB 2016c).

Homeland Security at the Port

Terrorism risk is defined by the combined factors of threat, vulnerability, and consequence. In this context, terrorism risk represents the expected consequences of terrorist actions taking into account the likelihood that these actions will be attempted and the likelihood that they will be successful. The vulnerability of the Port and of individual cargo terminals can be reduced by implementing security measures. The expected consequences of a terrorist action can also be affected by certain measures, such as emergency response preparations.

Cargo facilities in the Port are the locations where cargo moving through the international supply chain is transferred between vessels and land storage or to land transportation (e.g., truck, rail, or pipeline). Because this function is critical to the international supply chain and, therefore, to the U.S. economy, it is possible that these facilities could be targeted for terrorist actions; these terminals, however, are not seen as iconic (in the sense of the World Trade Center in 2001). During operational periods, people on these terminals are generally limited to terminal staff members, longshore workers, and truck drivers. There is no public access to these terminals. Further, the Transportation Worker Identification Credential (TWIC) program that was established by the U.S. Congress through the Maritime Transportation Security Act (MTSA) is in force at the Port. This program is part of an effort to ensure that the nation’s ports are secure against people who could pose a security threat. To obtain a credential, an individual must provide a digital photograph, along with biometric information such as fingerprints, and pass a security threat assessment, which includes a criminal background check conducted by the Transportation Security Administration.

Port facilities could be subject to terrorist actions from the land, air, or water, and attempts to disrupt cargo operations through various types of actions could occur. To minimize the risk of terrorism, numerous security measures have been implemented in the Port. Federal, state, and local agencies, as well as private industry, have implemented and coordinated many security operations and physical security enhancements. The result is a layered approach to Port security that includes the security program of the Harbor District and the various terminal operators. The various security-related regulations are summarized in Section 3.6.2 (Regulatory Setting).

CBP is the federal agency with responsibility for the security of cargo being shipped into the U.S. CBP is the lead agency for screening and scanning cargo that is shipped through the Port. While neither the individual berths within the Port nor the Harbor District have responsibilities related to security scanning or screening of cargo entering the Port, Port police may inspect cargo if there is probable cause on a case-by-case basis.

CBP conducts several initiatives related to security of the supply chain. Through the Container Security Initiative program, CBP inspectors pre-screen U.S.-bound marine containers at foreign ports prior to loading aboard vessels bound for U.S. ports. The Customs-Trade Partnership Against Terrorism (C-TPAT) offers importers expedited processing of their cargo if they comply with CBP measures for securing their entire supply chain. Details of CBP cargo security programs can be found at the CBP website (CBP 2009).

Oil Facilities in the Port of Long Beach Area

The Wilmington Oil Field underlies the Harbor District. Development and use of these natural resources have been ongoing in the area for nearly a century. As a result, a variety of oil production and refining facilities are scattered throughout the area and connected by various pipelines. The presence and operation of these facilities, especially those close to other Port operations, present some level of baseline risk to the public and environment. Oil facilities and pipelines in the area undergo extensive environmental review prior to their approval and construction, and rigorous safety testing prior to their operation, the nature of the materials handled by these facilities and pipelines nonetheless poses risks to people, the environment, and property in the vicinity. Upsets are possible even under normal operating conditions for oil pipelines and oil facilities; therefore, they pose a risk of exposing the surrounding population to releases of materials. These releases can subsequently lead to biological and/or hydrological damage, fires, and/or releases of hazardous combustion byproducts from petroleum fires.

Existing Oil Spill Response Capability

The responsibility for onshore and offshore oil spill containment and cleanup is with the owner/operator of the facility or vessel involved in the spill (40 CFR Part 112). All marine terminals in the Port and all vessels calling at the marine terminals are required to have oil spill response plans and a certain level of initial response capability. As it is not economically feasible or practical for terminal operators and vessels to each have their own equipment to respond to more than minor spills, operators rely on pooled or contract capabilities. Most spills at the Port are small and handled by commercial contractors. Most major oil companies are members of Marine Spill Response Corporation (MSRC), an oil spill cooperative established to respond to marine spills in Los Angeles and Orange Counties, including the POLB.

The vessel and terminal owners use various companies and organizations to provide their response capability. USCG has created the Oil Spill Response Organization (OSRO) classification program so that facility and tank vessel operators can contract with and list an approved OSRO in their response plans in lieu of providing extensive lists of response resources to show that the listed organization can meet the response requirements. Organizations looking to receive a USCG OSRO classification submit an extensive list of their resources and capabilities to USCG for evaluation. The State of California has a similar OSRO classification program to allow facility and tank vessel operators to list OSROs to meet California oil spill response requirements.

The Port, through its Maintenance Division, maintains contractors on-call to provide Port-wide hazardous materials spill response and cleanup services. In addition, MSRC response services are available to all Marine Preservation Association members, companies that have contracted with MSRC. MSRC responds to oil spills of any size, shoreline cleanup and, as appropriate, hazardous material spill response and response to spills outside the U.S. MSRC can provide additional response capabilities through a network of contractors that make up MSRC's Spill Team Area Responders.

Schools near the Harbor District

Two schools are located nearby in the City and within 0.25 mile of the Harbor District boundary (Table 3.6-1). Figure 3.6-1 shows the locations of schools in the immediate vicinity of the Harbor District boundary (City of Long Beach Unified School District 2019).

TABLE 3.6-1. AREA SCHOOLS			
School	**Address**	**Phone**	**Distance from POLB Boundary**
Edison Elementary School	625 Main Avenue, Long Beach, CA, 90802	562-590-8481	0.15 mile
Cesar Chavez Elementary School	730 East 3rd Street, Long Beach, CA, 90802	562-590-0904	0.10 mile
Key: POLB = Port of Long Beach			

3.6.1.3 Harbor District

Hazardous Materials

Classes of hazardous materials that may be transported to the Port include:

- **Corrosive Materials:** solids, liquids, or gases that can damage living material or cause fire;
- **Explosive Materials:** any compound that is classified by the National Fire Protection Association (NFPA) as A, B, or C explosives;
- **Oxidizing Materials:** any element or compound, including flammable materials, that yields oxygen or reacts when subjected to water, heat, or fire conditions;
- **Toxic Materials:** gases, liquids, or solids that may create a hazard to life or health by ingestion, inhalation, or absorption through the skin;
- **Unstable Materials:** materials that react from heat, shock, friction, or contamination and that are capable of violent decomposition or auto-reaction, but which are not designated primarily as an explosive;
- **Radioactive Materials:** materials that undergo spontaneous emission of radiation from decaying atomic nuclei; and
- **Water-reactive Materials:** materials that react violently or dangerously upon exposure to water or moisture.

Hazardous materials are primarily handled at the Port in either liquid bulk cargo or in containers. In addition, fuel docks with fuel storage tanks are located at the U.S. Navy Pier 12 in the West Basin. Other facilities and terminals within the Port also store and use various hazardous materials such as lubricants and cleaning products. Older buildings throughout the Port also may contain various hazardous materials such as asbestos, lead-based paint, and polychlorinated biphenyls (PCBs).

Asbestos and Lead-Based Paint

ACM and lead-based paint were used in building materials until the 1960s. It is now recognized that such materials can be harmful if inhaled or ingested, which occurs most commonly if the materials are disturbed, such as during demolition activities. On-site buildings that were constructed prior to 1970 may contain such materials. USEPA has classified ACMs as a hazardous air pollutant, in accordance with Section 112 of the CAA.

Polychlorinated Biphenyls

PCBs were widely used historically as a fire retardant and insulator in the manufacture of transformers and capacitors due to their ability to withstand exceptionally high temperatures. Fluid-filled electrical transformers, capacitors, and circuit breakers manufactured prior to June 1979 may contain PCBs. Similarly, natural gas pipelines constructed prior to 1981 may contain PCBs. Use of this substance was banned in 1979 based on its establishment as a human carcinogen.

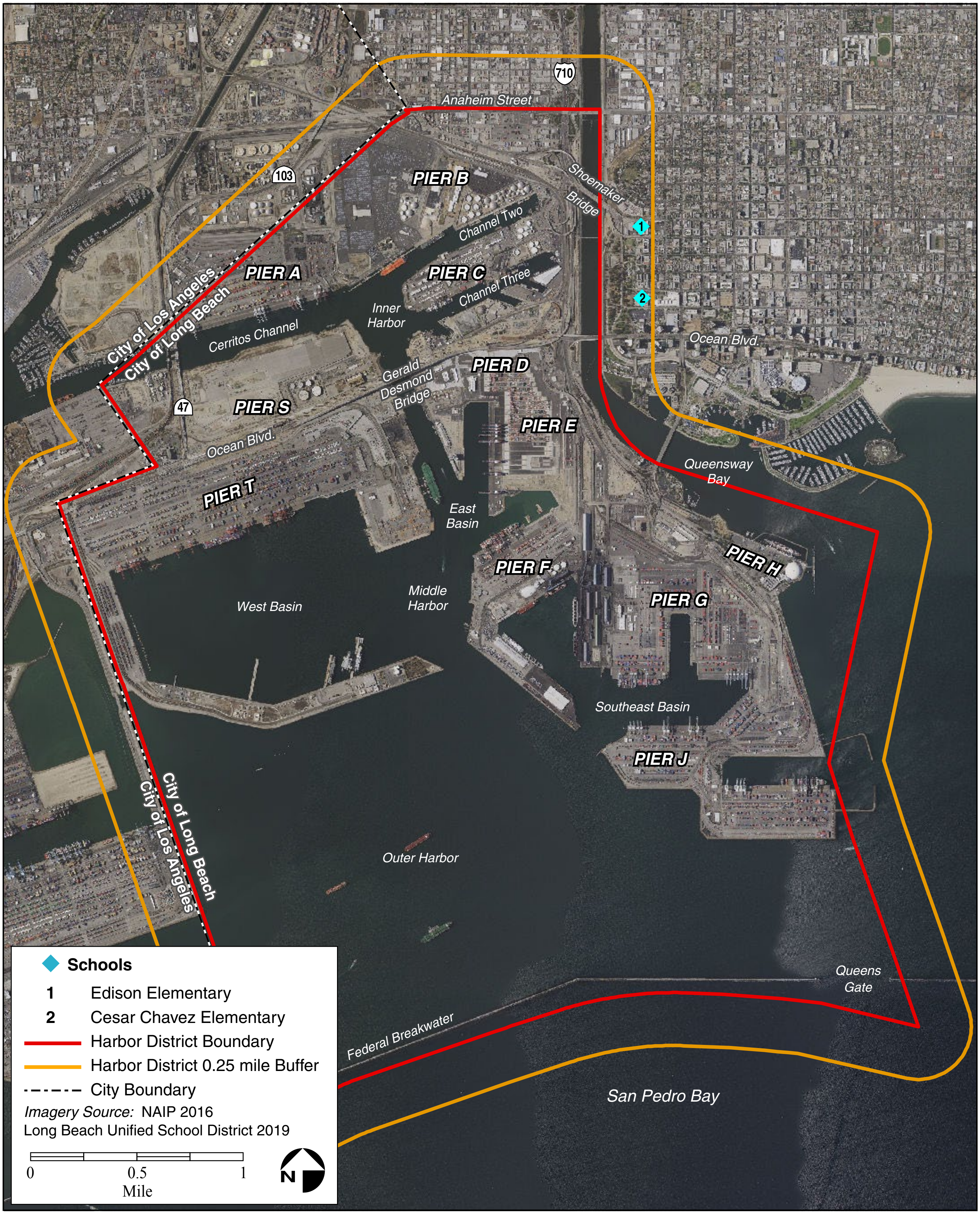

Figure 3.6-1. Schools in the Harbor District Vicinity

Liquid Bulk Hazardous Materials

A hazardous liquid bulk cargo is defined by the Port Risk Management Plan (RMP) (Reine and Dickerson 2014) and Hazard Impact Assessment (POLB 2009b) as a cargo moved through the Port in liquid bulk, which is either flammable, explosive, or produces a flammable, toxic, or suffocating gas if released. Such cargoes include crude oil, petroleum projects, and many liquid chemicals. They do not include cargoes packed in drums, tanks, etc. The Port currently has six liquid bulk facilities totaling 56 acres to handle various types of commodities for both import and export. Handling facilities include tankers, barges, bulk carriers, and storage tanks with convenient rail access.

Table 3.6-2 summarizes information on the existing marine terminals in the Port that handle hazardous liquid bulk material.

Currently, petroleum product imports dominate the hazardous liquid bulk movement through the Port. Recent data on oil and petroleum product throughput for the Port is presented in Table 3.6-3. The chemicals and related products listed in the table as hazardous are not all in liquid form.

TABLE 3.6-2. HAZARDOUS LIQUID BULK TERMINALS

Name	Berth	Area	Use	Terminal Features
Chemoil Marine Terminal	Pier F Berths F209 and F211A	5 acres	Petroleum products and bunker fuel	800-foot berth lengths; 19.1-foot wharf height; 40-foot design depth of water. Storage capacity 425,000 bbls. Pipeline system to handle shops, barges, trucks, and railcars. Pipeline connection to Carson tank farm, which supplies petroleum products to most of Los Angeles Basin refiners and terminals. Rail served.
Petro-Diamond Terminal	Pier B Berths B82 and B83	6 acres	Gasoline, ethanol, gasoline blend stocks, diesel, biodiesel	1,060-foot berths; 14.4-foot wharf height; 38-foot design depth of water. Terminal has pipeline connection to allow petroleum products to be shipped to most Los Angeles Basin refiners and common carrier pipelines. Two 8-inch dock hoses connecting into two 10-inch dock lines capable of receiving up to 12,000 bbls per hour. Truck rack at the terminal is capable of loading 150 trucks per 24-hour period. Capacity for petroleum projects: 590,000 bbls.
Tesoro BP Pipeline	Pier B Berths B76−B80	18 acres	Petroleum products (gasoline, blending stocks, methyl tert-butyl ether, diesel, naphtha jet fuel, nonenes, tetramers, fuel oils, carbon black, crude oil)	2,200-foot berth lengths; 14.4-foot wharf height; 46-foot design depth of water. Capacity for storage of 1.8 million bbls. Terminal has several pipeline connections to other companies. Loading arms on dock are 8-inch Chiksan® and are capable of loading rates of 10,000 to 15,000 bbls per hour. Three vessels can be loaded simultaneously.

TABLE 3.6-2. HAZARDOUS LIQUID BULK TERMINALS

Name	Berth	Area	Use	Terminal Features
Tesoro Pier B	Pier B Berths B84−B87	11 acres	Crude oil, petroleum products, bunker fuel	1,980-foot berth lengths; 16.8-foot wharf height; 52-foot design depth of water. Discharge capacity of 32,000 bbls per hour; 24-inch pipeline to storage and tank farm. Storage capacity of 245,000 bbls.
Tesoro Pier T	Pier T Berth T121	6 acres	Crude oil and petroleum products	1,140-foot berth lengths; 22.4-foot wharf height; 76-foot design depth of water. Four 16-inch-diameter articulated crude unloading arms and one 8-inch-diameter articulated bunker/diesel loading arm; 275 psi maximum working pressure; designed to accommodate tankers from 50,000 to 265,000 deadweight tonnage; arms are FMC Chiksan® with hydraulic couplings. Storage tankerage available at ARCO facilities in Carson and the Inner Harbor via 42-inch and 24-inch pipelines.
Vopak Terminal Long Beach	Pier S Berth S101	10 acres	Miscellaneous bulk liquid chemicals	700-foot berth length; 15.5-foot wharf height; 36-foot design depth of water. Dedicated pump and piping systems to transfer products to and from ships, barges, railcars, and tank trucks.

Source: (POLB 2018e)
Key: bbls = barrels; psi = pound-force per square inch
Note: Pier locations are shown in Figure 1.2-1.

TABLE 3.6-3. PORT PETROLEUM AND CHEMICAL ANNUAL THROUGHPUT

Commodity	Commodity Throughput by Year (millions of short tons)				
	2014	2015	2016	2017	2018
Crude Oil	23.1	22.6	24.5	26.4	21.5
Refined	6.5	6.9	4.8	5.8	4.0
Total	29.6	29.5	29.3	32.3	25.5

Source: (POLB 2019e)

Oil Production Facilities

The Harbor District is located within the Wilmington Oil Field, the third largest oil field in the U.S. Portions of the Harbor District have been used as an oil and gas production field from the late 1930s to present. Associated oil field infrastructure, such as oil separation facilities, storage tanks, and pipelines (oil, gas, and water) continue to be used at the Port. Numerous oil wells, both active and abandoned, are located in the Harbor District (Figure 3.6-2). According to the January 2019 version of the California Department of Conservation DOGGR database, 801 active wells and 2,548 abandoned wells are located in the Harbor District. Current operators include Tidelands Oil Production Co., Sentinel Peak Resources California LLC, California Resources Long Beach, Inc., and THUMS Long Beach Company.

Improperly abandoned oil wells can potentially result in gas migration to the surface, which in turn could create a health hazard. In addition, past oil field activities and existing subsurface oil field pipelines within the Port have leaked and have left areas of oil saturation within the soil overlying the water table, causing liquid petroleum to collect within storm drains, requiring its removal.

Figure 3.6-2. Oil Wells and Facilities within the Harbor District

Substances that are commonly found in oil fields include various types of petroleum hydrocarbons, such as VOCs and semi-VOCs. Petroleum hydrocarbons associated with crude oil production, storage, processing, and transport are the primary substances potentially present in on-site soil and groundwater. In addition, metals may also be present in association with oil production, most notably in waste sumps located on or near drilling sites and production facilities.

Organic vapors may also be detected in an oil field. Petroleum hydrocarbon-impacted soils and groundwater associated with oil fields and abandoned wells could generate methane (CH_4) gas. Other vapors, such as benzene and hydrogen sulfide, may also be generated.

Containerized Hazardous Materials

Hazardous materials that are transported in containers are stored in individual containers specifically manufactured for storing and transporting the material. In addition, shipping companies prepare, package, and label hazardous materials shipments in accordance with federal requirements (49 CFR Parts 170−179) to facilitate surface transport of containers. All hazardous materials in containers are required to be properly manifested.

Table 3.6-4 lists the existing container terminals in the Port together with their berths.

Table 3.6-5 lists the containerized hazardous materials transported for the time period 2014–2017.

Containerized hazardous materials are transported from terminals via truck or rail, and while in the Port, they are handled only by authorized workers. Between 2014 and 2017, approximately 2.3 percent of the Port's total throughput (imports and exports) contained hazardous materials. Historically, one quarter of this was moved by rail, or about 29,875 TEU per year exports and imports combined.

TABLE 3.6-4. CONTAINER TERMINALS IN THE PORT OF LONG BEACH

Name	Berth	Area	Use	Terminal Features
Total Terminals International – Pier T	Pier T Berths T132−T140	385 acres	General cargo in containers	5,000-foot length of berths; 14 gantry cranes; 55-foot design depth of water; 1,850 reefer outlet capacity; 174 intermodal railcar capacity.
International Transportation Service	Pier G Berths G222−G236	246 acres	General cargo in containers	6,379-foot length berths; 15 gantry cranes; 42−52-foot design depth of water; 80 intermodal railcar capacity; 1,100 reefer outlet capacity.
Long Beach Container Terminal	Pier E Berths E24−E26	170 acres	General cargo in containers	4,200-foot length of berths; 10 gantry cranes; 55-foot design depth of water; 2,250 reefer outlet capacity; 156 intermodal railcar capacity.
Pacific Container Terminal Pier J	Pier J Berths J243−J247, J266−J270	256 acres	General cargo in containers	5,900-foot length of berths; 17 gantry cranes; 49−50-foot design depth of water; 83 intermodal railcar capacity; 685 reefer outlet capacity.
SSA Terminals – Pier A	Pier A Berths A88−A96	159.3 acres	General cargo in containers	3,600-foot length of berths; 10 gantry cranes; 50-foot design depth of water; 652 reefer outlet capacity; 63 intermodal railcar capacity.
SSA Terminals – Pier C	Pier C Berths C60−C62	70 acres	General cargo in containers and automobiles	1,800-foot length of berths; 3 gantry cranes; 42-foot design depth of water; 1,114 reefer outlet capacity with optional access to a 17.2-acre off-dock container yard; no on-dock rail.

Source: (POLB 2018f)
Key: reefers = refrigerated containers
Note: Pier locations are shown in Figure 1.2-1.

TABLE 3.6-5. CONTAINERIZED HAZARDOUS CARGO 2014–2017		
Year	**HAZMAT TEUs**	**Percent of Total TEUs**
Imports		
2014	70,252	1.99%
2015	53,375	1.47%
2016	51,621	1.49%
2017	64,130	1.66%
Exports		
2014	61,620	3.84%
2015	52,465	3.43%
2016	59,257	3.87%
2017	65,284	4.43%
Source: (POLB 2019e) Key: HAZMAT = hazardous materials; TEU = twenty-foot equivalent unit		

Soil Contamination

The Port has a long history of hazardous material storage as well as oil and gas development. Searches of the Department of Toxic Substances Control (DTSC) database EnviroStor (DTSC 2019) and the SWRCB Geotracker database (SWRCB 2019) indicate some levels of existing site contamination or historical contamination within the Harbor District. The results of these searches are shown in Table 3.6-6. In addition to the sites listed in Table 3.6-6, an additional 33 sites are classified as Leaking Underground Storage Tank sites within the Harbor District.

TABLE 3.6-6. CONTAMINATED SITES				
Project Name	**Status**	**Address**	**Contaminants**	**Media**
ACTA Parcel LBX-878	Open	Anaheim Street	Other petroleum	Groundwater, soil
ARCO Marine Terminal	Open	1400 West Pier C 1300–1350 West Pier B Street	Benzene, diesel, gasoline, methyl tert-butyl ether/tertiary butyl alcohol/other fuel oxygenates, other petroleum, toluene, xylene	Groundwater, soil
Baker Cold Storage, Inc. (former J.H. Baxter site)	Active	1710 Pier B Street	Contaminated soil, ammonia, dioxin/furans, metals, pentachlorophenol	Groundwater, soil
Berth 121 Marine Terminal	Active	620 Pier T Avenue	None specified	None specified
Contanda Terminals LLC (former Westway Terminal Company Inc./Pier J)	Active	1395 Pier J Avenue	Oxygenated solvents, tank bottom wastes, unspecified acid solution, unspecified alkaline solutions, unspecified solvent mixtures	Soil
Edison/Long Beach III Manufactured Gas Plant	Certified / Operation and Maintenance	8th Street Intersection w/ Edison	Contaminated soil and groundwater, polycyclic aromatic hydrocarbons (PAHs)	Groundwater, soil
Huika Corporation	Open: Inactive	721 New Polk Street	None specified	None specified
Line 79 Release	Open	Pier B Street	Crude oil	Groundwater, soil

TABLE 3.6-6. CONTAMINATED SITES

Project Name	Status	Address	Contaminants	Media
Long Beach LLC Generating Station	Active	2685 West Seaside Boulevard	TPH-motor oil, TPH-diesel, TPH-gas, vanadium and compounds	Groundwater, soil
Long Beach Naval Complex (Station and Shipyard)	Active	Off Ocean Boulevard and Navy Way	Metals, PAHs, uncategorized, volatile organic compounds (VOCs)	None specified
Long Beach Plating Co., Inc.	Refer: Other Agency	1620 West Anaheim Street	None specified	None specified
Oxy Long Beach	Open: Inactive	Pico Avenue	None specified	None specified
Petro-Diamond Terminal Co.	Refer: Other Agency	1920 Lugger Way	None specified	None specified
Pier S Area 4/Port of Long Beach	Inactive: Needs Evaluation	Terminal Island	Benzene	Soil
Plant Operations Inc.	Refer: RWQCB	2402 East Anaheim Street	None specified	None specified
Port of Long Beach, Parcel 1	Inactive: Needs Evaluation	New Dock Street at Henry Ford Avenue	None specified	None specified
Roosevelt Naval Base	Inactive: Needs Evaluation	None specified	None specified	None specified
Tesoro Long Beach	Open	820 Carrack Avenue	Crude oil	Groundwater, soil
Tesoro Refining & Marketing Company - Long Beach Marine Terminal	Protective Filer	820 Carrack Avenue	None specified	None specified
Tesoro Refining & Marketing Company - Long Beach Marine Terminal	No Action Required	Pier B, Berth 84	None specified	None specified
The Port of Long Beach / Long Beach Naval Complex	Active	925 Harbor Plaza	Dichlorodiphenyltrichloro-ethane (DDT) metals PCBs PAHs	Soil
THUMS Long Beach	Open: Inactive	1280 Pier G	VOCs	None specified
Tidelands Facility	Open	West of B84 Pier B	TPH-motor oil, TPH-diesel, TPH-gas, vanadium and compounds	Groundwater, soil
Tidelands Oil Production	Open	863 Harbor Plaza 696 South Pico Avenue 606 South Pico Avenue	Crude oil	Soil

Source: EnviroStor (DTSC 2019) and Geotracker (SWRCB 2019), accessed March 2019
Key: ACTA = Alameda Corridor Transportation Authority; PAHs = polycyclic aromatic hydrocarbons; PCBs = polychlorinated biphenyls; RWQCB = Regional Water Quality Control Board; TPH = total petroleum hydrocarbons; VOCs = volatile organic compounds

Past Accidents and Spills

The California Office of Emergency Services maintains the Response Information Management System (RIMS) database that includes detailed information on all reported hazardous materials spills in California. All spills that occur in the Port, both hazardous and nonhazardous, are reported to the California Office of Emergency Services and entered into the RIMS database. This database includes spills that may not result in a risk to the public but could be considered environmental hazards.

Table 3.6-7 summarizes oil spills and hazardous materials spills that have occurred at the Port since 2008 and that are contained in the RIMS database. Spills identified in the database as located in the Harbor District as well as surrounding areas were reviewed to identify those that might have occurred in the Port. Some spills may actually be in the Port of Los Angeles as the exact location on Terminal Island was not specified in some cases. The spills ranged in size and type of materials spilled, including both nonhazardous petroleum spills and spills of hazardous substances.

TABLE 3.6-7. OIL AND HAZARDOUS MATERIALS SPILLS AT THE PORT OF LONG BEACH 2009−2018

Year	Spill Size						
	Sheen	Unknown	Less than 10 gallons	Between 10 and 100 gallons	Between 100 and 1,000 gallons	More than 1,000 gallons	Total Spills
2009	15	12	11	5	5	1	49
2010	8	11	11	5	2	0	37
2011	12	11	15	7	3	0	48
2012	7	6	9	6	2	0	30
2013	5	1	8	0	0	0	14
2014	4	7	16	4	4	1	36
2015	5	7	10	4	1	0	27
2016	11	5	14	6	3	2	41
2017	9	5	10	4	1	1	30
2018	4	2	5	1	0	0	12

Source: (CalOES 2019)

The causes of these spills are varied and include incidents such as: 1) broken pipes, 2) collisions, 3) human error, 4) mechanical failures, and 5) overflows. Spill characteristics over the timeframe are listed below:

- Only one spill produced injuries (six injuries in 2017 associated with a spill of 5,600 gallons of acetate).
- Only one spill caused evacuations (five people were evacuated in 2017 associated with a spill of 5 gallons of organic peroxide).
- No releases caused fatalities in the timeframe.
- The largest spills were 20,000 gallons of chlorine liquid in 2016 and 75,000 pounds of sulfur in 2014.

Spilled materials included over 140 different materials including antifreeze, ballast water, bunker fuel, crude oil, chlorine liquid, diesel, hydraulic fluid, lube oil, paint, sewage, and sulfur.

3.6.2 Regulatory Setting

Regulations on the management of hazardous materials and hazardous wastes are applicable to the area and activities covered by the Proposed Plan. These regulations also limit the risk of upset during the use, transport, handling, storage, and disposal of hazardous materials. The area covered in the Proposed Plan would be subject to numerous international, federal, state, and local laws and regulations including, but not limited to, those described below.

3.6.2.1 International Regulations

International Convention for the Prevention of Pollution from Ships

The IMO is the major authority with jurisdiction over the movement of goods at sea. This is accomplished through a series of international protocols. Individual countries must approve and adopt these protocols before they become effective. MARPOL govern the movement of oil and specify tanker construction standards and equipment requirements. Regulation 26 of Annex I of MARPOL requires that every tanker of 150 tons gross tonnage and above carry on board a shipboard oil pollution emergency plan approved by IMO. The U.S. implemented MARPOL with passage in 1980 of the Act to Prevent Pollution from Ships. The IMO has also issued Guidelines for the Development of Shipboard Marine Pollution Emergency Plans to assist tanker owners in preparing plans that comply with the cited regulations and to assist governments in developing and enacting domestic laws that give force to and implement the cited regulations (IMO 2019b). Plans that meet the Oil Pollution Act of 1990 and the Lempert-Keene-Seastrand Oil Spill Prevention and Response Act (California SB 2040) requirements also meet IMO requirements. Traffic Separation Schemes (TSSs) must be approved by the IMO; refer to Section 3.14 (Vessel Transportation) for a discussion of TSSs.

International Convention for Safety of Lives at Sea

The IMO adopted an amendment to the International Convention for Safety of Life at Sea with provisions entitled Special Measures to Enhance Maritime Safety, which became effective in 1996. These provisions allow for operational testing during port state examinations to ensure that masters and crews for both U.S. and international vessels are familiar with essential shipboard procedures relating to ship safety. The USCG Marine Safety Office conducts port state examinations as part of their vessel inspection program.

International Ship and Port Facility Security Code

The International Ship and Port Facility Security (ISPS) Code was adopted by the IMO in 2003. This code requires both ships and ports to conduct vulnerability assessments and to develop security plans with the purpose of preventing and suppressing terrorism against ships; improving security aboard ships and ashore; and reducing risk to passengers, crew, and port personnel on board ships and in port areas. The ISPS Code applies to all cargo vessels 300 gross tons or larger and ports servicing those regulated vessels; the ISPS Code is very similar to the MTSA regulations.

Oil Companies International Marine Forum

The Oil Companies International Marine Forum, an international group of vessel owners and charter operations, developed comprehensive minimum standards for offshore lightering. Lightering is exchanging cargoes between vessels, typically from a larger vessel that cannot enter a port to a smaller one that can. The guidelines contain advice on lightering procedures and arrangements, as well as specifications for mooring, fenders, and cargo transfer hoses. Industry guidelines for lightering have been established by at least two industry groups, and most individual companies have developed their own internal guidelines.

A supplement to the Oil Companies International Marine Forum guidelines was developed in the U.S. by the Industry Taskforce on Offshore Lightering, a cooperative organization that promotes industry self-policing and, in partnership with USCG, continuous improvement in lightering.

3.6.2.2 Federal Regulations

Clean Air Act

Congress established much of the basic structure of the CAA in 1970, and made major revisions in 1977 and 1990. To protect public health and welfare nationwide, the CAA requires USEPA to establish NAAQS for certain common and widespread pollutants. The CAA also contains specific provisions to address hazardous or toxic air pollutants that pose health risks such as cancer or environmental threats such as bioaccumulation of heavy metals; acid rain that damages aquatic life, forests and property; chemical emissions that deplete the stratospheric ozone layer; and regional haze that impairs visibility in national parks and other recreational areas.

USEPA lists ACM as a hazardous air pollutant, in accordance with Section 12 of the CAA. Surveys for ACM are required by 40 CFR Part 61.145 prior to demolition of structures.

Clean Water Act

The CWA is a federal law governing water pollution. The purpose of the CWA is to restore and maintain the chemical, physical, and biological integrity of the nation’s waters. Section 404 of the CWA authorizes discharges of dredged or fill material in waters of the U.S. through a permit program administered by USACE.

Comprehensive Environmental Response, Compensation, and Liability Act of 1980

The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), or Superfund, is a federal law addressing the cleanup of sites contaminated with hazardous substances and pollutants. Under CERCLA, as amended by the Superfund Amendments and Reauthorization Act, a hazardous substance is defined as one that poses a potential hazard to human health or the environment because of its quantity, concentration, or physical/chemical characteristics. CERCLA has established a national process to identify, characterize, and clean up hazardous substance sites.

Department of Transportation Hazardous Materials Regulations

The USDOT Hazardous Materials Regulations (49 CFR Parts 100−185) cover all aspects of hazardous materials packaging, handling, and transportation including: Part 172 (Emergency Response); Part 173 (Packaging Requirements); Part 174 (Rail Transportation); Part 176 (Vessel Transportation); Part 177 (Highway Transportation); Part 178 (Packaging Specifications); and Part 180 (Packaging Maintenance).

Emergency Planning and Community Right-to-Know Act

Also known as Title III of the Superfund Amendments and Reauthorization Act, the Emergency Planning and Community Right-to-Know Act (EPCRA) was enacted by the U.S. Congress as the national legislation on community safety (42 U.S.C. 11001 et seq.). This law was designed to help local communities protect public health, safety, and the environment from chemical hazards. To implement EPCRA, Congress required each state to appoint a State Emergency Response Commission. These commissions are required to divide their states into Emergency Planning Districts and to name a Local Emergency Planning Committee for each district. EPCRA provides requirements for emergency release notification, chemical inventory reporting, and toxic release inventories for facilities that handle chemicals.

Hazardous Materials Transportation Act

The USDOT, FHWA, and Federal Railroad Administration regulate transportation of hazardous materials at the federal level. The Hazardous Materials Transportation Act (49 CFR Part 171, Subchapter C) requires that carriers report accidental releases of hazardous materials to USDOT at the earliest practical moment. Other incidents that must be reported include deaths, injuries requiring hospitalization, and property damage exceeding $50,000.

Maritime Transportation Security Act

The MTSA of 2003 resulted in maritime security regulations in 33 CFR Parts 101−106. These regulations apply to all cargo terminals in the Port. Title 33 CFR Part 105 requires that cargo terminals meet minimum security standards for physical security, access control, cargo handling security, and interaction with berthed vessels. These regulations require that terminal operators submit a Facility Security Plan to the USCG COTP for review and approval prior to conducting cargo operations. The requirements for submission of the security plans became effective on December 31, 2003. Operational compliance was required by July 1, 2004.

USCG is responsible for enforcement of the MTSA and ISPS Code regulations discussed in Section 3.6.2.1 (International Regulations). Due to the parallel nature of the MTSA and ISPS requirements, compliance with the MTSA is tantamount to compliance with the ISPS. If either the terminal or a vessel berthed at the terminal is found to be in noncompliance with these security regulations, USCG may not permit cargo operations, and the terminal and/or vessel operators may be subject to fines. In accordance with its responsibilities for land-based security under Title 33 CFR Part 105, USCG may impose additional control measures related to security.

Resource Conservation and Recovery Act of 1976

The goals of the Resource Conservation and Recovery Act (RCRA), a federal statute passed in 1976 (42 U.S.C. Section 6901−6987), are the protection of human health and the environment, reduction of waste, conservation of energy and natural resources, and elimination of the generation of hazardous waste as expeditiously as possible. The Hazardous and Solid Waste Amendments of 1984 significantly expanded the scope of RCRA by adding new corrective action requirements, land disposal restrictions, and technical requirements. The corresponding regulations in 40 CFR Parts 260−299 provide the general framework for managing hazardous waste, including requirements for entities that generate, store, transport, treat, and dispose of hazardous waste.

Clean Air Act Risk Management Plans

RMPs are required for facilities that store or handle hazardous materials above a given threshold. Section 112(r) of the CAA Amendments requires USEPA to publish regulations and guidance for chemical accident prevention at facilities that use certain hazardous substances. These regulations and guidance are contained in the RMP rule. The RMP rule requires facilities that use certain hazardous substances to develop an RMP that identifies the potential effects of a chemical accident, identifies steps the facility is taking to prevent an accident, requires the completion of a hazards assessment such as hazard and operability studies, and spells out emergency response procedures should an accident occur.

These RMPs provide information to local fire, police, and emergency response personnel to prepare for and respond to chemical emergencies in their community. Portions of RMPs are available to the public. USEPA delegated the program to the State of California under the California Accidental Release Program (CalARP) (see Section 3.6.2.3, State Regulations).

The vast majority of the facilities in the Harbor District subject to the CalARP requirements are owned and operated by the Port tenants; the Port has only prepared CalARP RMPs for the facilities owned and operated by the Port (the Maintenance Yard and a select few stormwater pump stations).

Toxic Substances Control Act

The Toxic Substances Control Act bans the manufacture, processing, use, or distribution in commerce of PCBs. Any electrical equipment, including transformers that contain PCBs at concentrations greater than or equal to 50 ppm, is considered PCB-contaminated electrical equipment. Any transformer that contains PCB concentrations greater than or equal to 500 ppm is considered a PCB transformer. Discovery of PCB-contaminated electrical equipment or PCB transformers requires USEPA notification, removal of such transformers, and sampling and characterization of adjacent soils. Natural gas pipelines containing less than 500 ppm of PCBs must be drained of fluids and either abandoned in place or disposed of in a non-RCRA landfill, scrap metal recovery oven/smelter, or USEPA-permitted PCB disposal facility. Pipelines containing greater than 500 ppm of PCBs must be either incinerated or disposed of in a PCB-regulated landfill.

In addition, the Toxic Substances Control Act (15 U.S.C. Section 2681) applies to the analysis of lead-based paint on on-site structures.

Transportation Worker Identification Credential Program

The TWIC program is a Transportation Security Administration and USCG initiative that includes issuance of a tamper-resistant biometric credential to maritime workers requiring unescorted access to secure areas of port facilities and vessels regulated under the MTSA. The TWIC program minimizes the potential for unauthorized handling of containers that contain hazardous materials and provide additional shoreside security at the terminal. In order to obtain a TWIC, an individual must successfully pass a security threat assessment conducted by the Transportation Security Administration. This assessment includes a criminal history check and a citizenship or immigration status check of all applicants.

United States Coast Guard Title 33

USCG, through Title 33 (Navigation and Navigable Waters) and Title 46 (Shipping) of the CFR, is the federal agency responsible for vessel inspection, marine terminal operations safety, coordination of federal responses to marine emergencies, enforcement of marine pollution statutes, marine safety (such as navigation aids), and operation of the National Response Center for spill response, and is the lead agency for offshore spill response. USCG implemented a revised vessel-boarding program in 1994 designed to identify and eliminate substandard ships from U.S. waters. The program pursues this goal by systematically targeting the relative risk of vessels and increasing the boarding frequency on high risk (potentially substandard) vessels. The relative risk of each vessel is determined through the use of a matrix that factors the flag of the vessel, owner, operator, classification society, vessel particulars, and violation history. Vessels are assigned a boarding priority from I to IV, with priority I vessels being the potentially highest risk and priority IV having relatively low risk. USCG is also responsible for reviewing marine terminal Operations Manuals and issuing Letters of Adequacy on approval. USCG issued regulations under the Oil Pollution Act of 1990 addressing requirements for response plans for tanker vessels, offshore facilities, and onshore facilities that could reasonably expect to spill oil into navigable waterways.

Because studies have shown that the use of double-hull vessels reduces the probability of releases when tank vessels are involved in accidents, USCG has issued regulations addressing double-hull requirements for tank vessels. The regulations established a timeline for eliminating single-hull vessels from operating in the navigable waters or the EEZ of the U.S after January 1, 2010, and double-bottom or double-sided vessels by January 1, 2015. Only vessels equipped with a double hull, or with an approved double containment system are allowed to operate after those dates.

Hazardous materials inside cargo containers fall under the primary jurisdiction of DHS and USCG (33 CFR Part 126) while the containers are at sea, in port waters, and at waterfront facilities. Under the jurisdiction of DHS, USCG maintains an Office of Operating and Environmental Standards Division, which develops national regulations and policies on marine environmental protection. This division coordinates with appropriate federal, state, and international organizations to minimize conflicting environmental requirements.

USCG also maintains a Hazardous Materials Standards Division, which develops standards and industry guidance to promote the safety of life and protection of property and the environment during marine transportation of hazardous materials. This includes transportation of bulk liquid chemicals and liquefied gases, hazardous bulk solids, and packaged hazardous cargoes, as well as hazardous materials used as ship stores and hazardous materials used for shipboard fumigation of cargo.

3.6.2.3 State Regulations

Aboveground Storage of Petroleum

California Health and Safety Code, Chapter 6.67 regulates construction, installation, operation, and monitoring of aboveground petroleum storage tanks. This law is designed to prevent release of hazardous materials into the environment by either leakage from tanks and associated pipelines or from overfilling and spillage. As such, the program works to reduce the occurrence of hazardous material releases.

California Accidental Release Program

The CalARP is an extension of the CAA RMP program as per Health and Safety Code Sections 25531–25543.3 and CCR Title 19, Sections 2735.1–2785.1. The CalARP maintains generally lower hazardous material storage and use thresholds than the requirements for the federal CAA RMP rule.

California Coastal Act

The CCA of 1976 (PRC Division 20) created the CCC, with the responsibility of granting development permits for coastal projects and for determining consistency between federal and state coastal management programs. Section 30232 of the CCA addresses hazardous materials spills and states that: “Protection against the spillage of crude oil, gas, petroleum products, or hazardous substances shall be provided in relation to any development or transportation of such materials. Effective containment and cleanup facilities and procedures shall be provided for accidental spills that do occur." In addition, the CCC reviews and acts on PMPs and amendments to them. Plans for port expansions to meet future growth needs require approval from the CCC.

Also in 1976, the California State Coastal Conservancy was established to preserve, enhance, and restore coastal resources and to address issues that regulation alone cannot resolve.

California Division of Oil, Gas, and Geothermal Resources

An operating oil well is a structure that is used to extract oil from below the surface. An abandoned oil well is an oil well where the well structure is left in place but is no longer used to extract oil. Oil wells and related infrastructure must be abandoned in accordance with standards and procedures set forth by the DOGGR. A new structure located over or near a previously abandoned well may require that the well be abandoned again (re-abandonment) to meet current abandonment standards. California PRC Section 3208.1 authorizes the State Oil and Gas Supervisor to order re-abandonment of any previously abandoned well when construction of any structure over or in proximity to the well could result in a hazard. DOGGR strongly recommends avoiding placement of structures directly over an abandoned well. If construction over an abandoned well is unavoidable, a gas venting system could be required by DOGGR.

Written approval from DOGGR is required prior to plugging (where the well is filled with drilling mud and cement plugs are inserted) or abandoning any well. The operator's Notice of Intent to perform well operations is reviewed on an engineering and geological basis. Approval of the Notice of Intent depends on the following criteria: a) protection of subsurface hydrocarbons and fresh waters through adequate casing and cementing practices and proper drilling procedures; b) protection of the environment; c) use of adequate blowout prevention equipment (devices designed to prevent the uncontrolled flow of well bore fluids through the casing [blowout], by either containing the flow completely or by diverting it to a more desirable location through a system of piping and valves); and d) proper well spacing. DOGGR must also witness or inspect all operations specified in the approval of any notice. This oversight includes tests and inspections of blowout prevention equipment, reservoir and freshwater protection measures, and well-plugging operations.

Regarding any of the above considerations, worker health and safety and public safety are key issues when dealing with hazardous materials that may affect human health and the environment. Proper disposal of hazardous material is vital if it is disturbed during project construction. OSHA and the California OSHA govern these considerations.

California Pipeline Safety Act of 1981

The California Pipeline Safety Act of 1981 gives regulatory jurisdiction to the California State Fire Marshal for the safety of all intrastate hazardous liquid pipelines and all interstate pipelines used for transportation of hazardous or highly volatile liquid substances. The law establishes the governing rules for interstate pipelines to be the Federal Hazardous Liquid Pipeline Safety Act and federal pipeline safety regulations.

California Regulations Governing Lead-Based Paint

Lead-based paint is regulated in accordance with CCR Title 8, Section 1532.1 and Title 17, Sections 35022 and 35038, pertaining to construction sites and in the work place. Included in these regulations are requirements for facility surveys, notification of intent to disturb lead-based paint, control measures, removal measures, and handling and disposal techniques. Any proposed building demolition activities that include the removal and/or handling of lead-based paint would need to comply with these regulations.

Hazardous Material Release Response Plans and Inventory Law

California's "right-to-know law" (California Health and Safety Code, Chapter 6.95) requires businesses to develop a Hazardous Material Management Plan or a business plan for hazardous materials emergencies if they handle more than 500 pounds, 55 gallons, or 200 cubic feet of hazardous materials. In addition, the business plan includes an inventory of all hazardous materials stored or handled at the facility above these thresholds. This law is designed to reduce the occurrence and severity of hazardous materials releases.

The Hazardous Materials Management Plan or business plan must be submitted to the Certified Unified Program Agencies (CUPA). The CUPA for the POLB is the City, which combines hazardous materials management programs of the Department of Health and Human Services and the LBFD Fire Prevention Division. The state has integrated the federal EPCRA reporting requirements into this law; once a facility is in compliance with the local administering agency requirements, submittals to other agencies are not required.

Hazardous Wastes Control Law

This statute is the basic hazardous waste law for California that implements the federal RCRA cradle-to-grave waste management system in the state. California hazardous waste regulations can be found in Title 22, Division 4.5, Environmental Health Standards for the Management of Hazardous Wastes. The program is administered by the California DTSC.

Lampert-Keene-Seastrand Oil Spill Prevention and Response Act

Chapter 1248 of the Statutes of 1990 (SB 2040), the Lempert-Keene-Seastrand Oil Spill Prevention and Response Act, established a comprehensive approach to prevention of and response to oil spills. The CSLC Marine Facilities Division is responsible for governing marine terminals. Through CCR Sections 2300−2571, the Marine Facilities Division established a comprehensive program to minimize and prevent spills from occurring at marine terminals, and to minimize spill impact should one occur. These regulations established a comprehensive inspection-monitoring plan whereby CSLC inspectors monitor transfer operations on a continuing basis. The standards generated by MOTEMS provide specific requirements for subsequent audits and engineering inspections.

CSLC's marine terminal regulations are similar to, but more comprehensive than, federal regulations in terms of establishing an exchange of information between the terminal and vessels, information that must be contained in the Declaration of Inspection, requirements for transfer operations, and information that must be contained in the Operations Manual. All marine terminals are required to submit updated Operations Manuals to CSLC for review and approval. CSLC regulations also require that prior to the commencement of oil transfer, a boom shall be deployed to contain any oil that might be released. Marine terminals subject to high velocity currents, where it may be difficult or ineffective to pre-deploy a boom, are required to provide sufficient boom, trained personnel, and equipment so that at least 600 feet of boom can be deployed for containment within 30 minutes.

A requirement that each marine oil terminal operator must implement a marine oil terminal security program is contained in Section 2430 of CCR Title 2, Division 3, Chapter 1, Article 5.1. At a minimum, each security program must:

- Provide for the safety and security of persons, property, and equipment on the terminal and along the dockside of vessels moored at the terminal;
- Prevent and deter the carrying of any weapon, incendiary, or explosive on or about any person inside the terminal, including within his or her personal articles;
- Prevent and deter the introduction of any weapon, incendiary, or explosive in stores or carried by persons onto the terminal or to the dockside of vessels moored at the terminal; and
- Prevent or deter unauthorized access to the terminal and to the dockside of vessels moored at the terminal.

The Marine Facilities Division also has issued regulations on the following:

- Marine Terminal Personnel Training and Certification;
- Structural Requirements for Vapor Control Systems at Marine Terminals; and
- Marine Oil Terminal Pipelines.

The OSPR was created within the CDFW to adopt and implement regulations and guidelines for spill prevention, response planning, and response capability. Final regulations regarding Oil Spill Contingency Plans (OSCPs) for vessels and marine facilities were issued in November 1993, and last updated in 2019 (Contingency Plans and Definitions & Abbreviations [Sections 817.04 and 790]). These regulations are similar to, but more comprehensive than, the federal regulations. The regulations require that all tank vessels, barges, and marine facilities develop and submit their comprehensive oil spill response plans to OSPR for review and approval.

OSPR's regulations require that marine facilities and vessels be able to demonstrate that they have the necessary response capability on hand or under contract to respond to specified spill sizes, including a worst-case spill. The regulations also require that a risk and hazard analysis be conducted on each facility. This analysis must be conducted in accordance with procedures identified by the American Institute of Chemical Engineers.

SB 2040 (California Government Code Section 8670.1 et seq.) established financial responsibility requirements and requires that Applications for Certificate of Financial Responsibility be submitted to OSPR. California's requirement for financial responsibility is in excess of the federal requirements.

SB 2040 also requires the OSPR to develop a state OSCP. In addition, each major harbor was directed to develop a Harbor Safety Plan (HSP) addressing navigational safety, including tug escort for tankers.

Other navigation-related measures and regulations are discussed in Section 3.14 (Vessel Transportation).

Marine Oil Terminal Engineering and Maintenance Standards

The MOTEMS were approved by the California Building Standards Commission on January 19, 2005, and are codified as part of CCR Title 24, Part 2, Marine Oil Terminals, Chapter 31F. These standards apply to all existing marine oil terminals in California and include criteria for inspection, structural analysis and design, mooring and berthing, geotechnical considerations, fire, piping, and mechanical and electrical systems. MOTEMS became effective on January 6, 2006, (CSLC

2005) with the most recent revisions effective in 2017. The MOTEMS are reviewed and updated every 3 years and all marine oil terminals are required to comply with the most recent version.

The MOTEMS require each marine oil terminal to conduct audits and inspections to determine the level of compliance and an evaluation of the continuing fitness-for-purpose. The MOTEMS audit process continues through the life of the marine oil terminal, including, but not limited to, above and below water inspections, maintenance of all equipment, and updated and new analyses. Above water inspections are due every 3 years, and underwater inspections are required every 3 to 6 years, depending on the results of the previous audit and structural characteristics. Subsequent audits are due every 3 years following the initial audit. Updated and new analyses and documentation are required for any significant changes to the facility. With the results of these investigations, marine oil terminal operators must then determine what compliance actions are necessary and provide a schedule for implementation of deficiency corrections and/or rehabilitation.

The MOTEMS also require the marine oil terminal to establish Terminal Operating Limits, which are berthing system operating limits primarily based on their audit assessments. These Terminal Operating Limits are terminal-specific restrictions, addressing vessel size, environmental, berthing, mooring, gravity loading, and other operating limitations.

The MOTEMS require that each marine oil terminal have a tsunami plan that includes far-field versus near-field tsunami events, notifications and communications, tsunami warning system and notification details, tsunami response actions, tidal levels, currents and seiche conditions, loss of utilities, tsunami plan accessibility and training, and post-event inspection. The tsunami plan is to be revised at least every 3 years. The MOTEMS also require that each marine oil terminal consider the predicted SLR over the remaining life of a terminal.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act of 1969 (Porter-Cologne Act) is the basic water quality control law for California. The act authorizes the state to implement provisions of the CWA. The Porter-Cologne Act establishes a regulatory program to protect the water quality of the state and the beneficial uses of state waters. Under this act, the SWRCB provides policy guidance and review for the RWQCB, and the RWQCB implements and enforces the provisions of the act (see Section 3.7, Hydrology and Water Quality, for additional information on the Porter-Cologne Water Quality Control Act).

3.6.2.4 Local Regulations

Custom-Trade Partnership Against Terrorism

C-TPAT is a voluntary government-business initiative led by the CBP to build cooperative relationships that strengthen and improve the overall international supply chain and U.S. border security. The C-TPAT initiative works to provide the highest level of protection by establishing security guidelines and inspections for its member importers, carriers, brokers, manufacturers, warehouse operators, and ports. The Port is a member of C-TPAT.

City of Long Beach General Plan Public Safety Element

The Safety Element of the City of Long Beach General Plan addresses the issue of protection of its people from unreasonable risks associated with natural disasters (e.g., fires, floods, and earthquakes) and human-caused hazards (e.g., crime, utilities, hazardous materials, industrial land uses, and aircraft) (City of Long Beach 1975). The Safety Element provides a contextual framework for understanding the relationship between hazard mitigation, response to a natural or human-caused disaster, and initial recovery from a natural disaster.

City of Long Beach Municipal Code (Hazardous Materials and Waste Regulations)

The LBMC designates the Long Beach/Signal Hill CUPA as the Unified Program Agency for the enforcement and regulation of aboveground and underground storage tanks (Chapter 8.85), hazardous materials release response plans and inventory (Chapter 8.86), hazardous waste control (Chapter 8.87), and Hazardous Material Cleanup (Chapter 8.88).

City of Long Beach Municipal Code (Oil Regulations)

The LBMC (Long Beach Oil Code - Title 12) regulates the drilling and redrilling for the production of petroleum in conformance with the California Fire Code (Chapter 18.48), DOGGR, and City land uses.

City of Long Beach Permit Processing

All new buildings within the Port require a building permit from the City of Long Beach Development Services. As part of the Building and Safety Bureau Non-Residential Plan Review Checklist permit process and the Consolidated Plan Submittal List, oil well special inspections and oil wells both on site and within 300 feet of the projects are required to be identified and reviewed. Methane testing and mitigation may also be required depending on the proximity of wells. The City is also in the process of updating Title 12 Oil Production to address development near or over existing oil wells and potentially adding a new Chapter 18.78 to address CH_4 mitigation (City of Long Beach 2019b, City of Long Beach 2018).

Port of Long Beach Emergency Operations Plan

The POLB Emergency Operations Plan addresses the planned response to emergency situations such as natural disasters, national security incidents, power outages, and other large-scale disasters that require emergency response. In emergencies, the goal of POLB response activities would be to stabilize the emergency as quickly as possible to protect the public and employees, the environment, and property of the Port.

The POLB uses a Standardized Emergency Management System (SEMS)/National Incident Management System emergency response approach to address potential threats or events (FEMA 2008, COES 2013). According to SEMS, special districts, such as the Port, are primarily responsible for restoration of services back to normal conditions.

SEMS is the system required by Government Code Section 8607(a) for managing emergencies involving multiple jurisdictions and agencies. SEMS consists of five organizational levels that are activated as necessary: field response, local government, operational area, regional, and state. SEMS has been established to provide effective management of multiagency and multijurisdictional emergencies in California. By standardizing key elements of the emergency management system, SEMS is intended to facilitate the flow of information within and between levels of the system and coordination among all responding agencies.

The National Incident Management System is a comprehensive, nationwide, systematic approach to incident management, including the Incident Command System, Multiagency Coordination Systems, and Public Information. It contains a set of preparedness concepts and principles for all hazards; has essential principles for a common operating picture and interoperability of communications and information management; provides standardized resource management procedures that enable coordination among different jurisdictions or organizations; and is a dynamic system that promotes ongoing management and maintenance.

Port of Long Beach Risk Management Plan

The Port RMP was certified as an amendment to the PMP. The RMP was required by the CCC as a means of judiciously managing, controlling, and directing proposed developments to prevent, ensure, protect against, and minimize the risks of loss or significant adverse impacts due to potential hazards within and surrounding the Port. The RMP is primarily concerned with the transfer, handling, storage, and transport of hazardous liquid bulk cargoes (Reine and Dickerson 2014).

Recognizing that the waterborne commerce moving through the San Pedro Bay Ports is and will continue to include liquid bulk cargoes representing varying degrees of hazard, the Port of Long Beach and Port of Los Angeles, with cooperation and funding from the CCC, developed a risk management program that is intended to:

- Identify, quantify, and analyze the existing hazardous liquid bulk activities and sites in the Port of Long Beach and Port of Los Angeles;
- Develop the analytical methodology to measure the degree of risk for application to any proposed development, whether that project represents a new hazardous facility or a proposed nonhazardous facility to be sited within an area that might be subject to some degree of risk from an existing hazardous facility;
- Develop criteria and standards to apply at the inception of project development planning that serve as mandatory requirements for compliance with siting, design, construction, and operating criteria. Compliance with these standards provides the basis for granting and issuing CDPs by the port governing body; and
- Provide a relatively detailed working manual or technical reference as a guide in preparing the RMP and analyzing the risk factors in each future development project.

The RMP is to be considered adjunctive to all existing and future local, state, and federal laws and agency regulations. Application of the plan is primarily for the establishment of policies, processes, procedures, and conditions that shall be required for issuance of CDPs by the BHC. The Port RMP is different from the CAA RMP (see 3.6.2.2, Federal Regulations) as it is more limited in scope and does not require extensive risk management programs. However, the Port RMP does address the risk of impacts by ensuring that any hazardous material accident scenario would not impact vulnerable resource areas.

During the CDP process, the POLB determines if a proposed project is consistent with RMP policies. The overall policy goal pertaining to the permitting process is the elimination of overlaps of hazard footprints and areas of residential, recreational, and visitor populations, and with high-density working populations (Reine and Dickerson 2014).

The LBFD defines the hazards of liquid bulk materials in accordance with applicable Fire Codes. For planning purposes, the NFPA Hazard Identification System is used. The NFPA system numerically grades all materials in three separate hazard dimensions: health, flammability, and reactivity (i.e., tendency to react violently in contact with water or other common materials). There are five numerical gradings with number 4 representing the most severe hazard or danger and 0 being no hazard at all. Any substance with a rating of 2 or more of any dimension that is shipped, transferred, or stored in bulk form within the Port is considered hazardous enough to be subject to the goals and policies of the RMP. Materials with an NFPA hazard code of less than 2, in general, do not produce immediate, serious, or long-term hazards to either personnel or facilities and, therefore, need not be included under the risk management policies of the POLB (Reine and Dickerson 2014).

The RMP does not specifically address non-liquid bulk hazardous cargoes; however, there are existing regulations and procedures for non-liquid bulk hazardous cargoes that are administered and enforced by the LBFD, USCG, and the POLB, which also provide a comprehensive risk management program.

The concept of hazard footprints represents the potential extent of and the safe distance from potential damage that would be associated with a release involving hazardous materials. Each footprint consists of an outline drawn on a map showing the area around a facility within which unacceptable adverse impacts would occur should an accident/release occur at that facility. Land configuration, weather conditions, the type and amount of the substance, and type of accident/release are all taken into account. To demonstrate the hazard exposure associated with each facility, several hazard footprints may be necessary to demonstrate the full range of possible events (Reine and Dickerson 2014).

It is the goal of the POLB to provide the maximum feasible level of protection to all types of vulnerable resources (i.e., populations, critical regional activities/facilities, and high value facilities). The RMP goal is to eliminate exposure of vulnerable resources to risks resulting from the transfer, transportation, and storage of hazardous liquid bulk materials. Vulnerable resources of high value and/or critical regional significance within the Port are to be treated to minimize or eliminate their exposure to risks of hazardous liquid bulk material.

A risk assessment model is used to calculate the potential impacts following the hypothetical accidental release of a range of hazardous materials handled by the POLB. The guidance document is periodically updated, most recently in 2009, to reflect updated risk management modeling techniques (POLB 2009b). Although this model is used to implement RMP requirements, it is independent of the RMP.

Port of Long Beach Emergency Evacuation Plans

The Port of Long Beach and the Port of Los Angeles have online information concerning hazard awareness, disaster preparedness, hazard response, and evacuation. This information is available on websites; no designated evacuation routes are published. The County of Los Angeles Department of Public Works has online Disaster Route Maps for cities and the ports. Freeway disaster routes in Harbor District are the Long Beach Freeway (Interstate [I]-170) and Terminal Island Freeway (SR-103); disaster routes are Pacific Coast Highway and West Ocean Boulevard north and south of the Harbor District, respectively.

Port of Long Beach Port Tariff Number 4

The Port Tariff Number 4 provides the current rates, rules, and regulations governing the Port of Long Beach. The Port Tariff rules items 744, 746 require that handling of dangerous or hazardous materials, or any vessel carrying hazardous material or planning to discharge hazardous materials, must first obtain the permission from the Port and that the handling of any material shall be in accordance with standards, safety precautions, and all other regulations set forth in The International Maritime Dangerous Goods Code of the Inter-Governmental Maritime Consulting

Organization, USCG Chemical Hazardous Response Information System, the NFPA (NFPA 70414), the Port of Long Beach RMP, and the City of Long Beach Fire and Hazardous Material Codes.

The Port Tariff rule 754 prohibits the discharging of oil and hazardous wastes and requires that immediate written notice of any violations and that responsible parties provide prompt and immediate cleanup.

Port of Los Angeles and Port of Long Beach Water Resources Action Plan

The Port of Los Angeles and the Port of Long Beach developed the WRAP to support the attainment of full beneficial uses of harbor waters and sediments by addressing the impacts of past, present, and future port operations, and to prevent port operations from degrading existing water and sediment quality. The WRAP presents a number of control measures related to land use discharges, on-water discharges, sediments and watershed discharges, including BMPs such as Housekeeping, Design Guidance, Structural BMPs, Stormwater Control, Litter Control, Sweeping Programs, Stormwater Construction Permits, Vessel Guidance, Piling Replacement, Cathodic Protection, and Sediment Management Plans.

Port of Long Beach Master Stormwater Program

The Port of Long Beach Master Stormwater Program was created by the Port of Long Beach in 1992 in order to implement a systematic approach to stormwater management throughout the Harbor District. The Master Stormwater Program includes all aspects of stormwater management including pollution prevention, treatment, and water quality monitoring of industrial, construction, and municipal discharges within the Harbor District.

Port of Long Beach Vessel Discharge Rules and Regulations

One of the control measures in the WRAP is to develop a discharge guidance manual for vessel operators whose vessels call at the San Pedro Bay Ports, including both U.S. and foreign-flagged vessels. The Vessel Discharge Rules and Regulations guidance manual addresses allowable and prohibited maintenance activities and discharges within the Port.

Port of Long Beach Sediment Management Handbook

One of the control measures in the WRAP is to develop a sediment management plan that provides guidance for establishing priorities for removal, disposal, and management of sediments. The Sediment Management Handbook (Anchor QEA 2018a) was developed to manage contaminated and uncontaminated sediments generated during Port dredging and fill projects.

Port of Long Beach Harbor Development Permit

In implementing the City of Long Beach Charter and California CCC requirements, the Port established a consolidated building permit and CDP referred to as an HDP. The HDP includes requirements related to BMPs for stormwater management; plan submittals including site plans, floor plans, drainage and grading plans; soils and geology reports; plans of underground structures and landscaping; access, traffic, aesthetic, biological impacts descriptions; air emissions estimates; hazardous materials disclosures; liquid bulk risk calculations; emergency response plans; and land use issues.

South Coast Air Quality Management District

The SCAQMD is responsible for managing air quality in the Los Angeles area, including the Port. Some rules are also applicable to hazardous materials, including Rule 1403 related to asbestos and construction demolition projects, and Rule 1466 related to the handling of contaminated soils (SCAQMD 2019a).

3.6.3 Impacts and Mitigation Measures

3.6.3.1 Significance Criteria

Criteria for determining the significance of impacts related to hazards and hazardous materials are based on the 2019 CEQA Guidelines, Appendix G (Environmental Checklist), and have been modified as necessary to reflect Port operations within a highly urbanized, industrial complex. Impacts during construction or operation would be considered significant if the Proposed Plan would:

- **HAZ-1:** Create a significant adverse effect on the public or environment through the routine transport, storage, use, or disposal of hazardous materials;
- **HAZ-2:** Create a significant adverse effect on the public or environment through reasonably foreseeable upset or accident conditions involving the release of hazardous materials into the environment;
- **HAZ-3:** Produce an adverse effect on the public or environment as a result of being located on a site that is known to contain hazardous materials or create a significant hazard to people or the environment because of the presence of soil or groundwater contamination;
- **HAZ-4:** Impair implementation, physically interfere with, or result in an inconsistency with an adopted emergency response or evacuation plan;
- **HAZ-5:** Not comply with state guidelines associated with abandoned oil wells;
- **HAZ-6:** Handle hazardous materials, substances, or wastes within 0.25 mile of an existing or planned school;
- **HAZ-7:** Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires;
- **HAZ-8:** Result in a safety hazard or excessive noise for people residing or working in a project area located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport; and
- **HAZ-9:** Result in an inconsistency with the Port of Long Beach Risk Management Plan.

3.6.3.2 Assessment Methodology

The impact assessment methodology involved review of land use changes, such as the changes in Harbor District designations, and the specific projects for both construction and operations against the nine potential impacts listed in the applicable thresholds of significance. The baseline conditions at the Port were reviewed for any changes that project construction or operations may generate, such as development in areas with existing contamination, or the need to ensure that hazardous materials are maintained a sufficient distance from sensitive population areas in compliance with Port RMP requirements.

3.6.3.3 Proposed Plan

Impact HAZ-1: Construction and operations would not produce a significant adverse effect on the public or environment through the routine transport, storage, use, or disposal of hazardous materials.

Impact Determination

Construction

The construction activities associated with the Protective Boat Basin (Berth F202), Fourth Track at Ocean Boulevard, Ocean Boulevard Bicycle Gap Closure, Pier B Street Support Yard, Pier D Street Realignment, Pier J Terminal Redevelopment, Pier S Mixed Use Development, Pier S Shoreline Enhancement, Pier T Improvements, Pier W Terminal Development projects, and land use changes would involve the use of construction equipment and some hazardous materials, such as diesel fuel, solvents, hydraulic oils, welding gasses, and paints. None of the construction activities are anticipated to involve routine handling of these hazardous materials that could cause adverse impacts off of the construction site. Some materials, such as cleaning products or solvents, may cause potential employee exposure issues, but routine use of hazardous materials would not cause significant environmental effects.

The demolition of buildings and facilities may cause potential exposure to asbestos as part of the routine removal of construction debris. Current regulatory requirements associated with asbestos handling would be required for demolition, including SCAQMD Rule 1403. With implementation of existing regulations related to asbestos, construction activity impacts from routine use of hazardous materials would not cause significant environmental effects.

Implementation of the OHSPER site would not require construction as the facility is already operable in its present configuration. Therefore, there is no risk that the OHSPER project would involve construction activities that would increase risks from hazards or hazardous materials.

Operations

None of the operational activities associated with the Administrative Building Site Support Yard (Expansion), Protective Boat Basin (Berth F202), Fourth Track at Ocean Boulevard, Ocean Boulevard Bicycle Gap Closure, Pier B Street Support Yard, Pier D Street Realignment, and Pier S Shoreline Enhancement projects would involve routine handling of hazardous materials (such as diesel fuel and oils) that could cause impacts off of the project site. The routine handling of these hazardous materials, such as refueling vehicles and equipment, do not produce off-site impacts. Examples of routine handling of materials that could cause off-site impacts include the use of explosives, which are not proposed to be used during the operational phases of these projects. Air impacts from the use of these materials are discussed in Section 3.2 (Air Quality and Health Risk). Impacts related to accidental releases of these materials are discussed in Impact HAZ-2.

Operational activities associated with the Pier J Terminal Redevelopment, Pier S Mixed Use Development, Pier W Terminal Development, and Pier T Improvements projects may involve the movement or storage of large quantities of hazardous materials. Although none of these projects are specifically designated as marine terminal or bulk liquid hazardous materials storage areas, it is possible that these project sites might be utilized for hazardous cargo facilities.

Marine terminals handling hazardous liquid bulk are governed by several federal, state, and local regulations that are aimed at preventing routine or accidental releases and ensuring the capability to respond in the event of an accident. Transportation of hazardous liquid materials by pipeline is also regulated. The safety regulations that govern the shipping, transport, storage, and handling of hazardous materials (see Sections 3.6.2.3, State Regulations, and 3.6.2.4, Local Regulations) would limit the severity and frequency of potential releases of hazardous materials resulting in increased exposure of people to health hazards. For example, USCG, under the jurisdiction of DHS, is responsible for a Hazardous Materials Standards Division, which develops standards and industry guidance to promote the safety of life and protection of property and the environment during marine transportation of hazardous materials (33 CFR Part 126). In addition, USDOT Hazardous Materials Regulations would apply to projects in the Port.

Terminal operations involving hazardous materials are also subject to regulations of federal and state departments of transportation (49 CFR Part 176). The transport of hazardous materials in containers on street and highway systems is regulated by Caltrans procedures and the SEMS prescribed under Section 8607 of the California Government Code. These safety regulations (see Sections 3.6.2.3, State Regulations, and 3.6.2.4, Local Regulations) strictly regulate the storage of hazardous materials in containers (e.g., types of materials and size of packages containing hazardous materials). The hazardous materials inventory (HMI) control and spill prevention controls in these regulations limit both the frequency and severity of potential releases of hazardous materials by specifying packaging and storage requirements and response measures for the materials being handled.

Terminal maintenance activities can also involve the use of hazardous materials, such as petroleum products, solvents, paints, and cleaners. Quantities of hazardous materials that exceed the thresholds provided in Chapter 6.95 of the California Health and Safety Code would be subject to an emergency response plan and HMI requirements. Implementation of increased inventory accountability and spill prevention controls associated with the required emergency response plan and HMI would limit both the frequency and severity of potential releases of hazardous materials. All of the measures described here would be applicable to the operation of all new facilities handling hazardous materials within the Port.

The transportation, storage, and use of hazardous materials are extensively regulated. The primary purpose of the existing regulations is to prevent routine releases and accidents and ensure the capability to respond in the event of an accident. Operation of the Proposed Plan projects in compliance with these regulations would not present a significant risk to the public through the routine transport, use, or disposal of hazardous materials.

Implementation of the OHSPER project would not involve any operational activities requiring the routine transport, storage, use, or disposal of hazardous materials beyond what is currently occurring. Therefore, OHSPER project operations would not present a significant risk to the public through the routine transport, use, or disposal of hazardous materials.

As construction and operations would not produce a significant adverse effect on the public or environment through the routine transport, storage, use, or disposal of hazardous materials, no mitigation is required. Impacts would be less than significant.

Impact HAZ-2: Construction and operations could produce a significant adverse effect on the public or environment through reasonably foreseeable upset or accident conditions involving the release of hazardous materials into the environment.

Impact Determination

Construction

The construction activities associated with all Proposed Plan projects would involve the use of construction equipment and hazardous materials such as diesel fuel, solvents, hydraulic oils, welding gasses, and paints. Accidental spills of diesel fuel, hydraulic oils or solvents, if ignited, would cause impacts only in the immediate area of the fire; welding gasses are normally maintained in relatively small quantities and the impacts of an accidental rupture or explosion of welding gases would be limited to the construction area; the impacts of accidental paint spills, if ignited, would also be limited to the construction area. For example, using the Canary© computer model as per the Port RMP Guidance, an accidental 100-gallon spill of diesel fuel, if ignited, would produce thermal radiation impacts 30 to 35 feet from the spill location, which would be limited to the construction site. An accidental release from a welding acetylene tank could produce thermal radiation impacts 70 to 75 feet from the release point, which would also be limited to the construction site.

Diesel or hydraulic oil or other construction materials could also spill, impacting soils, groundwater, or surface waters. The ports have implemented required BMPs through the WRAP program (see Section 3.6.2.4, Local Regulations) to address issues such as refueling, spills from construction equipment, etc. These measures would ensure that the potential for impacts from construction spills would be minimized and would not cause significant environmental effects.

Implementation of the OHSPER project would not require construction as the facility is already operable in its present configuration. Therefore, there is no risk that the OHSPER project would involve construction activities that could increase risks for releases of hazardous materials.

Operations

None of the operational activities associated with the Administrative Building Site Support Yard (Expansion), Protective Boat Basin (Berth F202), Fourth Track at Ocean Boulevard, Ocean Boulevard Bicycle Gap Closure, Pier B Street Support Yard, Pier D Street Realignment, Pier S Shoreline Enhancement, and Pier W Terminal Development projects would involve hazardous materials (such as diesel fuel, hydraulic oils, welding gases, and paints) that could cause impacts off of the project site.

Marine terminals associated with the Pier J Terminal Redevelopment, Pier S Mixed Use Development, and Pier T Improvements projects could potentially handle hazardous liquid bulk. Operation of these terminals would be governed by several federal, state, and local regulations aimed at preventing routine releases and accidents and ensuring the capability to respond in the event of an accident. Transportation of hazardous liquid materials by pipeline is also regulated. These safety regulations that govern the shipping, transport, storage, and handling of hazardous materials (see Sections 3.6.2.3, State Regulations, and 3.6.2.4, Local Regulations) are intended to limit the severity and frequency of potential releases of hazardous materials that could result in exposure to human health hazards.

However, even with these regulations and required response systems and procedures in place, there remains a limited residual risk of public exposure to hazardous materials from reasonably foreseeable accidents and upsets. For example, an accidental 5,600-gallon spill of acetate at the Port Pier G in 2017 caused six injuries due to the exposure to the hazardous material during the release and subsequent response.

Risks to the public and other resources from operation of facilities handling hazardous materials would be evaluated in project-specific environmental documents after sufficient details on the proposed projects become available. These evaluations are expected to consider volumes of material that would be handled and stored at the facility, physical characteristics of the project site (e.g., wind and current speeds) that could affect the risk of a spill, the types and configuration of spill containment and drainage structures, and incorporation of best available technology into facility design. Evaluations also may include modeling of potential spill scenarios, as well as the effectiveness of mitigation measures to reduce the risk or severity of possible accidents or spill events.

The Port RMP restricts the siting of new hazardous liquid bulk facilities and modifications to existing facilities near vulnerable resources. Hazardous materials facilities that do not involve bulk liquids and, therefore, are not applicable to the Port RMP requirements would be designed and operated under design standards and guidelines, preventative maintenance programs, and systems to effectively monitor and control the use of hazardous materials in order to reduce risk to employees and vulnerable resources as part of the CAA RMP and CalARP. Compliance with existing regulations and requirements would limit the risk to the public from an upset or accident involving hazardous materials associated with onshore project operations. Therefore, onshore accidents or upsets that result in releases would not represent a substantial risk to the public or other resources.

All marine oil terminals are required to comply with MOTEMS, which include audits and inspections to determine the level of compliance and an evaluation of the continuing fitness-for-purpose. MOTEMS regulations also require monitoring and inspection of sources of lubricant, fuel, or oil leaks on a routine basis to prevent the release of hazardous materials into the marine environment. In addition, routine inspections of transfer hoses, loading arms, and connections as well as the integrity of product pipelines are required and are intended to identify vulnerabilities before an accident occurs. Secondary containment is required for all flanged connections and welded connections are required for pipes over water.

Seepage of CH_4 gas into structures from leaking abandoned wells can present a health, fire, and explosive hazard. Procedures for mitigation are in place as per the City permitting requirements for CH_4 testing and mitigation. Therefore, the potential for risk to the public from CH_4 seepage would be less than significant.

In-water operations have a potential for hazardous material releases from accidents or upsets into the Port. For example, human error and adverse weather situations can result in the accidental release of petroleum products, fuel, or lubricants, as has occurred historically. Commercial fishing, recreational boating, and visitor-serving commercial land uses within the Port would be adversely affected in the event of a hazardous materials spill released into Port waters. Vessel loading and unloading operations would also be adversely affected if they occurred in the vicinity of a release. Accidental releases of hazardous materials into the Port would represent a potentially significant impact.

Implementation of the OHSPER project would not involve any operational activities with the potential for producing accidental releases of hazardous materials.

Mitigation Measures

Construction

As construction would not produce a significant adverse effect on the public or environment through reasonably foreseeable upset or accident conditions involving the release of hazardous materials into the environment, no mitigation is required.

Operations

The following measure would be implemented as applicable to minimize impacts associated with hazards and hazardous materials during operations within the Harbor District.

HAZ-1: Spill Prevention Technologies. For projects involving hazardous liquid bulk facilities with in-water operations, project proponents shall prepare a report evaluating the technical, operational, and economic (including cost) feasibility of any potential new or emerging spill prevention or response technologies. If it is determined that the technology is feasible in terms of cost and technical and operational feasibility, the technology shall be implemented as soon as practicable.

Significance of Impact after Mitigation

Construction

Impacts associated with the accidental releases of hazardous materials would be less than significant.

Operations

Requiring new bulk liquid projects to review any new or emerging spills response technologies would ensure that the most recent and effective spill prevention methods are in place to reduce the frequency and potential for spills and to enhance the response capabilities thereby limiting the impact of potential spills.

Impacts associated with accidental releases of hazardous materials would therefore be less than significant with implementation of **Mitigation Measure HAZ-1**.

Impact HAZ-3: Construction and operations would not produce an adverse effect on the public or environment as a result of being located on a site that is known to contain hazardous materials or create a significant hazard to people or the environment because of the presence of soil or groundwater contamination.

Impact Determination

Construction

The construction activities associated with the Proposed Plan projects may involve excavation or other soil disturbance that could encounter contaminated soils located at a site either identified in previous studies (as indicated in Table 3.6-6) or a site with newly identified contaminated soils. Each project site is discussed below:

- **Administrative Building Site Support Yard (Expansion):** The only identified contaminated site that is near the construction area is the Tidelands Oil Production site located to the immediate west of the proposed project site.
- **Ocean Boulevard Bicycle Gap Closure:** No identified contaminated sites are located close to this project site.
- **Pier B Street Support Yard:** No identified contaminated sites are located close to this project site.
- **Pier D Street Realignment:** No identified contaminated sites are located close to this project site.
- **Pier J Terminal Redevelopment:** There is an identified contaminated site located near and within these construction sites—Contanda Terminals.
- **Pier S Mixed Use Development:** No identified contaminated sites are located close to these project sites.
- **Pier S Shoreline Enhancement:** No identified contaminated sites are located close to this area.
- **Pier T Improvements:** There is a single identified contaminated site located to the immediate east of this proposed construction area—the Berth 121 Marine Terminal site.
- **Pier W Terminal Development:** No identified contaminated sites are located close to this project site.
- **Protective Boat Basin (Berth F202):** No identified contaminated sites are located close to project site.
- **OHSPER:** No identified contaminated sites are located close to these project sites.

Construction activities could result in a disturbance of soils contaminated with hazardous materials from known areas as discussed above or from contamination not previously identified. However, the POLB has established goals and policies related to pre-construction surveys and contaminated soils and sediment handling practices (see Section 3.6.2.4, Local Regulations) which contain requirements related to the identification of contaminated areas and the handling of contaminated materials to reduce the potential impacts. Therefore, construction would not create a hazard related to contaminated material handling.

Implementation of the OHSPER project would not require construction as the facility is already operable in its present configuration. Therefore, there is no risk that the OHSPER project would involve construction activities that would disturb contaminated soils or groundwater.

Operations

Many locations in the POLB have soil and groundwater contamination issues and are currently undergoing various stages of cleanup (see above and Table 3.6-6). Contamination is primarily an issue associated with construction activities and the exposure of employees and the public to contaminated soils during earthmoving activities. After construction is completed, in accordance with cleanup requirements, project operations would not represent a hazard to humans.

Implementation of the OHSPER project would not involve any operational activities with the potential for impacting soil or groundwater contamination that is not already occurring. Therefore, project operations would not disturb contaminated soils or groundwater or represent a hazard to humans.

As construction and operations would not disturb contaminated soils or groundwater or represent a hazard to humans, no mitigation is required. Impacts would be less than significant.

Impact HAZ-4: Construction and operations would not impair implementation, physically interfere with, or result in an inconsistency with an adopted emergency response or evacuation plan.

Impact Determination

Construction

Proposed Plan project construction would occur primarily on site or within the immediate vicinity of the construction site and would not interfere with emergency response or evacuation plans. As standard procedure for activities occurring on Port property and within the Harbor District, the project operator would coordinate with the Port police, LBFD, and USCG for emergency response and evacuation planning. Construction and demolition activities would be subject to emergency response and evacuation systems already implemented by the POLB (see Section 3.6.2.4, Local Regulations).

During construction and demolition activities associated with the Proposed Plan projects, the POLB would require that adequate vehicular access to the construction site and vicinity be provided and maintained. Prior to commencement of construction/demolition activities, all construction plans would be reviewed by the POLB to ensure adequate access is maintained throughout construction/demolition. Traffic control equipment would be in place to direct local traffic around the work area. During construction, emergency access would be maintained to all surrounding facilities. The construction site would incorporate planning to assure that possible interference with emergency response and evacuation plans does not occur. As such, emergency access to these sites would not be adversely impacted and construction would not cause significant environmental effects.

Implementation of the OHSPER site would not require construction as the facility is already operable in its present configuration. Therefore, there is no risk that the OHSPER project would interfere with adopted emergency response or evacuation plans.

Operations

Operation of the Proposed Plan projects would occur primarily on site or within the immediate vicinity of the facility site and would not interfere with emergency responses or evacuation plans. As standard procedure for activities occurring on Port property and within the Harbor District, the project operator would coordinate with the Port police, LBFD, and USCG for emergency response and evacuation planning. Operational activities would be subject to emergency response and evacuation systems already implemented by the POLB.

Prior to commencement of operational activities, all plans would be reviewed by the POLB to ensure adequate fire protection codes and standards are implemented and the facility is integrated with the existing response activities. Therefore, project operations would not interfere with response plans or cause significant environmental effects.

OHSPER operational activities would not interfere with an adopted emergency response or evacuation plan.

As construction and operations of the Proposed Plan projects, and operations of the OHSPER project, would not interfere with an adopted emergency response or evacuation plans, Impacts would be less than significant, No mitigation is required.

Impact HAZ-5: Construction and operations would comply with state guidelines associated with abandoned oil wells.

Impact Determination

Oil and gas production in the Harbor District has historically been extensive, with abandoned oil wells located throughout the Harbor District. There is a likelihood of encountering an abandoned oil well during the construction phase of the Proposed Plan projects, either as planned through the construction permitting process (HDP process) and the DOGGR-identified location, or unplanned as exact locations for many wells are not known. If an abandoned oil well does not meet current DOGGR standards for abandoned wells, DOGGR may require re-abandonment as part of the construction project. DOGGR requirements also restrict siting buildings and structures on top of abandoned oil wells; this should be taken into account when planning and designing projects. DOGGR would be involved in the re-abandonment of any wells and any wells encountered would be required to be abandoned to appropriate standards. Once wells are properly re-abandoned, subsequent risks related to project operations are reduced. Therefore, construction and operations would not directly interfere with guidelines related to abandoned oil wells.

Because the OHSPER site is already operable in its present configuration, no additional construction or ground-disturbing activities with the potential for interfering with abandoned oil wells would occur.

As construction and operations would comply with state guidelines associated with abandoned oil wells, impacts would be less than significant. No mitigation is required.

Impacts on abandoned oil wells would be less than significant.

Impact HAZ-6: Construction and operations would not handle hazardous materials, substances, or wastes within 0.25 mile of an existing or planned school.

Impact Determination

Except for the Ocean Boulevard Bicycle Gap Closure, all of the Proposed Plan projects would be located farther than 0.25 mile from the closest school. The Ocean Boulevard Bicycle Gap Closure may be located within 0.25 mile of the Cesar Chavez Elementary School, depending on the exact location of the modifications. However, minimal hazardous materials would be associated with this project, and would be limited to construction equipment fuel and other construction materials, such as hydraulic oil or cleaning supplies (see discussion above under Impact HAZ-2), none of which would produce off-site impacts that could impact the school. Furthermore, no hazardous materials would be handled during operation of the bike lane. Therefore, the Proposed Plan projects would not affect area schools located within 0.25 mile of the Harbor District.

The OHSPER site would be located farther than 0.25 mile from the nearest school and would therefore produce less than significant impacts.

As construction and operations would not handle hazardous materials, substances, or wastes within 0.25 mile of an existing or planned school, impacts would be less than significant. No mitigation is required.

Impact HAZ-7: Construction and operations would not expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires.

Impact Determination

The POLB is located in an industrial area with no wildland areas. Consequently, the risk of wildland fires in the area is low. The closest California Department of Forestry and Fire Protection (CAL FIRE) designated high fire hazard area is located 17 miles north of the Port (CAL FIRE 2019). Therefore, construction and operation of the Proposed Plan projects would not affect risks of wildfire potential.

Implementation of the OHSPER project would not require construction as the facility is already operable in its present configuration. Therefore, there is no risk that the OHSPER project would involve construction activities that could increase risks from wildland fires.

As construction and operations would not expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires, impacts would be less than significant. No mitigation is required.

Impact HAZ-8: Construction and operations would not result in a safety hazard or excessive noise for people residing or working in the project area located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport.

Impact Determination

The Harbor District is located in an industrial area and not within an airport land use plan or within 2 miles of an airport. The Long Beach Airport Area of Influence as specified in the Los Angeles County Airport Land Use Plan (County of Los Angeles 1991) is outside of the Harbor District. Any construction or operational activities associated with the Proposed Plan projects would not result in safety risks or excessive noise.

The OHSPER site is also not within an airport land use plan or within 2 miles of an airport.

As construction and operations would not result in a safety hazard or excessive noise for persons near an airport, impacts would be less than significant. No mitigation is required.

Impact HAZ-9: Construction and operations would not result in an inconsistency with the Port of Long Beach Risk Management Plan.

Impact Determination

Construction

Generally, the Port RMP is associated with the operational use and storage of hazardous materials and not construction-related impacts, unless construction activities would involve large quantities of hazardous materials that could cause off-site impacts. Hazardous materials used during construction would be limited to construction equipment fuels and other construction materials, such as hydraulic oils, solvents, welding gases, or cleaning supplies, with limited potential to affect areas off of the construction site. Therefore, construction activities would not be inconsistent with the Port RMP.

Implementation of the OHSPER project would not require construction as the facility is already operable in its present configuration. Therefore, the OHSPER project would not involve construction activities that would be inconsistent with the Port RMP.

Operations

The Port RMP provides guidance on the operational use and storage of bulk liquid hazardous materials (see Section 3.6.2.4, Local Regulations). Other hazardous materials would be regulated by the CAA RMP requirements and implemented by the individual port tenants. Any operational activities associated with the Proposed Plan projects that would involve quantities of bulk liquid hazardous materials would be required to conduct an analysis per the Port RMP requirements to ensure that releases of hazardous materials would not cause impacts on nearby receptors. All projects would be required to be consistent with the Port RMP requirements as part of the HDP. Therefore, project operations would be consistent with the Port RMP.

OHSPER operational activities would not include the use or storage of hazardous materials beyond current operations and would not handle bulk liquid hazardous materials. Therefore, this project would not involve any construction or operational activities would be inconsistent with the Port RMP.

As construction and operations would not result in an inconsistency with the Port's RMP, impacts would be less than significant. No mitigation is required.

3.6.3.4 Alternative 1 (No Plan Alternative)

Alternative 1 (No Plan Alternative) considers what would reasonably occur if the Port did not update the PMP to include updates to the planning districts and allowable land and water use designations within the Harbor District. Alternative 1 includes projects that are 1) consistent with the 1990 PMP as amended, 2) may or may not have been evaluated in a final CEQA document, and/or 3) could be implemented without approval of the Proposed Plan. Alternative 1 includes the following projects: Administrative Building Site Support Yard (Expansion), Fourth Track at Ocean Boulevard, Ocean Boulevard Bicycle Gap Closure, Pier B Street Support Yard, Pier D Street Realignment, Pier S Mixed Use Development, and Pier S Shoreline Enhancement. This alternative also includes the Pier T Echo Support Yard project, which would construct a 17-acre support yard (chassis, empties, or peel-off) that would serve the Pier T container terminal. In addition, use of the WASSS would continue as currently permitted (i.e., placement and reuse of clean sediments).

<u>Impact Determination</u>

Impacts under Alternative 1 would be similar to those under the Proposed Plan. While fewer projects would be implemented, all projects would utilize hazardous materials for construction. However, potential impacts related to routine use and accidental releases would not affect areas off of the construction site. Operationally, the projects with the potential for liquid bulk marine terminals (Pier S) would continue to be subject to regulatory and Port RMP requirements, reducing the potential for impacts from hazardous materials (Impacts HAZ-1 and HAZ-2). Regardless, in-water operations have a potential for hazardous material releases from accidents or upsets into the San Pedro Bay Port Complex, which represent a potentially significant impact. Some contamination near the Administration Building and the Pier T projects would continue to be applicable under Impact HAZ-3 but would be managed by existing requirements identified under the Port permitting process. Existing permitting and coordination associated with emergency response and evacuation plans would reduce Impact HAZ-4 to less than significant. Abandoned oil wells would continue to be handled under the existing DOGGR requirements and the Port permitting process (Impact HAZ-5). Only the Bicycle Gap Closure project would be closer than 0.25 mile from a school and this project would not utilize hazardous materials in a manner that would produce impacts off of the construction sites (Impact HAZ-6). None of the Port areas are located close to high hazard fire areas as per the CAL FIRE maps (Impact HAZ-7), and none of the Port areas are located within 2 miles of an airport or within an airport land use plan (Impact HAZ-8). All projects involving the use of bulk liquid hazardous materials would be required to comply with the Port RMP program as part of the Port permitting process (Impact HAZ-9). Therefore, with implementation of **Mitigation Measure HAZ-1**, Alternative 1 would result in less than significant impacts related to hazards and hazardous materials.

3.6.3.5 Alternative 2 (No Terminal Development)

Alternative 2 (No Terminal Development) is similar to the Proposed Plan and would include updates to the planning districts and allowable land and water use designations in the Harbor District. However, Alternative 2 would not include terminal development projects at Pier T, Pier W, or Pier J. Alternative 2 would include the following projects: Administrative Building Site Support Yard (Expansion), Protective Boat Basin (Berth F202), OHSPER, Fourth Track at Ocean Boulevard, Ocean Boulevard Bicycle Gap Closure, Pier B Street Support Yard, Pier D Street Realignment, Pier T Echo Support Yard, Pier S Mixed Use Development, Pier S Shoreline Enhancement, and land use changes.

Impact Determination

Impacts under Alternative 2 would be less than those under the Proposed Plan as Pier J, T, and W developments would not take place, with the Pier J, T, and W developments having the potential to handle hazardous cargo. Alternative 2 projects would utilize hazardous materials for construction, but none of the potential impacts related to routine use and accidental releases would affect areas off of the project site. Operationally, only the Pier S project would be implemented with the potential to construct liquid bulk marine terminals under Alternative 2 (Impacts HAZ-1 and HAZ-2). In-water operations have a potential for hazardous material releases from accidents or upsets into the San Pedro Bay Port Complex, which represent a potentially significant impact. The Protective Boat Basin (Berth F202) project did not have any identified contaminated soils but could still encounter unknown contamination under Impact HAZ-3 that would be managed by existing contaminated soils requirements identified under the Port permitting process. Existing permitting and coordination associated with emergency response and evacuation plans would reduce Impact HAZ-4 to less than significant. Abandoned oil wells would continue to be handled under the existing DOGGR requirements and the Port permitting process (Impact HAZ-5). The Bicycle Gap Closure project would be implemented under Alternative 2 and would be less than 0.25 mile from a school, but impacts would not extend off site (Impact HAZ-6). None of the Port areas are located close to high hazard fire areas as per the CAL FIRE maps (Impact HAZ-7), and none of the Port areas are located within 2 miles of an airport or within an airport land use plan (Impact HAZ-8). None of the projects involving the use of bulk liquid hazardous materials would be implemented (Impact HAZ-9). Therefore, with implementation of **Mitigation Measure HAZ-1**, Alternative 2 would result in less than significant impacts related to hazards and hazardous materials.

3.6.3.6 Alternative 3 (Reduced Terminal Development)

Alternative 3 (Reduced Terminal Development) is similar to the Proposed Plan and would include updates to the planning districts and allowable land and water use designations in the Harbor District. Under Alternative 3, development of the Pier J terminal would be reduced compared to the Pier J Terminal Redevelopment under the Proposed Plan. The Pier J Reduced Development would include dredging and filling the 22-acre triangle, cutting a 9-acre notch, extending the north wharf to the east, and relocating the existing rail line and yard to Pier J South. No development of a new Pier W terminal would occur. Alternative 3 would include the following projects: Administrative Building Site Support Yard (Expansion), Protective Boat Basin (Berth F202), OHSPER, Fourth Track at Ocean Boulevard, Ocean Boulevard Bicycle Gap Closure, Pier B Street Support Yard, Pier D Street Realignment, Pier S Mixed Use Development, Pier S Shoreline Enhancement, Pier T Improvements, Pier J Reduced Development, and land use changes.

Impact Determination

Impacts under Alternative 3 would be similar to those under the Proposed Plan. While fewer projects would be implemented, all projects would utilize hazardous materials for construction. However, potential impacts related to routine use and accidental releases would not affect areas off of the project site. Operationally, the projects with the potential to construct liquid bulk marine terminals (Pier S) would continue to be subject to regulatory and Port RMP requirements, reducing the potential for impacts from hazardous materials (Impacts HAZ-1 and HAZ-2). In-water operations have a potential for hazardous material releases from accidents or upsets into the San Pedro Bay Port Complex, which represent a potentially significant impact. Some contamination near the Pier T project would continue to be applicable under Impact HAZ-3 but would be managed by existing requirements identified under the Port permitting process. Existing permitting and coordination associated with emergency response and evacuation plans would reduce Impact HAZ-4 to less than significant. Abandoned oil wells would continue to be handled under the existing DOGGR requirements and the City's permitting process (Impact HAZ-5). The Ocean Boulevard Bicycle Gap Closure project would be implemented under Alternative 2 and would be less than 0.25 mile from a school, but impacts would not extend off site (Impact HAZ-6). None of the Port areas are located close to high hazard fire areas as per the CAL FIRE maps (Impact HAZ-7). And none of the Port areas are located within 2 miles of an airport or within an airport land use plan (Impact HAZ-8). All projects involving the use of bulk liquid hazardous materials would be required to comply with the Port RMP program as part of the permitting process (Impact HAZ-9). Therefore, with implementation of **Mitigation Measure HAZ-1**, Alternative 3 would result in less than significant impacts related to hazards and hazardous materials.

3.6.4 Cumulative Impacts

The geographic scope for cumulative impacts associated with accidental spills and releases and the resulting effects of hazardous materials encompasses the San Pedro Bay Port Complex. The importance of regional projects diminishes with increasing distance from the Port because the magnitude of potential impacts diminishes with greater distance from the Port. Thus, past, present, and reasonably foreseeable future projects (see Chapter 2, Table 2.1-1) that could contribute to these cumulative impacts include those projects that transport, store, or use hazardous materials in the vicinity of the Port. Cumulative impacts related to contaminated soils, abandoned oil wells, wildland fires, impairment of emergency response plans, distances to schools and airports, and the Port RMP consistency would all be only applicable for POLB-related cumulative projects as these impacts are limited in scope and the areas that could overlap with the project.

- **HAZ-1: Create a significant adverse effect on the public or environment through the routine transport, storage, use, or disposal of hazardous materials.**

Cumulative impacts associated with routine use of hazardous materials are associated with projects whose impacts overlap and produce cumulative impacts on the same receptors. Projects that are located a substantial distance apart generally do not produce cumulative impacts for hazardous materials routine use.

Many of the projects listed in Table 2.1-1 involve projects that may use hazardous materials during construction or operations, specifically terminal redevelopment projects or other projects handling hazardous materials (Pier G Terminal Redevelopment, Mitsubishi Cement Corporation Facility Modifications, Toyota Logistics Services Improvement Project, and Defense Fuel Support Point San Pedro). None of these projects would involve the routine use of hazardous materials that could affect nearby vulnerable populations (accidental releases are discussed under Impact HAZ-2). Emissions into the air could cause routine impacts; however, none of the projects listed in Table 2.1-1 involve industrial or power generation facilities that are likely to emit hazardous material through stationary smoke stacks or other emissions sources. The region surrounding the Harbor District contains a number of oil and natural gas fields and refineries that may emit quantities of hazardous materials under normal operations. These are monitored and controlled through the issuance of air permits from SCAQMD. Therefore, cumulative contributions from related projects would be less than cumulatively significant.

- **HAZ-2: Create a significant adverse effect on the public or environment through reasonably foreseeable upset or accident conditions involving the release of hazardous materials into the environment.**

Virtually all of the projects listed in Table 2.1-1 have the potential to contribute to the risk of hazardous materials spills or releases during construction. During construction, lubricants, fuels, and hydraulic oils used in construction machinery could be spilled during normal usage or during refueling. In addition, vessels used to support in-water construction, such as tugs and barges carrying construction materials or equipment, contain fuel tanks, lube oils, and hydraulic fluids that would have the potential to contribute to spills. Present and reasonably foreseeable future projects requiring excavation or grading may potentially damage underground facilities, hazardous material pipelines, electrical lines, or other cables. However, implementation of normal construction standards associated with Port policies (see Section 3.6.2.4, Local Regulations), including BMPs and applicable regulations and practices would minimize the potential for an accidental releases of hazardous materials or fuels during construction activities. In addition, the effects of minor fluid spills that may result from construction are likely to be isolated to the construction site. Therefore, the contributions from construction of related projects to cumulative impacts are less than significant.

During operations, releases of hazardous materials is also possible from the cumulative projects. None of the 13 cumulative projects proposed for the Harbor District would involve storage of large volumes of hazardous materials. The terminal projects involve container terminals, not bulk hazardous liquids, for example. The Toyota facility would include some hydrogen fuel handling. All of these projects would be required to comply with the Port RMP requirements of the POLB and, therefore, no highly populated areas would be exposed to hazardous materials releases. In addition, the WRAP reduces the potential for impacts from spills by requiring BMPs for fuel and oil handling operations. Therefore, cumulative impacts would be less than significant.

Cumulative projects outside of the Harbor District associated with residential and commercial developments would not have substantial hazardous materials inventories and would not overlap with any of the impacts associated with the POLB projects. Cumulative impacts would therefore be less than significant.

Cumulative projects located at the Port of Los Angeles that would handle hazardous materials include only the Relocation of the Jankovich Marine Fueling Station, which would involve new storage tanks. The location of this facility is remote from the POLB and overlapping impacts would not be anticipated. Therefore, cumulative impacts would be less than significant.

Cumulative projects located in the Community of Wilmington that would handle hazardous materials would include jet fuel pipelines connecting to Los Angeles International Airport (LAX) and modifications to the Warren Oil facility, neither of which are located in proximity to the POLB and overlapping impacts would not be anticipated. Therefore, cumulative impacts would be less than significant.

Portions of the Harbor District potentially have CH_4-contaminated soils, as associated with previous oil development and industrial activities and leaking abandoned wells. Current permitting requirements as part of the City of Long Beach would address the management of CH_4 leakage and contamination and these cumulative impacts would, therefore, be less than significant.

Construction and operations associated with the Proposed Plan projects and land use changes would not exacerbate the reasonably foreseeable accident or upset conditions involving the release of hazardous materials into the environment.

- **HAZ-3: Produce an adverse effect on the public or environment as a result of being located on a site that is known to contain hazardous materials or create a significant hazard to people or the environment because of the presence of soil or groundwater contamination.**

Areas of the POLB are currently undergoing cleanup activities. Cumulative projects in the Harbor District would involve the construction and movement of soils, some of which may be contaminated. With the implementation of POLB procedures and policies related to pre-construction surveys and contaminated soils handling (see Section 3.6.2.4, Local Regulations), contaminated soils and soils handling would be managed for all projects and cumulative impacts would be less than significant. Other projects outside of the Harbor District would not have impacts from contaminated soils that could impact the same populations as impacts from contaminated soils handling associated with Port activities. Therefore, cumulative impacts would be less than significant.

- **HAZ-4: Impair implementation, physically interfere with, or result in an inconsistency with an adopted emergency response or evacuation plan.**

Emergency response activities might be required for a range of cumulative projects. Existing plans and procedures for the review of projects within the Harbor District, including the Port RMP program, review of plans by the POLB and LBFD, and the HDP process, would ensure that cumulative projects do not produce additional strain on emergency response capabilities. Cumulative projects in the community related to residential, commercial and industrial projects, are also reviewed by fire departments and local planning and building departments for impacts on emergency response capabilities. Therefore, cumulative impacts would be less than significant.

- **HAZ-5: Not comply with state guidelines associated with abandoned oil wells.**

Abandoned oil wells are a potential issue throughout the region for a number of cumulative projects. The state DOGGR requires re-abandonment procedures and the limiting of buildings to areas that are not directly over abandoned oil wells. For areas within the Harbor District, current permitting requirements as part of the City of Long Beach would require CH_4 review and potential testing. Therefore, cumulative impacts would be less than significant.

- **HAZ-6: Handle hazardous materials, substances, or wastes within 0.25 mile of an existing or planned school.**

Only the Ocean Boulevard Bicycle Gap Closure project within the Harbor District would be located within 0.25 mile of a school and would produce less than significant impacts as it would only be bikeway construction and operation and would not involve hazardous materials. None of the 19 cumulative projects proposed for the Harbor District would involve storage of large volumes hazardous materials located within 0.25 mile of a school. The Baker Cold Storage might involve the use of anhydrous ammonia, which could produce impacts on areas around the facility. The Toyota facility would include some hydrogen fuel handling. All of these projects would be required to comply with the Port RMP requirements and, therefore, no highly populated areas would be exposed to hazardous materials releases. These facilities are also located farther than 0.25 mile from a school.

Cumulative projects outside of the Harbor District associated with residential and commercial developments would not have substantial hazardous materials inventories.

Cumulative projects located at the Port of Los Angeles that would handle hazardous materials include only the Relocation of the Jankovich Marine Fueling Station, which would involve new storage tanks. The location of this facility is remote from the Harbor District and does not overlap of impacts on area schools with the Ocean Boulevard Bicycle Gap Closure project (which is the only Proposed Plan project located within 0.25 mile of a school).

Cumulative projects located in the Community of Wilmington would include jet fuel pipelines connecting to LAX and modifications to the Warren Oil facility, neither of which overlaps impacts on area schools with the Ocean Boulevard Bicycle Gap Closure project (which is the only Proposed Plan project located within 0.25 mile of a school). Therefore, because the Proposed Plan projects will not handle hazardous materials within 0.25 mile of a school, they will not contribute to cumulative impacts for this threshold.

- **HAZ-7: Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires.**

None of the cumulative projects are located in high fire hazard areas and the risk of wildland fires is low in the area as there are no wildland areas. The closest CAL FIRE designated high fire hazard area is located 17 miles to the north of the Harbor District. Therefore, cumulative impacts would be less than significant.

- **HAZ-8: Result in a safety hazard or excessive noise for people residing or working in a project area located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport.**

None of the ports are located within 2 miles of an airport or within an airport land use plan area. Cumulative projects may be located within these areas, but as the impacts from the Proposed Plan projects would not overlap with the impacts from those projects on receptors that are exposed to safety hazard or excessive noise from airports, the Proposed Plan projects would not contribute to any cumulative impact and, as such, cumulative impacts would be less than significant.

- **HAZ-9: Result in an inconsistency with the Port of Long Beach Risk Management Plan.**

All cumulative projects at either the Port of Long Beach or the Port of Los Angeles would be required to comply with the established Port RMP plans for both ports. Cumulative projects involving residential, commercial, or industrial projects outside of the port areas are not required to comply with the Port RMP. As all port projects would be required to comply with the Port RMP program, the cumulative impacts would be less than significant.

3.6.5 Mitigation Monitoring Program

Implementation of **Mitigation Measure HAZ-1** would be required to reduce impacts associated with hazards and hazardous materials within the Harbor District. This mitigation measure and monitoring requirements are summarized in Table 3.6-8.

TABLE 3.6-8. MITIGATION MONITORING PROGRAM

Mitigation Measure	Responsible Party	Timing/Frequency
HAZ-1: Spill Prevention Technologies. For projects involving hazardous liquid bulk facilities with in-water operations, project proponents shall prepare a report evaluating the technical, operational, and economic (including cost) feasibility of any potential new or emerging spill prevention or response technologies. If it is determined that the technology is feasible in terms of cost and technical and operational feasibility, the technology shall be implemented as soon as practicable.	Project owner/operator	Prior to project construction

3.7 HYDROLOGY AND WATER QUALITY

This section describes the potential impacts on hydrology and water quality that could result from implementation of the Proposed Plan and its alternatives.

3.7.1 Environmental Setting

3.7.1.1 Area of Influence

The area of influence for effects on hydrology and water quality is defined as the Inner Harbor and Outer Harbor waters of Long Beach Harbor, as well as upland portions of the Harbor District (Figure 3.7-1).

3.7.1.2 Setting

Groundwater

The Port is located in the West Coast Basin subdivision of the Los Angeles County Coastal Plain groundwater basin. The West Coast Basin is bounded on the north by the Santa Monica Mountains, on the east by the Newport-Inglewood Uplift, on the west by the Palos Verdes Hills, and on the south by the Pacific Ocean. The West Coast Basin contains a series of aquifers and aquicludes. Aquifers are composed of thick, permeable sediments that are a source of water to groundwater wells. The term “aquiclude” describes the less permeable silt and clay layers that separate the aquifers. Aquifers in the West Coast Basin are generally confined and replenished primarily from the adjacent groundwater basin and from seawater intrusion. Depth to groundwater in the Port is typically less than 10 feet (City of Long Beach 2016). Groundwater elevations are typically below sea level due to historic overpumping of groundwater. The West Coast Basin was adjudicated in 1961 following the intrusion of seawater into the aquifers in the basin (CH2M 2016).

Groundwater conditions within the Harbor District are influenced by Long Beach Harbor to the south, Dominguez Gap Seawater Intrusion Barrier to the west, local groundwater contamination, and groundwater production wells pumping a few miles inland to the north and northeast (MWD 2007). The Dominguez Gap Seawater Intrusion Barrier, maintained by the Los Angeles County Department of Public Works, was installed to maintain water table elevations near sea level and prevent seawater intrusion from migrating inland (Los Angeles County Public Works 2018). The barrier project injects water into deep aquifers west of the Harbor District through a series of wells aligned along Dominguez Channel and, from there, westward along Anaheim Street to the Harbor Freeway (SR-110). The Port is outside (seaward) of the Dominguez Gap Barrier.

<u>Hydrology</u>

The general regional groundwater flow pattern in the vicinity of the Harbor District is southward and westward from the Central Coastal Plain toward the ocean.

<u>Groundwater Quality</u>

Groundwater beneath the Harbor District is classified as saline due to seawater intrusion. Groundwater quality within the Harbor District also reflects contaminant inputs from historical and ongoing industrial operations. As discussed in Section 3.6 (Hazards and Hazardous Materials), searches of the DTSC database EnviroStor (DTSC 2019) and the SWRCB Geotracker database (SWRCB 2019) identified eight sites characterized by contaminated groundwater, and an additional 33 locations classified as Leaking Underground Storage Tank sites within the Harbor District.

Figure 3.7-1. Major Waterways in the Port of Long Beach

Beneficial Uses

Existing beneficial uses for the groundwater basin underlying areas within the Harbor District (Sub-basin 4-11-03) include Industrial Service Supply, Industrial Process Supply, and Agricultural Supply (LARWQCB 2014b). The groundwater beneath the Harbor District is currently not considered potable water, and would likely not be considered a potable water source in the future due to salinity. As a result, the Los Angeles RWQCB (LARWQCB) has not designated a municipal beneficial use for groundwater in the Harbor District area. Municipal beneficial use is defined as uses of water for community, military, or individual water supply systems including, but not limited to, drinking water supply. Instead, potable (drinking) water is provided to the area by the Metropolitan Water District (see Section 3.11, Public Services and Safety).

Upland Surface Water

Hydrology

The Harbor District consists of approximately 3,200 acres of land and 4,600 acres of water. The Port of Long Beach subwatershed has a total drainage of approximately 4.54 square miles that drains directly to the Los Angeles and Long Beach Harbors (City of Long Beach 2016). The Port of Long Beach and Port of Los Angeles are bounded on the landward side by the communities of San Pedro, Wilmington, and the City of Long Beach, and on the seaward side by the three breakwaters that protect port facilities. Terminal Island, which is shared by the two ports and supports a number of large cargo terminals and other port uses, comprises nearly a quarter of the total land area, and is separated from the mainland by the Los Angeles Main Channel, Long Beach Back Channel, and the Cerritos Channel that links the two ports.

The Ports of Long Beach and Los Angeles are located within the lower portions of the Dominguez Watershed (POLA and POLB 2009b), but are also influenced by the adjacent Los Angeles River and San Gabriel River Watersheds. The Los Angeles River Watershed[7] covers an area of 533,000 acres (824 square miles). The upper portion of the watershed (approximately 324 square miles) near the headwaters is largely open space, whereas the remaining lower portion of the watershed is highly developed. The Dominguez Watershed encompasses 133 square miles of largely urban and industrial land uses. The Dominguez Watershed extends as far north as Inglewood and includes several small cities as well as portions of the City of Los Angeles. The Dominguez Channel discharges into the Los Angeles Harbor via the Consolidated Slip. The San Gabriel River Watershed is adjacent to the Los Angeles River Watershed and covers an area of 436,500 acres (689 square miles). The watershed consists of extensive areas of undisturbed riparian and woodland habitats in its upper reaches, whereas the lower part of the watershed is heavily urbanized. The San Gabriel River discharges to the ocean in the City of Long Beach.

The upland portion of the Harbor District generally consists of artificial fill that has been substantially altered by dredge and fill operations and industrial construction. Developed lands comprise 99.8 percent of the upland portion of the Port (City of Long Beach 2016). There are no natural/topographic features and no natural or artificial surface water bodies within the Harbor District. Instead, surface waters within upland portions consist of wet and dry-weather runoff that is directed via topographic grading to numerous large storm drain systems operated by the City and County of Los Angeles as well as by the City of Long Beach. Stormwater is defined by USEPA as runoff that is generated from rain events and flows over land or impervious surfaces without percolating into the ground. Given that major portions of the upland areas of the Harbor District are covered with impervious surfaces, percolation of rain into surface soils is minimal. Volumes of surface water runoff are tied to seasonal rainfall events, whereas dry-weather runoff is

[7] The term "watershed" is used here to describe a geographic area of land that drains water to a shared destination, in this case the Queensway Bay portion of the San Pedro Bay.

characterized as intermittent. Stormwater discharges from individual properties within the Harbor District are regulated by individual and general permits, including the City of Long Beach and Los Angeles County Municipal Separate Storm Sewer System (MS4) NPDES permits, in accordance with state and federal regulations (see Section 3.7.2, Regulatory Setting).

Freshwater Quality

Following storm events, the quality of surface water may be degraded due to loading from petroleum hydrocarbons, chlorinated compounds such as PCBs, the pesticide residue dichlorodiphenyltrichloroethane (DDT), metals, semi-VOCs, and other PM associated with the industrial land uses and runoff from roadways. Discharges from select storm drain outfalls are monitored routinely in accordance with the City of Long Beach MS4 NPDES permit. During three separate, wet-weather sampling events within the 2017−2018 monitoring period (Anchor QEA 2018b, Anchor QEA 2019a, Anchor QEA 2019b), total suspended solids concentrations ranged from 21 to 317 milligrams per liter (mg/L). Fecal indicator bacteria (total coliforms, fecal coliforms, and enterococci) concentrations frequently exceeded 1,000 most probable number per 0.1 liter. Of the three metals (total copper, total lead, and total zinc) analyzed, concentrations of zinc occasionally exceeded 100 micrograms per liter (μg/L). Select organic compounds, polycyclic aromatic hydrocarbons (PAHs), PCBs, and DDT residues were also analyzed, and concentrations for total PAHs ranged from 0.2 to 5.7 μg/L, concentrations of total PCBs ranged from 3.1 to 25 nanograms per liter (ng/L), and concentrations of total DDTs ranged from 0.3 to 18 ng/L. The MS4 permit does not identify numerical limits for these constituents in runoff; instead, compliance with the TMDL-established, water quality based effluent limitations is based on achieving waste load allocations (i.e., mass per year) and sediment and fish tissue target concentrations or achieving compliance with Sediment Quality Objectives (SQOs).

Beneficial Uses

No beneficial uses have been assigned to freshwater surface water bodies in upland portions of the Harbor District because none exist. Beneficial uses assigned to the watershed drainage sources that affect Harbor District waters, such as Dominguez Channel (the lined portion above Vermont Avenue) and Los Angeles River Estuary, are listed in Table 3.7-1.

Floodplain/Flooding

Flood zones identified by FEMA in the Flood Insurance Rate Map for the Harbor District (Figure 3.7-2) are defined as Zone A, Zone AE, Zone AH, Zone X, and Zone D. Zone A is the 100-year floodplain, corresponding to an area with a 1 percent chance of being inundated by a flood event in any given year. Zone AE (areas subject to inundation by the 1-percent-annual-chance flood event) is an area where the base floodplain (the flood having a 1 percent chance of being equaled or exceeded in any given year) is located and where base flood elevations (the elevation for a 100-year flood event) are provided. Zone AH is an area with a 1 percent annual chance of shallow flooding, usually in the form of a pond, with an average depth ranging from 1 to 3 feet. Zone X (shaded) is an area of moderate flood hazard, usually between the limits of the 100-year and 500-year (0.2 percent chance of a flood event in any given year) flood level. Flood Zone X (unshaded) is an area of minimal flood hazard that usually is depicted as above the 500-year flood level. Zone D is an area with possible but undetermined flood hazards.

Coastal Receiving Waters and Sediments

This section provides an overview of the setting and existing conditions for hydrology (circulation) of coastal/receiving waters, along with marine water quality and marine sediment quality.

TABLE 3.7-1. BENEFICIAL USES OF LOS ANGELES/LONG BEACH HARBOR RECEIVING WATERS AND ADJACENT WATERSHED DRAINAGE SOURCES

Water Body	Beneficial Uses												
	IND	**NAV**	**COMM**	**EST**	**MAR**	**WILD**	**RARE**	**REC1**	**REC2**	**MIGR**	**SPWN**	**SHELL**	**WET[1]**
Los Angeles/Long Beach Harbor													
Outer Harbor		E	E		E		E	E	E			P	
Marinas	E	E	E		E		E	E	E			P	
Public Beach Areas		E		E	E		E	E	E		P	E	
All Other Inner Areas	E	E	E		E		E[3]	P	E			P	
Dominguez Channel[2,5]		P	E	E	E	E	E[3]	E	E	E[4]	E[4]		
Los Angeles River Estuary[2,5]	E	E	E	E	E	E	E[3]	E	E	E[4]	E[4]	P	E

Source: (LARWQCB 2014b)

Key: COMM = Commercial and Sport Fishing; E = existing beneficial use; EST = Estuarine Habitat; IND = Industrial Service Supply; MAR = Marine Habitat; MIGR = Migration of Aquatic Organisms; NAV = Navigation; P = potential beneficial use; RARE = Rare, Threatened, or Endangered Species; REC1 = Contact Water Recreation; REC2 = Non-Contact Water Recreation; SHELL = Shellfish Harvesting; SPWN = Spawning, Reproduction, and/or Early Development; WET = Wetland Habitat; WILD = Wildlife Habitat

Notes:

[1] Water bodies designated as WET may have wetlands habitat associated with only a portion of the water body. Any regulatory action would require a detailed analysis of the area.

[2] Coastal water bodies that are also listed in inland surface water or in wetlands.

[3] One or more rare species utilizes all ocean, bays, estuaries, and coastal wetlands for foraging and/or nesting.

[4] Aquatic organisms utilize all bays, estuaries, lagoons, and coastal wetlands, to a certain extent, for spawning and early development. This may include migration into areas that are heavily influenced by freshwater inputs.

[5] These areas are engineered channels. All references to Tidal Prisms in the Regional Water Quality Control Board documents are functionally equivalent to estuaries.

Figure 3.7-2. FEMA Flood Control Map for the Port of Long Beach

Long Beach/Los Angeles Harbor is a southern extension of the relatively flat coastal plain, bounded on the west by the Palos Verdes Hills and on the seaward side by the three breakwaters that protect port facilities. The San Pedro Bay Harbor Complex was originally an estuary that received freshwater from the Los Angeles and San Gabriel Rivers. Over the past 80 to 100 years, development of the San Pedro Bay Port Complex, through dredging, filling, oilfield production, channelization, and construction of breakwaters and other structures such as wharves and piers, has completely altered the local estuarine physiography.

The Harbor District includes the Inner Harbor and Middle Harbor (with 62 berths for OGVs on 10 piers designated by letters A–H, J, S, and T), Outer Harbor (open-water area for navigation and maneuvering), and Cerritos Channel (connecting the Inner Harbor to the Port of Los Angeles), covering approximately 4,600 acres of water (Figure 3.7-1). The combined San Pedro Bay Port Complex has two major hydrologic components: marine and freshwater. The Port is marine and primarily influenced by the Southern California coastal marine environment known as the Southern California Bight. The main freshwater influx into the Port is from the Los Angeles River and San Gabriel River that discharge into Eastern San Pedro Bay at the east side of Long Beach Harbor, and through Dominguez Channel, via the Consolidated Slip. The Los Angeles River carries the largest storm flow of any river in Southern California and is a major source of pollutant inputs, including nutrients, bacteria, and metals, to the coastal environment. Freshwater sources also include numerous large Los Angeles County, City of Los Angeles, and City of Long Beach storm drains, some of which discharge to the harbor, and discharges of approximately 15 million gallons per day (mgd) of tertiary treated (with microfiltration reverse osmosis) sewage effluent from the Terminal Island Water Reclamation Plant into the Outer Harbor.

Direct precipitation on water surfaces also adds freshwater runoff and small amounts of dry-weather runoff to harbor waters. The majority of stormwater outfalls in the Harbor District discharge stormwater that originates from inside the Harbor District. All stormwater outfalls discharge to Long Beach Harbor or the Los Angeles River Estuary. However, the land area of the Harbor District (about 3,200 acres) represents only a small portion of the total land area of the watersheds that influence hydrology and water quality within the Port.

The watersheds that discharge to the coastal waters of San Pedro Bay consist of over 1,060,400 acres of urban landscape. Pollutants typically found in urban runoff from the surrounding watersheds include metals, hydrocarbons, bacteria from human and pet waste, trash, organic compounds, pesticides, and fertilizers. The nearshore Port of Long Beach subwatershed comprises a small portion of the acreage of the regional watersheds, and it contributes less than one percent of the total stormwater discharge volume to San Pedro Bay. Additionally, the Port of Long Beach subwatershed is almost completely hydrologically isolated in that the vast majority of stormwater outfalls in the Harbor District discharge stormwater that originates from inside the Harbor District. Stormwater discharge to Long Beach Harbor or the Los Angeles River Estuary represents a direct impact on San Pedro Bay. Pollutants typically found in the urban runoff originating from the Harbor District include a smaller subset of the pollutants originating from the greater watershed, such as metals, organic compounds, sediment, trash, and hydrocarbons, among others. The Port's dry-weather flow input is considered negligible.

Circulation

Water circulation in the San Pedro Bay Port Complex is strongly influenced by the presence of the federal breakwater, consisting of three individual rock structures, that provides protection from waves and swells, but also reduces water exchange with the greater San Pedro Bay (Los Angeles Regional CSTF 2005). Circulation within inner portions of the San Pedro Bay Port Complex are influenced by tides, winds, and stormwater flows that are affected by bathymetry (underwater topography) and configuration of port facilities.

Over the past several decades, the San Pedro Bay Port Complex has undergone several major changes from channel deepening and expansion projects, such as construction of Pier 400 and Pier J. The configuration of channels and land area results in complex three-dimensional water circulation patterns. Tidal flushing is generally good in the Outer Harbor due to proximity to San Pedro Bay Port Complex entrances, but decreases substantially toward the Inner Harbor (POLB 2012). Tidal currents move in and out of the San Pedro Bay Port Complex through Angels Gate, Queens Gate, and the opening between Pier J and the Long Beach Breakwater. Tidal current velocities are generally small, with maximum velocities typically less than 0.3 feet per second, except in the vicinity of the harbor entrances, where current velocities are higher at 0.7 feet per second. The highest current velocities occur near the harbor entrances and along the main channels, and generally decrease toward the Inner Harbor (POLA and POLB 2009a).

As part of the WRAP effort, the Port of Long Beach and Port of Los Angeles developed a hydrodynamic and water quality model for the Los Angeles/Long Beach Harbor (the WRAP Model). This model was built to improve predictions of the effectiveness of current and future control measures to improve water quality in the Harbor (POLA and POLB 2009b).

In general, winds tend to affect surface currents, while producing a counter-current in the mid to bottom water depths (Seabergh, et al. 1994). Winds are typically from the southwest in the Outer Harbor and from the south in the Inner Harbor. This spatial variation in dominant wind direction drives surface waters in a counter-clockwise circulation pattern in the Inner Harbor, particularly along the Cerritos Channel and Port of Los Angeles Main Channel (POLA and POLB 2009a).

During rain events, stormwater runoff can noticeably affect harbor currents. Stormwater flows can easily exceed tidal currents in velocity, especially in the Inner Harbor where tidal current velocities are small. The WRAP model shows that the western portion of the San Pedro Bay Port Complex receives a greater amount of runoff due to the larger watershed drainage into that area. During rain events, flows along the Cerritos Channel typically move eastward. The model also shows that discharges from the Los Angeles and San Gabriel Rivers into Queensway Bay can flow into the Harbor District (POLA and POLB 2009b). Given the large areas and highly industrialized nature of the associated watersheds, these discharges can influence water quality within the Harbor District.

Tides

Tides are sea level variations that result from astronomical and meteorological conditions. Tidal variations along the coast of Southern California are caused by the passage of two harmonic tide waves, one with a period of 12.5 hours and the other with a period of 25 hours. This combination of two harmonic tide waves usually produces two high and two low tides each day. The twice daily (semidiurnal) tide of 12.5 hours predominates over the daily (diurnal) tide of 25 hours in the San Pedro Bay Port Complex, generating a diurnal inequality, or mixed semidiurnal tide. This causes a difference in height between successive high and low waters ("water(s)" is commonly used in this context instead of "tide"). The result is two high waters and two low waters each day, consisting of higher high water and lower high water, and higher low water and lower low water (LLW) tides.

The mean tidal range for the Outer Harbor, calculated by averaging the difference between all high and low waters, is 3.76 feet; and the mean diurnal range, calculated by averaging the difference between all the higher high water and LLW, is approximately 5.6 feet (USACE and LAHD 1992). The extreme tidal range (between maximum high and maximum low waters) is about

10.5 feet. The highest and lowest tides reported are 7.96 feet above MLLW and -2.56 feet below MLLW, respectively (USACE and LAHD 1992). MLLW is the mean of all LLWs, equal to 2.8 feet below MSL, and is the datum from which Southern California tides are measured.

Waves

Waves impinging on the Southern California coast can be divided into three primary categories according to origin: Southern Hemisphere swell; Northern Hemisphere swell; and seas generated by local winds. The San Pedro Bay Port Complex is directly exposed to ocean swells entering from two main exposure windows to the south and southeast, regardless of swell origin. The more severe waves from extratropical storms (Hawaiian storms) enter from a southerly direction. The Channel Islands and Santa Catalina Island provide some sheltering from these larger waves, depending on the direction of approach. The other major exposure window opens to the south, allowing swells to enter from storms in the Southern Hemisphere, tropical storms, and southerly waves from extratropical storms. Waves and seas entering the harbor are greatly diminished by the time they reach the Inner Harbor.

Most swells from the Southern Hemisphere arrive at the San Pedro Bay Port Complex from May through October. Southern Hemisphere swells characteristically have low heights and long periods. Wave period is a measurement of the time between two consecutive peaks as they pass a stationary location. Typical swells rarely exceed 4 feet in height in deep water. However, with periods as long as 18 to 21 seconds, they can break at over twice their deep-water wave height. Northern Hemisphere swells occur primarily from November through April. Deep-water significant wave heights have ranged up to 20 feet, but are typically less than 12 feet. Northern Hemisphere wave periods generally range from 12 to 18 seconds. Local wind-generated seas are predominantly from the west and southwest. However, they can occur from all offshore directions throughout the year, as can waves generated by diurnal sea breezes. Local seas are usually less than 6 feet in height, with wave periods of less than 10 seconds.

Beneficial Uses

Beneficial uses for surface waters in Long Beach/Los Angeles Harbor are designated by the LARWQCB in the Water Quality Control Plan Los Angeles Region: Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties (Basin Plan) (LARWQCB 2014b). Beneficial uses are listed in Table 3.7-1.

Beneficial uses of coastal and tidal waters in the Inner Harbor areas include Industrial Service Supply, Navigation, Commercial and Sport Fishing, Marine Habitat, Contact Water Recreation, Non-contact Water Recreation, Preservation of Rare and Endangered Species, and Shellfish Harvesting (LARWQCB 2014b). Beneficial uses in the Outer Harbor are Navigation, Commercial and Sport Fishing, Marine Habitat, Preservation of Rare and Endangered Species, and Contact and Non-contact Water Recreation (LARWQCB 2014b).

To maintain these beneficial uses, the LARWQCB has set forth water quality objectives, which are described in the Basin Plan (LARWQCB 2014b). Water quality objectives are intended to: a) protect public health and welfare; and b) maintain or enhance water quality in relation to designated existing and potential beneficial uses of the water.

Section 303(d) of the CWA requires states to identify waters that are not attaining water quality standards and listed beneficial uses. The state develops TMDLs for waters that are 303(d)-listed under the CWA. The intent of a TMDL is to: 1) determine the quantity of contaminants a system can assimilate while protecting water quality; 2) determine all inputs of contaminants to the system and linkages of inputs to impairments; and 3) allocate reductions to each source to bring the water body into compliance with established criteria for the protection of beneficial uses related to water quality.

The Dominguez Channel and Greater Los Angeles and Long Beach Harbor Waters Toxic Pollutants TMDL (Harbor Toxics TMDL) was adopted by the LARWQCB and approved by the SWRCB to protect marine life and minimize human health risks due to the consumption of fish. The TMDL provides an implementation plan to meet numeric targets for toxic pollutants in the Dominguez Channel and greater Los Angeles and Long Beach Harbor Waters. Implementation of a TMDL is envisioned as a phased process. The initial phase (Phase I) includes elements to reduce the amount of sediment transport from point sources that directly or indirectly discharge to Dominguez Channel and the San Pedro Bay Port Complex. Phase II will implement site-specific cleanup actions for areas identified as high-priority in Phase I. Phase II will also include implementation of additional BMPs and site remedial actions upstream and in the Port, as determined to be effective based on the success of upstream source control, TMDL monitoring data evaluations, and WRAP and Sediment Management Plan-directed activities implemented during Phase I. Phase III will implement secondary and additional remediation actions as necessary for compliance with final load allocations by the end of the implementation period. The TMDL is scheduled to be reconsidered by the LARWQCB in 2019, which may result in an extension to the 20-year implementation plan.

The TMDL includes annual contaminant limits in surface sediment, stormwater effluent, and fish tissues in the Greater Harbor Waters. Applicable water quality objectives for the Harbor Toxics TMDL are narrative objectives for chemical constituents, bioaccumulation, and toxicity in the Basin Plan and the numeric water quality criteria promulgated in 40 CFR Section 131.38 (the California Toxics Rule [CTR]). Compliance with the TMDL for metals, bioaccumulative compounds, and PAHs is based on achieving the load and waste load allocations and/or demonstrating attainment of the SQOs. Compliance requires the elimination of toxic pollutants being loaded into Dominguez Channel and the harbors, and cleanup of contaminated sediments.

In addition, sediment condition objectives were determined using sediment quality guidelines and the State Water Quality Control Plan for Enclosed Bays and Estuaries – Part 1 Sediment Quality. Fish tissue targets were determined from Fish Contaminant Goals and Advisory Tissue Levels for Common Contaminants in California Sport Fish developed by Office of Environmental Health Hazard Assessment (OEHHA 2008) to assist agencies in developing fish tissue-based criteria for pollution mitigation or elimination and to protect humans from consumption of contaminated fish.

With adoption of the Harbor Toxics TMDL on March 23, 2012, the Port of Long Beach, along with the Port of Los Angeles, LARWQCB, SWRCB, and other partners formed the Regional Monitoring Coalition to comply with the monitoring requirements established by the TMDL. The Harbor Toxics TMDL requires monitoring activities by the responsible parties in three water body areas: 1) Dominguez Channel, Torrance Lateral, and Dominguez Channel Estuary; 2) Greater Los Angeles and Long Beach Harbor Waters (including Consolidated Slip); and 3) Los Angeles River and San Gabriel River (Anchor QEA 2014). The Coordinated Compliance, Monitoring, and Reporting Plan consists of the collection of water and sediment samples at a total of 22 stations and the collection of fish tissue samples within four water bodies, as developed to be consistent with other California state and regional monitoring programs, as well as other plans developed to support the Harbor Toxics TMDL (Anchor QEA 2014).

Marine Water Quality

Marine water quality in the Port is affected primarily by climate, circulation (including tidal currents), biological activity, surface runoff, and pollutant loadings related to industrial activities within the Harbor District. Suspension of bottom sediments, such as from dredging or ship propeller disturbance, can also affect water quality through release of contaminants and by reducing dissolved oxygen (DO) concentrations.

The water quality parameters commonly used to describe marine water quality include salinity, temperature, nutrients, DO, hydrogen ion concentration (pH), transparency/turbidity, and contaminant loading.

Water quality within the San Pedro Bay Port Complex has been extensively studied for many years and has improved considerably since the 1960s as a result of pollution control measures. Water quality in the Port continues to be monitored through ongoing monitoring and special study sampling programs. For example, the City and Port of Long Beach developed a Watershed Management Program (WMP) for the Nearshore Watersheds area. The WMP includes an Integrated Monitoring Program that specified monitoring requirements in accordance with the City's MS4 NPDES Permit (Order No. R4-2014-0024; NPDES Permit No. CAS004003) (LARWQCB 2014a). One element of the Integrated Monitoring Program consists of receiving water monitoring in the Long Beach Harbor, Eastern San Pedro Bay, and the Los Angeles River Estuary. The City and Port conduct one dry-weather and two wet-weather receiving water monitoring events for each monitoring year. At each of these three stations, DO, pH, salinity, and temperature are measured along with water column chemistry and toxicity. Water quality in the Harbor District is also evaluated as part of the Coordinated Compliance, Monitoring, and Reporting Plan in support of the Harbor Toxics TMDL (Anchor QEA 2014).

Salinity. Salinity in harbor waters varies due to the effects of stormwater runoff, rainfall, and evaporation. Low surface water salinities (i.e., less than 10 practical salinity units) can occur during rain events, primarily due to runoff from the Dominguez Channel and the Los Angeles River. During the two WMP wet-weather sampling events in November 2018, salinities in surface waters ranged from 31.5 to 33.6 practical salinity units, compared to surface salinities from 25.2 to 31.8 during the August 2018 dry-weather sampling event (Anchor QEA 2018b, Anchor QEA 2019a, Anchor QEA 2019b).

Temperature. Temperature of waters in the San Pedro Bay Port Complex shows seasonal and spatial variations (e.g., lower temperatures with increasing depth) that reflect the influence of the ocean, local climate, physical configuration of the harbor, and circulation patterns. General trends in water temperature consist of uniform, cooler temperatures throughout the water column in the winter and spring and warmer but stratified temperatures, with cooler waters at the bottom, in the summer and fall. During the two WMP wet-weather sampling events in November 2018, surface water temperatures ranged from 17.3 to 18.6 degrees centigrade, compared to surface temperatures from 21.7 to 23.8 degrees centigrade during the August 2018 dry-weather sampling event (Anchor QEA 2018b, Anchor QEA 2019a, Anchor QEA 2019b).

Dissolved Oxygen. DO is a principal indicator of marine water quality. Oxygen solubility is inversely related to water temperature, so that in the absence of other factors DO concentrations are higher in cold water (i.e., during the winter) than in warmer water. However, DO concentrations may vary considerably based on the influence of a number of parameters such as respiration of plants and other organisms, waste (nutrient) discharges, surface water mixing through wave action, diffusion rates at the water surface, and disturbance of anaerobic bottom sediments.

Water quality objectives for DO specify a minimum mean annual DO concentration of 7 mg/L and no single determination less than 5.0 mg/L, except when natural conditions cause lesser concentrations (LARWQCB 2014b). During the two WMP wet-weather sampling events in November 2018, surface water DO concentrations ranged from 5.8 to 7.4 mg/L, compared to surface DO concentrations from 8.2 to 9.7 mg/L during the August 2018 dry-weather sampling event; none of the values were below the Basin Plan limit of 5.0 mg/L (Anchor QEA 2018b, Anchor QEA 2019a, Anchor QEA 2019b).

Hydrogen Ion Concentration (pH). Hydrogen ion concentration (pH) is a measure of the acidity of water. The pH of ocean water typically ranges from 7.0 to 9.0. It is affected by plant and animal metabolism, mixing with water with different pH values from external sources and, on a small scale, by disturbances in the water column that cause redistribution of waters with varying pH levels or the resuspension of bottom sediments. Hydrogen ion concentration is important in marine ecology because many organisms have adapted to living within the narrow range over which ocean pH varies. In nearshore areas, pH may be more variable than in the open ocean due to physical, chemical, and biological influences. Lower pH values may occur in areas of freshwater influx and higher pH levels are often associated with nearshore upwelling.

Water quality objectives for pH establish a range of 6.5 to 8.5 with no more than a 0.2 change due to discharges for bays and estuaries (LARWQCB 2014b). During the two WMP wet-weather sampling events in November 2018, surface water pH values ranged from 8.1 to 8.3, compared to values from 8.2 to 9.7 mg/L during the August 2018 dry-weather sampling event (Anchor QEA 2018b, Anchor QEA 2019a, Anchor QEA 2019b).

Water Clarity (Transparency/Turbidity). Transparency is a measure of the ability of water to transmit light, or water clarity, and is measured by the distance a black and white disk (i.e., a secchi disk) can be seen through the water and by a transmissometer that measures percent light transmission through water. Turbidity is also a measure of water clarity as affected by the amount of suspended solids in the water column. Increased turbidity usually results in decreased transparency. Turbidity generally increases as a result of one or a combination of the following conditions: fine sediment from terrestrial runoff or resuspension of fine bottom sediments; planktonic bloom; and dredging activities. Historically, water clarity in the San Pedro Bay Port Complex has varied substantially with secchi disk readings ranging from 0.0 to 40 feet.

Water clarity is not monitored as part of the WMP. However, during the 2013−2014 Biological Surveys, water clarity measurements (transmissivity) averaged 65.9, 61.7, and 52.0 percent light transmittance at the surface, mid-water depth, and bottom, respectively. Water clarity decreased with increasing water depth and showed little to no noticeable seasonal variability (MBC and Merkel & Associates 2016).

Contaminants. Contaminants in the water column can include metals, particularly cadmium, chromium, copper, lead, mercury, nickel, silver, and zinc; chlorinated pesticides (e.g., DDT and chlordanes); PCBs; and petroleum hydrocarbons, including PAHs, as well as fecal indicator bacteria. The WMP monitors concentrations of metals, chlorinated pesticides, PAHs, and PCBs at three locations during two wet-weather and one dry-weather sampling events for each monitoring year. During the 2018-2019 monitoring period, chemical contaminants were below the respective CTR limits with the exception of one exceedance due to elevated dissolved copper concentration in Cerritos Channel. Fecal indicator bacteria levels were above the Basin Plan single sample limits during the wet-weather sampling event in November 2018 (Anchor QEA 2018b, Anchor QEA 2019a). Since monitoring began in 2016, exceedances have occurred for fecal indicator bacteria, copper, DDT, and total DDx[8], with many of these exceedances occurring at the Los Angeles River Estuary monitoring site, located at the end of the Los Angeles River (Anchor QEA 2018b, Anchor QEA 2017a, Anchor QEA 2019a, Anchor QEA 2019b). These results were similar to those presented in the 2014/2015 Annual Report for the Harbor Toxics TMDL that summarized the results from four separate water column monitoring events from summer 2014 to summer 2015. Water column concentrations of contaminants were compared to numeric water quality criteria for both the Protection of Aquatic Life (aquatic life) and the Protection of Human Health for consumption of organisms only (human health). In general, analytical results showed concentrations at undetectable levels or below water quality criteria with the exception of dissolved copper and chlordane. Dissolved copper was the only parameter to exceed CTR criteria (aquatic life) in one or more samples collected from the Consolidated Slip, Cabrillo Marina, Inner Harbor, and Los Angeles River Estuary. Chlordane was the only parameter to exceed CTR criteria (human health) in one or more samples from the Inner Harbor, Outer Harbor, and Eastern San Pedro Bay (Anchor QEA 2015).

Marine Sediment Quality

Sediments within the San Pedro Bay Port Complex vary spatially, but mainly consist of silt with smaller amounts of sand and clay (MBC and Merkel & Associates 2016). Sediment quality within the San Pedro Bay Port Complex is assessed as part of the POLB's sediment monitoring program using California's SQOs, as described in the Staff Report Including Substitute Environmental Documentation for Amendments to the Water Quality Control Plan for Enclosed Bays and Estuaries – Part 1 Sediment Quality (Sediment Quality Provisions) (SWRCB 2018). The SQOs are based on a multiple lines of evidence approach that includes sediment toxicity, sediment chemistry, and benthic community condition. The station level assessment can be determined by combining the severity of biological effects category with the potential for chemically-mediated effect category, which results in one of six possible station level assessments including unimpacted, likely unimpacted, possibly impacted, likely impacted, clearly impacted, and inconclusive.

The Harbor Toxics TMDL requires sediment quality monitoring be performed twice every 5 years in the receiving waters. The Water Quality Control Plan defines the threshold for the percent area impacted (i.e., exceedance of a receiving water body to protect aquatic life) as the following: "The total percent area categorized as possibly impacted and/or likely impacted equals or exceeds 15 percent of the site area over the duration of a permit cycle." Therefore, if 85 percent or more of the assessment unit is found to be unimpacted or likely unimpacted and no sites are characterized as clearly impacted, then the unit meets the Aquatic Life SQO protective condition. Using a percent area impacted analysis compiling SQO samples taken over the last five years to determine SQO and TMDL compliance, 93 percent of Long Beach Inner Harbor, 91 percent of Long Beach Outer Harbor, and 90 percent of the Los Angeles River Estuary (Queensway Bay) are considered protective and, thus, compliant with the Aquatic Life SQO. However, the results for Eastern San Pedro Bay indicate 71 percent of the area is protective of aquatic life and, therefore, not compliant with the 85 percent threshold (Cappellino and Anghera 2019). To determine Human Health SQO (HHSQO) and TMDL compliance, the Port conducted a Tier III Assessment that used a site-specific bioaccumulation model developed for the Harbor to quantify the contribution of sediment and other sources of contaminants to fish tissue concentrations. The assessment then integrated those findings with an evaluation of chemical exposure of human

[8] DDx includes DDT and its breakdown products: DDE [1,1-dichloro-2,2-bis(p-chlorophenyl)ethylene] and DDD [1,1-dichloro-2,2-bis(p-chlorophenyl)ethane].

seafood consumers. The site assessment results for POLB Inner and Outer Harbor are likely unimpacted for PCBs and unimpacted for DDx, indicating that Inner and Outer Port of Long Beach Harbor sediments are protective of human health and compliant with the SQO and TMDL. The site assessment result in Eastern San Pedro Bay is likely impacted for PCBs and unimpacted for DDx, indicating that Eastern San Pedro Bay sediments are not protective of human health and out of compliance with the SQO and TMDL (Anghera, Cappellino and Lamoureux 2018).

The OHSPER site is located in the commercial anchorage area of the Outer Harbor of the Port, west of the Federal Navigation Channel. The site consists of two large borrow pits referred to as the North and South Lobes. The OHSPER site boundary includes the extent of the historical larger borrow area; however, it is constrained on the east by the POLB's anchorage B-7 and a planned standby anchorage area. Water depths within the OHSPER site range from -48 to -70 feet MLLW (Anchor QEA 2017b). The available capacity to accommodate sediment at the project site is estimated to be approximately 1.6 million cy for the North Lobe and 1.7 million cy for the South Lobe (Anchor QEA 2016).

The OHSPER site is not located within a land-based watershed. Because the site is indefinitely inundated by ocean water, FEMA Flood Insurance Rate Maps for the City of Long Beach are not eligible for determining floodways, flood hazards, or 100-year flood plains (FEMA 2008). The OHSPER site is located in the West Coast Groundwater Basin, but it is outside the freshwater discharge zone, and there does not appear to be a potential for groundwater upwelling within the site (Anchor QEA 2016).

The OHSPER site experiences mixed semidiurnal tides (i.e., two high tides and two low tides per day, each with varying heights). During sediment placement at the OHSPER site, tides and currents may mobilize sediment off site. However, analyses of sediment dispersion patterns associated with disposal operations at the North and South Lobe boundaries indicated that material placement can be successfully achieved without significant losses due to drift and water currents (see Appendix C, OHSPER Technical Report).

The Harbor Toxics TMDL's compliance monitoring program determined that water quality within the Outer Harbor met applicable water quality criteria (Anchor QEA 2016). A sediment characterization study conducted in 2014 documented elevated concentrations (greater than the effects range median value) of lead, mercury, zinc, total chlordanes, total DDT, and total PCBs in North Lobe sediments. South Lobe sediments were characterized in 2007 (AMEC 2010), and results showed that concentrations of contaminants of potential concern were universally lower than those measured in North Lobe.

The Port developed an OMMP for the OHSPER site to document the planned approach for managing the site as both a disposal and reuse site for long-term sediment management (Anchor QEA 2017b). The OMMP includes measures for minimizing potential risks to the environment or to Port operations. From a regulatory perspective, use of the OHSPER site for either permanent disposal or temporary placement for future reuse will require permits from both USACE and the LARWQCB (see Appendix C, OHSPER Technical Report).

3.7.2 Regulatory Setting

3.7.2.1 Federal Regulations

Clean Water Act

The CWA provides for the restoration and maintenance of the physical, chemical, and biological integrity of the nation's waters. The act sets up a system of water quality standards, discharge limitations, and permit requirements. The SWRCB and its LARWQCB implement sections of the CWA through the Water Quality Control Plan and NPDES permits.

Section 303(d). Section 303(d) of the CWA created the TMDL program. Section 303(d) requires that the states make a list of water bodies that are not attaining standards (the 303(d) list) and develop TMDLs for those water bodies. USEPA reviews and approves the state's 303(d) list and TMDL submittals. A TMDL is a quantitative assessment of water quality conditions, contributing sources, and the load reductions or control actions needed to restore and protect bodies of water in order to meet their beneficial uses. It must account for all sources of the pollutants that caused the water to be listed, including point sources such as stormwater and nonpoint sources such as aerial deposition. Section 303(d) and its implementing regulations require that approved TMDLs be incorporated into water quality control plans, such as watershed plans and regional (basin) plans, and USEPA regulations require that NPDES permits, as issued or revised, be consistent with approved TMDLs.

Section 401. Section 401 of the CWA requires any applicant for a federal license or permit to discharge into navigable waters (including dredging and construction or operation of facilities) to obtain a certification from the appropriate state or RWQCB that the discharge will meet applicable water quality standards. In the Los Angeles area, the LARWQCB issues 401 certifications.

Section 402. Section 402 of the CWA created the system, known as NPDES, for permitting wastewater discharges. Under NPDES, all facilities that discharge pollutants from any point source into waters of the U.S. are required to obtain an NPDES permit. Permits under the NPDES program include *individual* permits tailored and issued to a specific facility, and *general* permits covering multiple facilities within a specific category and a specific geographical area. General permits are issued, for example, for stormwater sources and groups of facilities that require the same type of monitoring (Section 3.7.2.2, State Regulations).

Under the authority of the CWA Section 402, USEPA issued a nationwide NPDES permit, the Vessel General Permit (VGP), which regulates discharges incidental to the normal operation of vessels operating in a capacity as a means of transportation within waters of the U.S. The VGP requirements include narrative effluent discharge limits to be achieved through operational control measures and the use of best available technology; inspection, monitoring, recordkeeping, and reporting requirements; and additional requirements applicable to certain vessel types. The VGP is applicable to specific vessel types and lengths, including cruise ships, oil tankers, bulk carriers, container ships, and emergency response vessels, that operate within the ports. All recreational, military, and fishing vessels, and other vessels less than 79 feet in length, are exempt from this permit. The VGP is administered and enforced by USEPA.

Other relevant NPDES permits, including the MS4, CGP, and Industrial General Permit (IGP), are discussed in Section 3.7.2.3 (Local Regulations).

Section 404. Section 404 of the CWA regulates dredging and dredged material disposal. The regulations are administered cooperatively by USACE, which is the federal permitting agency, and USEPA. Under Section 404, discharges of dredged material into waters of the U.S. require permits. To obtain a permit the applicant must demonstrate that the dredged material is suitable for discharge at a given location based on the levels of contaminants and/or response of aquatic organisms to the material.

Rivers and Harbors Appropriation Act of 1899

The Rivers and Harbors Appropriation Act of 1899, which is administered by USACE, prohibits discharges to navigable waters and their tributaries without a permit. It exempts storm drain and sewer discharges, but includes such discharges as dredged material, fill, and substances placed on the banks of navigable waters and their tributaries that could be washed into those waters.

Coastal Nonpoint Source Pollution Control Program

The Coastal Nonpoint Source Pollution Control Program is a joint program of NOAA and USEPA that was established by Congress during a reauthorization of the CZMA to provide a more comprehensive solution to the problem of polluted runoff in coastal areas (NOAA and USEPA 1990). The program builds on existing coastal zone management and water quality programs by applying a consistent set of economically achievable measures to prevent and mitigate runoff pollution problems. State programs incorporate management measures to address land-based sources of runoff from urban developments, marinas, hydromodification (e.g., stream channelization), and the loss of wetland and riparian areas.

Marine Protection, Research, and Sanctuaries Act

Ocean disposal of dredged materials is regulated under Title I of the Marine Protection, Research, and Sanctuaries Act (MPRSA) (33 U.S.C. 1401 et seq.). USEPA and USACE share management responsibility for ocean disposal of dredged material. Under Section 102 of MPRSA, USEPA has the responsibility for designating an acceptable location for the ocean dredged material disposal site. With concurrence from USEPA, USACE issues permits under MPRSA Section 103 for ocean disposal of dredged material deemed suitable according to USEPA criteria in MPRSA Section 102 and USEPA regulations in Title 40 of the CFR Part 227 (40 CFR 227).

Oil Pollution Control Act

As set forth in 33 U.S.C. Section 2701 et seq., this act requires vessel owners to report any hazardous waste spilled from a vessel, with owners responsible for cleanup and any damages. Marinas are responsible for any oil contamination resulting from activities at their facilities including dumping or spilling oil or oil-based paint and the use of chemically treated agents. The act is administered by USCG.

Spill, Prevention, Control, and Countermeasure

Oil SPCC regulations require in-place measures that help ensure oil spills do not occur. However, if they do, there are protocols and response equipment in place to contain the spill and neutralize potential harmful impacts. For any proposed project with an in-water component, an SPCC Plan and an OSCP would be prepared for review and approval by the LARWQCB or the CDFW OSPR, in consultation with other responsible agencies. The SPCC Plan and OSCP would detail and implement spill prevention and control measures.

Office of Spill Prevention and Response

The OSPR is both a prevention and response organization and has the CDFW’s public trustee and custodial responsibilities for protecting, managing, and restoring the state’s fish, wildlife, and plants (CDFW 2012a). Part of OSPR's comprehensive program is the requirement for all marine facilities and tank vessels carrying petroleum product as cargo, as well as all non-tank vessels over 300 gross tons, to have California-approved OSCPs. The Marine Safety Branch is responsible for the review and approval of OSCPs submitted to OSPR and for ensuring those vessels entering California State waters that are required to have California OSCPs have approved plans (CDFW 2012b).

3.7.2.2 State Regulations

California Coastal Act

The CCA identifies several harbor districts throughout the state, including the POLB, and mandates that the Port not only promote maritime commerce but also “provide for other beneficial uses consistent with the public trust, including, but not limited to, recreation and wildlife habitat uses.” Consequently, the POLB is accountable for addressing water and sediment quality issues, which are key foundations of marine habitat quality.

The CCA requires the protection and enhancement of marine and coastal water quality. The CCC and the SWRCB have developed a joint nonpoint source pollution control program that provides a single unified, coordinated statewide approach to dealing with nonpoint source pollution. Twenty-eight state agencies are working collaboratively through the Interagency Coordinating Committee to implement the Nonpoint Source Program Plan.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (California Water Code Section 13000 et seq.), which is the principal law governing water quality regulation in California, establishes a comprehensive program to protect water quality and beneficial uses of state waters. The act established the SWRCB and nine RWQCBs, which are charged with implementing its provisions and have primary responsibility for protecting water quality in California. The Porter-Cologne Water Quality Control Act also implements many provisions of the federal CWA, such as the NPDES permitting program. CWA Section 401 gives the SWRCB the authority to review any proposed federally permitted or federally licensed activity that may impact water quality and to certify, condition, or deny the activity if it does not comply with state water quality standards. If the SWRCB imposes a condition on its certification, those conditions must be included in the federal permit or license.

Establishment of the NPDES regulations in 1987, under Section 402(p) of the CWA, required that USEPA delegate the responsibility of the NPDES program to the state. The SWRCB was given the responsibility to enforce the regulations of the NPDES program. Industrial facilities and construction sites are regulated by the SWRCB through general stormwater permits. Stormwater discharges from MS4s are regulated through NPDES permits issued by the RWQCB. Since 1990, operators of large storm drain systems have been required to do the following: 1) develop a stormwater management program designed to prevent harmful pollutants from being dumped or washed by stormwater runoff into the stormwater system, then discharged into local water bodies; and 2) obtain an NPDES permit.

State Water Resources Control Board Stormwater Permits

The SWRCB has developed a statewide General Construction Activities Stormwater Permit (Order No. 2009-0009-DWQ as amended by 2010-0014-DWG and 2012-0006-DWG) and a General Industrial Activities Stormwater Permit (Water Quality Order 2014-0057-DWQ) for projects that do not require an individual permit for these activities. The General Industrial Activities Stormwater Permit is a statewide general NPDES permit issued by the SWRCB that regulates stormwater discharges associated with 10 broad categories of industrial activities. The General Industrial Activities Stormwater Permit requires dischargers to develop and implement a SWPPP to reduce or prevent industrial pollutants in stormwater discharges, eliminate unauthorized non-storm discharges, and conduct visual and analytical stormwater discharge monitoring to verify the effectiveness of the SWPPP.

The CGP is a statewide general NPDES permit issued by the SWRCB that regulates stormwater discharges from construction projects that encompass at least 1 acre of soil disturbance, unless the discharge is in compliance with an NPDES permit. The CGP applies to all stormwater discharges associated with construction activities within the Harbor District. Under this permit, all construction activities that disturb 1 acre or more must:

- Prepare and implement a SWPPP that specifies BMPs to prevent all construction pollutants from contacting stormwater. The intent of the SWPPP and BMPs is to keep all products of erosion from moving off site into receiving waters; and
- Eliminate or reduce non-stormwater discharges to storm sewer systems and waters of the U.S.

Los Angeles County Municipal Separate Storm Sewer System NPDES Permit

The municipal discharges of stormwater and non-stormwater by the Los Angeles County Flood Control District, the County of Los Angeles, and 84 incorporated cities within the coastal watersheds of Los Angeles County, with the exception of the City of Long Beach, (hereinafter referred to separately as Permittees and jointly as the Dischargers) from all MS4s (commonly known as the storm drain system) within Los Angeles County are subject to waste discharge requirements (WDRs), which were adopted in 2012. Both stormwater and non-stormwater from the MS4 is subject to the permit requirements. The permit effectively prohibits non-storm discharges into the MS4 and receiving waters with certain exceptions.[9] It also requires that treatment control BMPs be designed to meet certain performance criteria, that each Permittee implement programs and measures to comply with TMDL waste load allocations for the MS4 specified in the permit, and that regular inspections of various types of commercial facilities be undertaken. A monitoring program must also be implemented. Certain provisions of the permit are organized by watershed management area, which is appropriate given the requirements to implement 33 watershed-based TMDLs.

The MS4 Permittees are allowed the flexibility to develop WMPs to implement requirements in the permit on a watershed scale through customized strategies, control measures, and BMPs. Participation in a WMP is voluntary and allows a Permittee to address the highest watershed priorities. Customized strategies, control measures, and BMPs shall be implemented on a watershed basis, where applicable, through each Permittee's stormwater management program and/or collectively by all participating Permittees through a WMP. Permittees may elect to develop an Enhanced Watershed Management Program (EWMP). An EWMP is one that comprehensively evaluates opportunities within the participating Permittees' collective jurisdictional area in a watershed management area for collaboration among Permittees and other partners on multi-benefit regional projects. Wherever feasible this would include retention of all non-stormwater runoff and all stormwater runoff from the 85th percentile, 24-hour storm event for the drainage areas tributary to the projects, while also achieving other benefits including flood control and water supply, among others. Permittees have formed several EWMP groups within the Los Angeles River Watershed, which includes the Upper Los Angeles River Watershed Group, the Los Angeles River Upper Reach 2 Subwatershed, the Lower Los Angeles River Watershed, and the

[9] More information about this permit may be found at: http://www.waterboards.ca.gov/losangeles/water_issues/programs/stormwater/municipal/index.shtml#los_angeles.

Rio Hondo/San Gabriel River Water Quality Group. Several other Permittees are developing individual WMPs including: Compton, El Monte, Irwindale, San Fernando, and South El Monte.

Municipal stormwater and urban runoff discharges from the MS4 owned and operated by the City of Long Beach are covered by separate WDRs.[10]

City of Long Beach Municipal Separate Storm Sewer System NPDES Permit

The Municipal Stormwater Permitting Program regulates stormwater discharges from MS4s. The LARWQCB, with oversight by USEPA, administers the MS4 permitting program in the Los Angeles area. The MS4 permits require the municipal discharger (typically, a city or county) to develop and implement a Stormwater Management Plan/Program with the goal of reducing the discharge of pollutants to the maximum extent practicable, the performance standard specified in Section 402(p) of the CWA. The programs specify what BMPs will be used to address certain program areas, which include public education and outreach, illicit discharge detection and elimination, construction and post-construction, and good housekeeping for municipal operations. MS4 permits also generally include a monitoring program.

The LARWQCB issued Order No. R4-2014-0024, NPDES No. CAS004003 to the City of Long Beach. As the principal Permittee, the City holds an NPDES permit to operate its MS4. This NPDES permit directs the City to keep pollutants out of the MS4 to the maximum extent practicable and to ensure that dry-weather flows entering receiving waters from the MS4 do not cause or contribute to exceedances of water quality standards. The Port and City of Long Beach have elected to develop a WMP for the nearshore watershed to facilitate compliance with the MS4 permit.

The watershed management approach to permit implementation, described in the current MS4 permit as a voluntary approach to compliance, is a departure from previous permit structures. The goals of the WMPs are to ensure: a) that MS4 discharges achieve applicable water quality based effluent limitations that implement TMDLs, b) that these discharges do not cause or contribute to exceedances of receiving water limitations, and c) that non-stormwater discharges from the MS4 are not a source of pollutants to receiving waters.

To achieve these goals, the approach of the WMP is to prioritize water quality issues resulting from stormwater and non-stormwater discharges from the MS4 to receiving waters and to identify and implement strategies, control measures, and BMPs that achieve applicable water quality based effluent limitations.

The overall approach is adaptive, whereby BMPs will be implemented, their effectiveness will be monitored, and modifications to this WMP will be made as needed. These modifications will maintain consistency with the assumptions and requirements of applicable TMDL waste load allocations.

Water Quality Control Plan, Los Angeles Region (Basin Plan)

The Basin Plan (LARWQCB 2014b) is designed to preserve and enhance water quality and to protect beneficial uses of regional waters (inland surface waters, groundwater, and coastal waters such as bays and estuaries). The Basin Plan designates beneficial uses of surface water and groundwater, such as contact recreation or municipal drinking water supply. The Basin Plan also establishes water quality objectives, which are defined as “the allowable limits or levels of water

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[10] More information about this permit may be found at: http://www.waterboards.ca.gov/losangeles/water_issues/programs/stormwater/municipal/index.shtml#long_beach.

quality constituents or characteristics which are established for the reasonable protection of beneficial uses of water or the prevention of nuisance within a specific area."

The Basin Plan specifies water quality objectives for a number of constituents/characteristics that could be affected by proposed projects or alternatives. These constituents include: bioaccumulation, biostimulatory substances, chemical constituents, DO, oil and grease, pesticides, pH, PCBs, suspended solids, toxicity, and turbidity. With the exceptions of DO and pH, water quality objectives for most of these constituents are expressed as narrative rather than numerical limits. For example, the Basin Plan defines limits for chemical contaminants in terms of bioaccumulation, chemical constituents, pesticides, PCBs, and toxicity as follows:

- Toxic pollutants shall not be present at levels that bioaccumulate in aquatic life to levels that are harmful to aquatic life or human health.
- Surface waters shall not contain concentrations of chemical constituents in amounts that adversely affect any designated beneficial use.
- No individual pesticide or combination of pesticides shall be present in concentrations that adversely affect beneficial uses. There shall be no increase in pesticide concentrations found in bottom sediments or aquatic life.
- All waters shall be maintained free of toxic substances in concentrations that are toxic to or produce detrimental physiological responses in human, plant, animal, or aquatic life.
- There shall be no chronic toxicity in ambient waters outside mixing zones.

The Basin Plan also specifies water quality objectives for other constituents, including ammonia, bacteria, total chlorine residual, and radioactive substances. These are not evaluated in this PEIR because the Proposed Plan and its alternatives do not include any discharges or activities that would affect the water quality objectives for these parameters. A Basin Plan amendment incorporating the Harbor Toxics TMDL was enacted into law in March 2012.

California Toxics Rule

The CTR establishes numeric criteria for priority toxic pollutants in inland waters as well as enclosed bays and estuaries to protect ambient aquatic life (23 priority toxics) and human health (57 priority toxics). The CTR also includes provisions for compliance schedules to be issued for new or revised NPDES permit limits when certain conditions are met. The numeric criteria are the same as those recommended by USEPA in its CWA Section 304(a) guidance (USEPA 2012).

California Bay Protection and Toxic Cleanup Program

The California Bay Protection and Toxic Cleanup Program requires the SWRCB to develop SQOs for toxic pollutants to protect the state's enclosed bays and estuaries. The SWRCB developed SQOs based on a multiple lines of evidence approach utilizing information on sediment chemistry, toxicity, and benthic health. The SWRCB amended the Water Quality Control Plan for Enclosed Bays and Estuaries – Part 1 Sediment Quality (discussed below).

State Water Quality Control Plan for Enclosed Bays and Estuaries – Part 1

The Amendments to the Water Quality Control Plan for Enclosed Bays and Estuaries Plan, Part 1 (Sediment Quality Provisions) (SWRCB 2018) were developed by the SWRCB to comply with California Water Code Section 13393, which requires the SWRCB to develop SQOs for toxic pollutants in California's enclosed bays and estuaries. This plan developed SQOs and includes narrative SQOs for the protection of aquatic life and human health, identification of the beneficial uses that the SQOs are intended to protect, and an implementation program. The implementation program provides that SWRCB and RWQCBs shall not approve a dredging project that involves dredging of a sediment that exceeds the SQOs unless the following conditions are met:

1. The polluted sediment is removed in a manner that prevents or minimizes water quality degradation.
2. The polluted sediment is not deposited in a location that may cause significant adverse effects to aquatic life, fish, shellfish, or wildlife or may harm the beneficial uses of the receiving waters, or does not create maximum benefit to the people of the state.
3. The activity will not cause significant adverse impacts upon a federal sanctuary, recreational area, or other waters of significant national importance.

The implementation program also provides that SQOs may be applied as objectives for NPDES receiving water limits, if the SWRCB or a RWQCB determines that discharge of a toxic pollutant to bay or estuarine waters has reasonable potential to cause or contribute to an exceedance of the SQOs. Subsequently, NPDES effluent limits may potentially be developed to protect or restore sediment quality, after the following conditions are met:

1. A clear relationship has been established linking the discharge to the degradation.
2. The pollutants causing or contributing to the degradation have been identified.
3. Appropriate loading studies have been completed to estimate the reductions in pollutant loading that will restore sediment quality.

The amended Plan includes a methodology for assessing sediment quality for the protection of aquatic life based on the interpretation and integration of multiple lines of evidence including sediment chemistry, sediment toxicity, and the condition of the benthic community (community of sediment-dwelling aquatic organisms). Application of this methodology results in sediment categorizations that range from “unimpacted,” “likely unimpacted,” “possibly impacted,” “likely impacted,” to “clearly impacted.” Sediments that are categorized as “unimpacted” and “likely unimpacted” meet the narrative SQOs, are not contributing to exceedance of a receiving water limit, and are considered to be protective of aquatic life. Sediments characterized as “possibly impacted” may still be considered by the SWRCB to be protective of aquatic life - if further monitoring, studies, and/or a formal process for stressor identification are conducted, and results can provide compelling evidence that the SQO exceedances contributing to an NPDES receiving water limit exceedance are not due to the toxic pollutants.

The amended Plan also includes a methodology for assessing sediment quality for the protection of human health. The HHSQO assessment process involves a tiered site assessment process for evaluating whether site sediments meet the HHSQO and are, therefore, protective of human consumers of locally caught seafood. Tier I is a screening level assessment of existing site data to determine if further evaluation is needed. Tier II is a general but complete site assessment of sediment quality involving evaluation of the chemical exposure and separately the linkage between sediment bioaccumulatives and seafood tissue concentrations using a bioaccumulation model with some site-specific inputs. Tier III is a more site-specific assessment process, which may be most applicable to complex sites with challenging site conditions. Regardless of the tier, the assessment involves integration of the following two components:

1. Chemical exposure, which is measured by evaluating pollutant concentrations in sportfish to determine if concentrations are associated with unacceptable chemical exposure to human consumers; and

2. Site sediment linkage, defined by the contribution of sediment contamination from the site to seafood contamination levels within the site. Specifically, the site chemical exposure and sediment linkage levels are categorized and evaluated using a decision matrix to determine if the HHSQO is attained.

3.7.2.3 Local Regulations

City of Long Beach Low Impact Development Ordinance

The City of Long Beach Low Impact Development (LID) Ordinance became effective on February 19, 2013. LID is a stormwater management approach that works to mimic the natural hydrology of a site through strategies such as infiltration and evapotranspiration. Infiltration and other LID strategies are not only challenging to implement in a port setting, but oftentimes are an undesirable mechanism for handling stormwater runoff. Accordingly, a control measure was included in the WRAP to develop a Port-wide guidance manual for the design of new and redeveloped facilities incorporating post-construction control measures that embrace LID strategies appropriate for the Port setting.

POLB administers its own stormwater program that consists of three elements: 1) developing and adhering to progressive stormwater design and development standards; 2) educating and conducting outreach; and 3) ensuring compliance and enforcing regulatory requirements under the MS4 permit, IGP, and CGP that govern stormwater discharges within the Port. The POLB is committed to implementing LID principles to the maximum extent practicable, and has developed a Stormwater Design Manual to promote LID concepts, such as rainwater harvesting, evapotranspiration and biofiltration, infiltration, and conventional stormwater treatment controls.

Port Master Plan

In accordance with the CCA, a PMP was developed to ensure that short-term and long-range preferred-use plans are consistent with local, state, and federal laws and regulations (POLB 1990). The purpose of the PMP is to provide a planning tool to guide future Port development and to ensure that projects and developments in the Harbor District are consistent with requirements of the CCA. The PMP is designed to better promote and safely accommodate foreign and domestic waterborne commerce, navigation, and fisheries in the national, state, and local public interest. The PMP also provides additional public recreational facilities within the Port consistent with sound and compatible Port planning.

Part of the PMP includes a review of all federal, state, and local regulations and guidelines that are applicable to POLB development projects. There are no regulations or guidelines within the PMP pertaining to marine water and sediment quality that go beyond previously described federal, state, and local regulations.

Water Resources Action Plan

The WRAP was developed jointly by the Port of Long Beach and the Port of Los Angeles to address water and sediment quality issues of mutual concern. The WRAP (POLA and POLB 2009b) has two main driving forces: 1) the ports’ need to achieve their broad mission to protect and improve water and sediment quality, and, 2) the promulgation of TMDLs for port waters and the associated CWA permits. The purpose of the WRAP is to provide the framework and mechanisms for the ports to achieve the goals and targets established in TMDLs affecting the

San Pedro Bay Port Complex, and to comply with the industrial activities, construction activities, and municipal permits issued to the ports and their respective cities and tenants through the NPDES program. Four basic types of sources are addressed by the WRAP control measures: land use discharges, on-water discharges, sediments, and watershed discharges. Control measures for land use and water use are summarized in Table 3.7-2. The control measures address sources, rather than specific pollutants since a given measure is likely to be effective for more than one pollutant.

TABLE 3.7-2. WRAP CONTROL MEASURES

Control Measure	Description
Landside Sources	
LU-1: Enhance housekeeping BMPs in maintenance and fueling areas, general cargo handling areas, certain dry bulk cargo handling areas, automobile dismantling and boat repair facilities, oil production facilities, and building maintenance and landscaping areas.	Increase the scope of housekeeping BMP application, and improve and add BMPs; apply BMPs already in use more uniformly to facilities port-wide, and institute new BMPs as needed. Review individual facility SWPPPs and recent inspection/audit and annual reports in the normal course of program management to identify needed improvements in terms of existing and new housekeeping BMPs.
LU-2: Develop a port-wide guidance manual for design of new and redeveloped facilities, including design criteria and operational BMPs.	Develop a guidance manual, in coordination with agencies and city departments, to ensure that port-specific conditions are reflected in Standard Urban Stormwater Mitigation Plan design guidance for measures instituted on port property.
LU-3: Evaluate the need for structural BMPs for key discharges and targeted pollutants at existing facilities and install where necessary to ensure compliance.	Where LU-1 proves inadequate in high-risk areas, evaluate the need for new or additional structural BMPs (e.g., berms, separators, containment, valves, in-line hydrodynamic treatment units, diversion to sewer, stormwater recycling, and drain capping), and install those deemed necessary and appropriate.
LU-4: Continue and expand upon existing stormwater/dust control programs for vacant/undeveloped property.	Inventory vacant and undeveloped areas within both ports to determine areas of highest priority for runoff and pollutant control measures. For those areas deemed highest priority, install temporary measures pending long-term solutions.
LU-5: Enhance and expand litter control programs and implement relevant elements of those programs in specific sources.	Review all facilities to determine where the scope of existing litter-related housekeeping and structural BMP application needs to be increased and where additional BMPs (e.g., fences, stormceptors, public education, enforcement, and new equipment) are necessary.
LU-6: Enhance and expand street and public parking area sweeping/cleaning programs.	Evaluate sweeping/cleaning activities and inspect all sites to assess debris levels and problem areas (e.g., dry bulk and recycled metals terminals, access streets, truck queuing lanes, parking lots at restaurants, and fishing piers). Evaluate existing street sweeping and cleaning equipment. Revise sweeping/cleaning schedules and equipment as needed.
LU-7: Evaluate existing construction permit compliance procedures and enhance as necessary.	Evaluate recent inspection reports and reporting protocols, review upcoming revisions to the Construction General Permit, and formulate the necessary program enhancements (e.g., revised permit structure, inspection frequency, and construction specifications).

TABLE 3.7-2. WRAP CONTROL MEASURES

Control Measure	Description
LU-8: Evaluate port-owned properties outside the harbor districts and ensure permit compliance as necessary.	Develop a management program that includes procedures for ensuring that remote site facilities found to be deficient in their compliance work with their local agencies achieve compliance.
On-Water Sources	
OW-1: Develop guidance manual for on-water activities (e.g., allowable and prohibited vessel maintenance activities and discharges).	Develop manuals that will be distributed to vessel operators (including cargo vessels, harbor craft, and recreational vessels) as guidance for allowable and prohibited on-water activities.
OW-2: Develop port policy and standards for maintenance, in-kind replacement, and eventual phasing out of exposed treated pilings from in-water applications.	Develop plans for phasing out exposed treated pilings by establishing BMPs for current piling management practices (wrapping, storage, installation, and disposal) and identifying feasible alternatives to the use of treated wood pilings.
OW-3: Develop BMPs and port standards for zinc-based cathodic protection of port structures and vessels.	Identify the feasibility of alternative anti-corrosion technology (e.g., other metals or induced-current systems) and develop guidance for applying those alternatives to port practices.
Sediments	
S-1: Develop sediment management policy/guidance establishing priorities for removal, disposal, and management of sediments with a clear decision-making framework.	Develop sediment management policy and guidance that will apply the CSTF Long-Term Management Strategy to the port situation. Policy will include identification of data gaps and priority areas, and short-term and long-term management strategies for future projects.
S-2: Develop a sediment management policy establishing priorities for the management of areas of legacy contaminated sediments and hotspots.	Complete remediation of IR Site 7 and continue participation in Consolidated Slip Restoration Task Force. Work with regulatory agencies and stakeholders to develop scientifically based TMDLs; develop implementation plan to manage hotspots and comply with TMDLs. Any remedial process will ultimately be driven by the regulatory agencies and may include other responsible parties.
Watershed	
WS-1: Employ all available means to support efforts to reduce upstream pollutant loadings that adversely affect harbor water and sediment quality.	Participate in local and regional efforts to characterize pollutant inputs to the ports from outside sources; participate in watershed planning efforts; encourage the LARWQCB and USEPA to use their authority to address upstream discharges.

Key: BMPs = best management practices; CSTF = Contaminated Sediment Task Force; IR = Installation Restoration; LARWQCB = Regional Water Quality Control Board; SWPPP = stormwater pollution prevention plan; TMDL = total maximum daily load; USEPA = U.S. Environmental Protection Agency; WRAP = Water Resources Action Plan

Control measures developed in the WRAP do not identify numerical goals for pollution reduction, nor do they set compliance standards. Rather, the WRAP provides a roadmap for the Port of Long Beach and Port of Los Angeles to comply with existing regulations.

As a component of the WRAP, POLB developed a sediment management policy and guidance manual that established the specific application of the CSTF Long-Term Management Strategy (Los Angeles Regional CSTF 2005) to each Harbor District development project. The policies establish the procedures for coordination with the responsible regulatory agencies (USACE, USEPA, LARWQCB, and CCC) and other interested parties (environmental organizations, other agencies, and stakeholders) on a project-specific basis. In developing control measures for sediment management, the options available are based on the guidance contained in the CSTF Strategy, which the ports helped to develop and which guides sediment planning. That guidance includes a number of key principles: inter-agency coordination in planning efforts, including an open public process; use of various BMPs for dredging, particularly of contaminated sediments; beneficial reuse of all sediments; and use of a defined hierarchy of disposal methods in the planning process.

The POLB prepared a Sediment Management Handbook for Dredge and Fill Projects (Anchor QEA 2018b) to address the sediment management goals set forth in the WRAP and to "guide POLB staff through evaluation and selection of the most appropriate management alternative(s) for contaminated and uncontaminated sediments generated during POLB dredging and fill projects." This document provides guidance for implementation of dredge and fill projects, including sediment disposal, fill site management, permitting, sediment testing, project-specific Sediment Management Plans, and environmental monitoring.

For dredged sediments placed into confined disposal sites, compliance with the project-specific Sediment Management Plans that incorporate measures contained in state and federal permits to prevent turbidity, suspended solids, and pollutants from leaving the fill site shall be followed. Requirements would be related to material placement, water quality and construction activity monitoring, and adaptive management.

Port Tariff Number 4

The Port Tariff Number 4 (POLB 2019f) addresses pilotage, dockage, and general rules and regulations governing vessel and shoreside operations at the Port. As related to water quality, Port Tariff Number 4 addresses: storage of dangerous and hazardous materials, including barrels, drums, and tanks; handling petroleum products; vessels used to transport hazardous materials; discharges of ballast waters, bilge water and refuse; on-water vessel maintenance; and other issues related to environmental compliance and preventing conditions that could otherwise result in impacts on water quality within the Port.

3.7.3 Impacts and Mitigation Measures

3.7.3.1 Significance Criteria

Criteria for determining the significance of impacts on hydrology and water quality are based on the 2019 CEQA Guidelines, Appendix G (Environmental Checklist), and have been modified as necessary to reflect Port operations within a highly urbanized, industrial complex. Impacts during construction or operation would be considered significant if the Proposed Plan would:

- **WQ-1:** Violate any water quality regulatory standards or waste discharge requirements or otherwise substantially degrade surface water or groundwater quality.
- **WQ-2:** Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.
- **WQ-3:** Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces in a manner that would:

    - Result in substantial erosion or siltation on or off site;
    - Substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or off site;
    - Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial sources of polluted runoff; or
    - Impede or redirect flood flows.
- **WQ-4:** In flood hazard, tsunami, or seiche zones, risk releases of pollutants due to project inundation.
- **WQ-5:** Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.
- **WQ-6:** Substantially alter water circulation or currents, or result in the long-term detrimental alteration of harbor circulation that would cause reduced water quality.

The potential for the Proposed Plan and alternatives to increase risks of inundation by seiche, tsunami, or mudflow are evaluated in Section 3.5 (Geology, Soils, and Seismic Conditions).

3.7.3.2 Assessment Methodology

Potential impacts on hydrology and water quality as a result of the Proposed Plan were assessed using literature data (including applicable water quality criteria) to compare existing conditions to anticipated conditions resulting from construction and operations. The potential impacts on water quality and hydrology related to drainage modifications, changes to impervious surfaces, pollutant inputs, compliance with regulatory requirements requiring implementation of BMPs, and other consequences of the Proposed Plan and alternatives were evaluated using the scientific expertise of the preparers.

3.7.3.3 Proposed Plan

Impact WQ-1: Construction and operations would not violate any water quality regulatory standards or waste discharge requirements or otherwise substantially degrade surface water or groundwater quality.

<u>Impact Determination</u>

Construction

The Proposed Plan projects, other than the offshore OHSPER project and potentially the Pier B Street Support Yard that would not require construction, would likely involve construction activities within upland (backland) portions of the project sites. Depending on the nature and extent of the activities, construction in the upland portions of the Proposed Plan projects would have the potential to result in adverse impacts on surface water quality and violate water quality standards if the construction site is not appropriately managed for erosion, dust, runoff, and spills/leaks. The potential for construction activities to disturb site soils and/or alter site grading or flow patterns in a manner that potentially could affect surface water or groundwater at the Port is addressed under Impact WQ-3.

Excavation activities associated with construction of one or more of the Proposed Plan projects could encounter shallow groundwater, requiring dewatering and discharge or disposal of the dewatering effluent. All dewatering activities would be conducted in compliance with LARWQCB NPDES requirements, including obtaining an individual dewatering permit or WDR, if applicable. Any dewatering activities, including those that may contact contaminated groundwater, would include either on-site treatment to remove pollutants as necessary to meet LARWQCB discharge requirements, discharge to the sanitary sewer system, or off-site disposal at an approved facility.

Construction activities that disturb areas greater than 1 acre would be required to comply with applicable regulations of the NPDES CGP (Order No. 2009-0009-DWQ as amended by 2010-0014-DWG and 2012-0006-DWG) and prepare a project-specific SWPPP. Construction activities in compliance with the CGP requirements generally would not result in pollution, contamination, a nuisance, or violate any water quality standards due to implementation of BMPs specified in the SWPPPs to control runoff of soils and pollutants. Standard BMPs could include sediment barriers, sedimentation basins, and site contouring. Monitoring would be performed to verify that the permit-specified BMPs are implemented and kept in good working order.

Soil control measures generally have an average efficiency of approximately 70 percent, although efficiencies can be higher, particularly for coarser materials such as sand (Bingham, Boucher and Boucher 1993). Regardless, a small amount of pollutants associated with eroded soils that are not retained by sediment barriers could reach harbor waters via storm drains. Most runoff would occur during storm events, although some could occur during use of water as part of construction activities (e.g., for dust suppression).

Releases of runoff containing eroded soils could have temporary and localized impacts on harbor water quality. Effects of runoff on DO, pH, and nutrient levels in receiving waters would be minor and limited to the vicinity of the drain discharge locations because stormwater discharges would be rapidly diluted with receiving waters. Thus, runoff from general construction activities would have short-term, localized impacts on surface water quality that are less than significant.

Accidents resulting in spills of fuel, lubricants, or hydraulic fluid from equipment used during construction of the Proposed Plan projects could result in releases of contaminants directly to Harbor District waters or in areas subject to erosion and transport via stormwater runoff. Based on past history for this type of work, accidental leaks and spills of large volumes of hazardous materials or wastes containing contaminants during onshore construction activities have a very low probability of occurring because large volumes of these materials typically are not used or stored at construction sites. Standard BMPs reduce the potential for materials from onshore construction activities to be transported off site and enter storm drains or the harbor, thereby minimizing the likelihood and severity of contaminant inputs to surface water or groundwater. Any such discharges are expected to be small and result in temporary, localized impacts on water quality that would not violate water quality standards or adversely affect beneficial uses of surface water or groundwater.

Five of the Proposed Plan projects (Protective Boat Basin [Berth F202], Pier J Terminal Redevelopment, Pier S Shoreline Enhancement, Pier T Improvements, and Pier W Terminal Development) would require in-water construction and/or dredging with dredged material reuse or disposal. In-water construction activities would be conducted in compliance with the appropriate permits from USACE and/or the LARWQCB. In-water construction activities typically do not involve direct discharges of waste streams to surface waters. Thus, construction activities would not violate water quality standards associated with waste discharges. However, dredging and in-water construction, such as rock dike construction or demolition and reconstruction of new wharves and shorelines, would result in temporary and localized resuspension of bottom sediments that, in turn, could result in potential adverse effects on water quality related to physical effects such as increased turbidity, decreased transmissivity, and a residuals layer and chemical effects caused by desorption of chemicals from suspended particulates. Water quality impacts from dredging and in-water construction are typically limited to the physical effects of turbidity and burial and are transient. A study comparing dredging-induced suspended sediment concentrations observed in the field to physical effects concentrations reported in literature found that dredging was not likely to cause acute lethal effects in aquatic organisms (Anchor 2003). Further, long-term impacts are not expected to occur due to the transient nature of suspended sediment following dredging and in-water construction (Anchor QEA 2018b).

The magnitude of changes to water quality associated with construction activities would depend, in part, on the specific construction methods employed and the physical and chemical characteristics of bottom sediments at the project site. Sediments in some areas of the Harbor District contain elevated contaminant concentrations, which if released from resuspended sediments, could affect water quality. However, effects to water quality typically are localized and short-term because sediments suspended by construction activities settle to the bottom within periods of minutes to hours, depending on the particle size and settling rate and mixing and dispersion by local currents (USACE and LAHD 1992, Los Angeles Regional CSTF 2005).

WDRs and USACE permits typically require monitoring and control measures and specify BMPs, including modification or suspension of activities if excessive turbidity is observed and, in certain cases, the use of silt curtains. The water quality certification also would specify receiving water monitoring requirements, which typically include measurements of water quality parameters such as DO, turbidity, pH, and suspended solids at varying distances from the dredging operations. Analyses of contaminant concentrations (metals, DDT, PCBs, and PAHs) in waters near the in-water construction operations may also be required if the contaminant concentrations in the sediments are elevated and represent a potential risk to beneficial uses. Monitoring data are used by the construction contractor to demonstrate that water quality limits specified in the permit are not exceeded.

The POLB prepared a Sediment Management Handbook (Anchor QEA 2018b) that provides guidance for evaluating and selecting the most appropriate management alternative(s) for contaminated and uncontaminated sediments generated during dredging and fill projects. The handbook is intended to achieve the sediment management goals set forth under Control Measures S-1 and S-2 of the WRAP (POLA and POLB 2009b) that establish priorities for removal, disposal, and management of sediments within a clear decision-making framework, and a sediment management policy establishing priorities for the management of areas of legacy contaminated sediments and hotspots, respectively. WRAP Control Measure S-1 establishes a sediment quality baseline and formulates a management strategy to address testing, dredging, and disposal of clean and contaminated sediments generated during routine port operations. Measure S-1 also helps minimize potential water quality impacts from water column exposure to dredged material. The sediment management guidelines are consistent with the POLB's Green Port Policy that requires environmentally responsible decision-making frameworks to reduce environmental impacts from port operations and integrates sustainable practices in design, construction, operations, and administrative practices throughout the POLB. Examples of sustainable strategies include: beneficial reuse of dredged materials; accepting third-party fill material; implementation of project-specific BMPs for dredging equipment and construction methods to minimize potential water quality impacts; and project planning and coordination (Anchor QEA 2018b).

Due to the scope and complexity of these construction activities, project-specific sediment management plans are developed for major dredging and fill projects. The sediment management plans identify measures and BMPs to minimize the project's environmental impacts and ensure compliance with regulatory permits while ensuring that the project proceeds as efficiently as possible. POLB dredging and construction activities are managed in accordance with applicable state and federal regulations. Dredging and fill placement is subject to USACE's 404 permit program and requires a Section 401 Water Quality Certification/Waste Discharge Requirement from the LARWQCB. A Section 401 Water Quality Certification is an agreement that a proposed discharge of fill would not violate state water quality standards (Los Angeles Regional CSTF 2005).

The BMPs and other environmental controls that would be employed in compliance with the relevant permits would minimize the likelihood and severity of contaminant inputs to Port waters. Examples of possible BMPs for dredging and in-water construction activities are provided in the Sediment Management Handbook (Anchor QEA 2018b). Construction activities that comply with POLB guidance and applicable permits would result in temporary, localized impacts on water quality, but they would not violate water quality standards, degrade water quality, or result in any significant environmental effect.

Implementation of the OHSPER project would not require construction as the facility is already operable in its present configuration. Therefore, the OHSPER project would not violate water quality standards, degrade water quality, or cause significant environmental effects.

Operations

Operation of the Proposed Plan projects would not involve any unregulated discharges to the harbor or to upland areas with the potential to degrade surface water or groundwater. In general, the Proposed Plan projects would collect stormwater runoff by the storm drain system and discharge it to the harbor in quantities and at locations similar to existing conditions, with the minor exception that projects creating new land surfaces with fill would have slightly higher runoff volumes compared to baseline conditions. However, the combined fill area (245 acres) represents a small percentage of the existing land area of the Port (3,200 acres). Thus, the potential increase in stormwater runoff volumes would be less than 10 percent. Accidental releases of contaminants, via leaks or spills from vessels or upland facilities, could have a detrimental effect on water quality within the harbor. The risks of spills and hazardous releases are addressed in Section 3.6 (Hazards and Hazardous Materials). In accordance with the POLB's spill response system, vessels are required to maintain OSCPs and have the financial resources to support a spill response. USCG conducts regular inspections of vessels to ensure seaworthiness and verify that appropriate pollution control mechanisms are in place.

Operation of the Proposed Plan projects would be subject to the provisions of the City's NPDES permit and the Nearshore WMP, as well as the Port's Stormwater Design Manual (that addresses LID objectives for stormwater management, if applicable). Further, industrial activities would be covered under the IGP. Therefore, implementation of the MS4 permit requirements would ensure the protection of water quality during the operational phase of the Proposed Plan projects.

Port operations are a potential source of contaminants to harbor waters related to industrial activities that are sources of contaminated particulates, which are subject to transport via wind, runoff, or direct deposition into the harbor (Los Angeles Regional CSTF 2005). Future increases in ship calls associated with the Proposed Plan projects and/or land use changes could also result in higher mass loadings of contaminants, such as copper leached from vessel hull anti-fouling paints, with corresponding increases in potentials for impacts on water and sediment quality. Vessels calling at the Port would be subject to the requirements of various federal and state regulations governing discharges to state waters, the VGP, and Port Tariff Number 4 (POLB 2019f). The VGP regulates discharges incidental to the normal operation of vessels including narrative effluent discharge limits to be achieved through operational control measures and the use of best available technology; inspection, monitoring, recordkeeping, and reporting requirements; and additional requirements applicable to certain vessel types. The VGP is applicable to specific vessel types and lengths that operate within the ports, including cruise ships, oil tankers, bulk carriers, container ships, and emergency response vessels. The POLB has also developed a Vessel Discharge Rules and Regulations Guidance Manual that outlines the most common discharges and maintenance activities (ballast water, grey/black water, underwater hull cleaning) associated with large commercial vessels, whether the discharge or activity can occur within the Port, and required BMPs.

Oil SPCC regulations require the POLB to have in-place measures that help ensure oil spills do not occur. However, if they did, there are protocols and response equipment in place to contain the spill and neutralize potential harmful impacts. For any proposed project with an in-water component, an SPCC Plan and an OSCP would be prepared for review and approval by the LARWQCB or CDFW OSPR, in consultation with other responsible agencies. The SPCC Plan and OSCP would detail and implement spill prevention and control measures.

The OMMP for the OHSPER project (Anchor QEA 2017b) is designed to meet both the Port's anticipated long-term sediment management needs as well as its Green Port Policy initiative. The OMMP for the OHSPER project provides a framework and guidelines for selecting sediment for placement, BMPs, interim and long-term monitoring, sampling and reporting requirements, and an adaptive management approach.

Each project that generates material for placement in the OHSPER site would be required to implement and follow the OMMP. The POLB would apply for and obtain a Section 404 permit from USACE and a WDR permit from the RWQCB for each dredging project that will place material at the site. The WDRs program regulates point discharges that are exempt pursuant to subsection 20090 of Title 27 and not subject to the Federal Water Pollution Control Act, as well as the discharge of wastes classified as inert, pursuant to section 20230 of Title 27.

The OHSPER site is intended to receive clean and contaminated sediment. Some material may be placed in areas targeted for long-term disposal and confinement, while other material (ocean suitable only) may be temporarily placed until it can be reused as fill material for a future capital development project. The North Lobe currently contains sediments with elevated chemical concentrations, and the South Lobe contains sediments that are suitable for ocean disposal. Placement of contaminated material will be prioritized in the North Lobe. Clean, medium- to coarse-grained material suitable for re-handling and reuse as geotechnical fill will be prioritized for placement in the South Lobe or until the North Lobe can no longer accept dredged material.

The OMMP anticipates that most material will be placed within the OHSPER site using a bottom-dump scow. Material placed at the OHSPER site will be loaded into a scow at the construction/dredging site, and then the scow would be transported to the OHSPER site by tugboats and centered over the disposal location. The scow would then open (or split, if using a split-hull barge), allowing the sediment to fall through the water column to the bottom of the depression. Placement of materials within the OHSPER site would be controlled so that loss of suspended sediment outside of the site boundaries, as determined by water quality monitoring, would be below the limiting criteria set forth in the WDRs.

Placement activities would be monitored using barge-tracking software at all times, and interim bathymetric surveys would be used to monitor all placement activities. Bathymetric surveys will be conducted prior to each use of the OHSPER site to establish baseline conditions, and as needed during site use to monitor successful placement of contaminated material into the disposal cell and any deposition outside the disposal area. A post-placement bathymetric survey will also be performed to quantify the final configuration and elevations of the OHSPER site. When contaminated material (non-suitable for ocean disposal) will be left uncovered for longer than 12 months, an interim cap layer of ocean-suitable material will be placed over the impacted material. Clean sediment for capping could originate from the South Lobe, from dredging projects at the POLB, or other projects in the vicinity that generate sediments determined to be suitable for unconfined ocean disposal. The source of the cap material will be determined and evaluated separately for each project that proposes to place dredged sediment at the OHSPER. Interim caps will be placed at a minimum thickness of 0.3 meter (1 foot), and they will be designed and constructed to prevent disturbance.

Accidental releases of dredged sediment outside of the OHSPER site could occur during transport of the material from the construction areas to the OHSPER site. This possibility will be minimized because scows and/or haul barges that transport dredged sediment to and through the Port must be sealed to prevent leakage during transport.

For each project intending to use the OHSPER site, a Water Quality Monitoring Plan for placement activities will be developed for inclusion in the project permits. The plan will describe methods and documentation for monitoring of turbidity, pH, DO, and chemical constituents, as necessary, and it will designate a placement project boundary that defines the area in which temporary water quality impacts may occur. Water quality monitoring will be conducted at least once per week during placement activities. Permit-specified BMPs will be used, as needed, to limit the dispersion of suspended particulates beyond the placement project boundary.

Sediment placement activities would be monitored at the OHSPER site, in compliance with the OMMP and individual dredging project permits. Monitoring of sediment placement would address two main objectives:

1. Confirm contaminated sediments are not deposited outside of the OHSPER site; and

2. Confirm chemical releases during disposal activities are below levels that pose a potential ecological risk to resident aquatic organisms.

Monitoring immediately after placement of a cap would be required to confirm that the desired minimum cap thickness was successfully achieved over the entire placement area and to provide a baseline for comparison to long-term bathymetric surveys. Sediment sampling would be performed immediately after the final cap layer is placed to provide information on: the physical characteristics of the cap and underlying sediment; chemical characteristics of the cap once in place; the extent of any mixing between the cap and underlying sediment due to placement; and a baseline for comparison to long-term sediment core sampling.

The POLB conducted several technical studies to address potential environmental and operational concerns regarding contaminant release from the OHSPER site due to propwash scour, anchor scars, and bioturbation (Anchor QEA 2016). The propwash scour evaluation found that the maximum bed scour depth is approximately 2.6 feet. None of the transiting vessels near the OHSPER site are expected to cause scour holes that exceed 2.6 feet in depth. The anchor scour evaluation found that anchors do not penetrate the sediment by more than 2.9 feet. The bioturbation evaluation determined that the deepest reported burrowing depth for bottom-dwelling species is approximately 3 feet. Results of these evaluations suggested that a 3.3-foot thick final cap layer would be sufficient to provide chemical and physical isolation of the contaminated material located within the North Lobe and South Lobe (Anchor QEA 2016). Consequently, the findings of these technical studies illustrate that use of the OHSPER site for a CAD facility would be technically feasible and can meet the site use objectives for the area as a long-term sediment management facility.

Long-term use of the OHSPER site for sediment placement will be limited to the elevations of the surrounding grade (-45 and -50 feet MLLW). Sufficient capacity must be maintained within the site to allow placement of the final cap without exceeding target elevations and impacting navigation or operation of the existing anchorages. When the usable capacity of the OHSPER site has been achieved, the site would be closed. It is likely that the North Lobe and South Lobe would fill up at different times, and if so, each site would be evaluated and closed independently. The life of the proposed CAD facility would last until its maximum capacity for storage is reached (i.e., the existing underwater depressions are filled to the elevation of the surroundings). This would be wholly dependent on the type and timing of projects that would use the proposed CAD facility.

Long-term monitoring would be required after the final cap layer is completed to verify that the OHSPER site has maintained its physical integrity and that the cap is maintaining its ability to isolate underlying contaminants. This would be measured with periodic post-construction bathymetric surveys and sediment coring of the cap layer. The long-term bathymetric surveys would be compared against the post-cap construction baseline to determine whether design criteria continue to be met and to quantify rates of erosion or deposition at the CAD facility. Chemistry data collected from long-term sediment core sampling would be compared to the post-cap construction baseline sediment core chemistry profile to determine whether any chemicals are migrating from the underlying sediment into the cap sediment.

The key elements addressed by this long-term monitoring program include confirmation that:

- The cap maintains its physical integrity;
- Erosional or depositional processes have not compromised the cap's ability to sequester underlying contaminants; and
- Modeled estimates of chemical behaviors within the cap material are confirmed (i.e., chemicals of potential concern are not migrating at rates greater than expected).

Based on the results of environmental monitoring during placement activities and if deemed necessary, the POLB would amend placement methods in the OMMP to better match site conditions and minimize potential impacts. Operation of the OHSPER project is expected to comply with water quality standards and would not cause significant environmental effects. A copy of the OHSPER Technical Document is provided in Appendix C (OHSPER Technical Report).

From a programmatic perspective, Proposed Plan project construction and operations and land use changes conducted in accordance with applicable regulations and permit conditions would not violate any water quality regulatory standards or WDRs or otherwise substantially degrade surface water or groundwater quality, and impacts would be less than significant. Therefore, no mitigation is required.

Impact WQ-2: Construction and operations would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.

Impact Determination

Construction

Most of the Proposed Plan projects would likely involve construction activities within upland (backland) portions of the project sites. Excavation activities associated with construction of one or more of the Proposed Plan projects could encounter shallow groundwater, requiring dewatering and discharge or disposal of the dewatering effluent. All dewatering activities would be conducted in compliance with LARWQCB NPDES requirements, including obtaining an individual dewatering permit or WDR, if applicable.

The impact of construction activities associated with the Proposed Plan projects on groundwater supplies would be less than significant because the volume of groundwater extracted with dewatering would be negligible. Similarly, construction activities would not affect the rate of groundwater recharge because much of the Port land is covered with an impervious surface and the construction areas associated with the Proposed Plan projects (up to several acres) are small in comparison to the size of the West Coast groundwater basin, which covers approximately 140 square miles (CH2M 2016); therefore, the potential contribution to groundwater supply is negligible.

The groundwater beneath the Harbor District is not potable due to seawater intrusion. Existing beneficial uses for the groundwater basin underlying areas within the Harbor District include Industrial Service Supply, Industrial Process Supply, and Agricultural Supply (LARWQCB 2014b). Construction activities associated with the Proposed Plan projects would not affect the supply of potable water or adversely affect beneficial uses of groundwater. Thus, construction of the Proposed Plan projects would not decrease groundwater supplies, interfere substantially with groundwater recharge, or cause significant environmental effects.

Implementation of the OHSPER project would not require construction as the facility is already operable in its present configuration. Therefore, there is no risk that the OHSPER project would involve construction activities that would decrease groundwater supplies or interfere substantially with groundwater recharge.

Operations

The Proposed Plan projects' operations are not expected to require extraction of groundwater. Compared to baseline conditions, some projects may have slightly different proportions of permeable and impermeable surfaces that could affect the amount of surface water that can infiltrate into groundwater. However, this is expected to have a negligible impact on the groundwater supply as major portions of the Port land are covered with an impervious surface. Compliance with stormwater permits and implementation of standard, permit-specified BMPs are expected to prevent any contaminants associated with on-site spills from affecting groundwater. Therefore, operation of the Proposed Plan projects is not expected to impede management of groundwater resources and would not cause significant environmental effects.

Implementation of the OHSPER project would not require extraction of groundwater or physically hinder water infiltration to the groundwater basin. Therefore, operation of the OHSPER site would not interfere with management of groundwater resources.

As Proposed Plan project construction and operations and land use changes would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge, no mitigation is required. Impacts would be less than significant.

Impact WQ-3: Construction and operations would not substantially alter the existing drainage pattern of the site or area in a manner that would: result in substantial erosion or siltation on or off site; substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or off site; create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial sources of polluted runoff; or impede or redirect flood flows.

Impact Determination

Construction

With the exception of the OHSPER project and potentially the Pier B Street Support Yard, all other Proposed Plan projects would likely involve construction activities within upland (backland) portions of the project sites. Depending on the nature and extent of the construction activities, there is a potential for construction to alter site grading or flow patterns in a manner that potentially could affect surface water runoff patterns. Excavation activities or stockpiling soils or other equipment at a project construction site could also result in localized alterations of drainage patterns that would result in temporary ponding and/or erosion of exposed soils.

Surface waters within upland portions of the Harbor District consist of wet-weather runoff tied to seasonal rainfall events and dry-weather runoff that is characterized as intermittent. Much of the Port land is covered with an impervious surface, and there are no natural/topographic features within the Harbor District. Instead, surface water runoff is directed via topographic grading to numerous large storm drain systems that discharge directly to the harbor. Therefore, construction activities associated with the Proposed Plan projects would not interfere with any area-wide or watershed drainage channels, and the potential risk of flooding or exceeding the capacity of the existing storm drain system would be negligible.

Some of the Proposed Plan project sites are located within the 100-year flood zone. However, construction of these projects would not increase the potential for flooding on site because drainage would be maintained and the overall elevation of the site would not be changed substantially. Construction and demolition activities for the Proposed Plan projects would result in minor reconfigurations of drainage basins and would redirect stormwater flows; however, the design of the stormwater drainage system would safely and adequately convey flows to ensure that there would be no adverse effects to the area hydrology or floodplain. There are no nearby levees or dams that would be subject to failure and expose people or structures associated with the Proposed Plan projects to a significant risk of loss, injury, or death involving flooding.

Development that is greater than 1 acre in size is required to comply with provisions of the CGP. The CGP ensures that the landowners:

- Eliminate or reduce non-stormwater discharges to storm drains and receiving waters of the U.S.;
- Develop and implement a SWPPP;
- Inspect the Water Pollution Controls specified in the SWPPP;
- Comply with performance standards for post-construction, as applicable; and
- Monitor stormwater runoff from construction sites to ensure that BMPs specified in the SWPPP are effective.

Preparation and implementation of a construction SWPPP would be required prior to the start of any construction activities, and construction contractors would be required to implement BMPs to prevent/contain releases of soils and contaminants. Compliance with the CGP and SWPPP would ensure that any runoff from a construction site would not cause substantial siltation off site or represent a source for polluted runoff. Therefore, construction of Proposed Plan projects would not result adversely alter surface water drainage patterns or increase risks of flooding.

Implementation of the OHSPER project would not require construction as the facility is already operable in its present configuration. Therefore, the OHSPER site would not result in construction activities with the potential for adversely impacting surface water drainage patterns or increasing risks of flooding.

Operations

Once a project has been constructed, site operations are expected to have minor effects on the site drainage patterns. Runoff volumes during project operations could vary slightly from baseline conditions based on the changes in surface grading and permeability. However, project operations would be in accordance with Port-wide guidance for incorporating post-construction control measures that use LID strategies appropriate for the Harbor District setting. Stormwater discharges from individual properties within the Harbor District are also regulated by individual and general permits in accordance with state and federal regulations. Compliance with permit conditions would reduce the potential for impacts associated with stormwater runoff from any of the Proposed Plan project sites. Thus, operation of the Proposed Plan projects would not adversely impact surface water drainage patterns or increase risks of flooding.

Operation of the OHSPER project will be in accordance with the OMMP. The site is located entirely offshore and operation of the project would not adversely impact surface water drainage patterns or increase risks of flooding.

As Proposed Plan project construction and operations and land use changes would not adversely affect surface water drainage patterns or increase risks of flooding, impacts would be less than significant. No mitigation is required.

Impact WQ-4: Construction and operations would not risk releases of pollutants due to project inundation in flood hazard, tsunami, or seiche zones.

<u>Impact Determination</u>

Construction

The potential for the Proposed Plan projects to exacerbate risks from a tsunami or seiche are addressed in Section 3.5 (Geology, Soils, and Seismic Conditions). Due to the historic occurrence of earthquakes and tsunamis along the Pacific Rim, construction of any new projects on or near the shore in Southern California, including the Harbor District, could experience wave run-up from a tsunami or seiche. The risk of damage or injuries from these events at any particular location is lessened if the location is high enough above sea level, far enough inland, or protected by structures such as dikes or concrete walls. The height of a given site above sea level is either the result of an artificial structure (e.g., a dock or wall), topography (e.g., a hill or slope), or both, and a key variable related to the height of a site location relative to sea level is the stage of the tide at the time of the event.

A model for the San Pedro Bay Port Complex developed to evaluate potential for inundation by a tsunami wave predicted water levels up to 7.4 feet above MLLW within the Harbor District for a maximum likely seismic scenario tsunami, which is partially based on a 7.6 magnitude earthquake on the offshore Santa Catalina Fault (Moffatt & Nichol 2007c). Elevations of most shoreside facilities in the Harbor District range from 10 to 16 feet above MLLW, which is higher than the water levels predicted under this scenario. Under these conditions, tsunami-induced flooding would not likely occur because the wave heights would not exceed the shoreline elevations. The risks of wave over-topping shoreside infrastructure increases if tidal conditions are higher than MSL. Submarine landslides can also generate tsunamis and were modeled for the San Pedro Bay Port Complex. The worst-case scenario submarine landslide scenario would result in water levels 26 feet above MLLW, which would overtop several areas at the POLB. Regardless, risks of run-up resulting in releases of pollutants would be minimal because the likelihood of such an occurrence is extremely low (once every 10,000 years are even lower for submarine landslide generated tsunamis) (Moffatt & Nichol 2007c). Additionally, construction projects do not store large amounts of chemicals, such as fuels or solvents, on site, and construction permits and SWPPPs specify requirements for protecting chemicals from exposures to conditions that could result in releases to the environment. Thus, construction activities associated with the Proposed Plan projects would not cause releases of pollutants due to project inundation.

Implementation of the OHSPER project would not require construction as the facility is already operable in its present configuration. Therefore, the OHSPER project would not cause releases of pollutants due to project inundation.

Operations

Portions of the Harbor District are within the 100-year flood zone, and other portions are subject to wave run-up from a tsunami under certain, but unlikely, conditions. Measures to prevent releases of chemical contaminants and hazardous materials from Port operations are discussed in Section 3.6 (Hazards and Hazardous Materials). Existing regulations, as well as the POLB's Port Tariff Number 4, address storage of dangerous and hazardous materials, including barrels, drums, and tanks, handling petroleum products, and vessels used to transport hazardous materials that are designed to reduce the potential for accidental releases or spills. Thus, Proposed Plan operations would not exacerbate the risk of pollutant releases due to inundation.

One of the Proposed Plan projects, the Pier S Shoreline Enhancement, would retrofit the existing seawall and rock dike at Pier S as a coastal resiliency measure to strengthen the shoreline against SLR and protect vulnerable assets on Pier S along the Cerritos Channel. This project would be in accordance with the POLB's Climate Adaptation and Coastal Resiliency Plan (CRP) (POLB 2016a) and would reduce the risk of flooding and the potential for associated spills or releases of pollutants.

Operation of the Proposed Plan projects would not increase the risks of pollutant releases from inundation by flooding or tsunamis.

A major seismic event could result in uneven settlement or breaches of the cap surface at the OHSPER site. Additionally, a major wind or storm event could result in vessels dragging their anchors, causing erosion of the surface of the CAD and with the potential for exposing buried contaminated sediments. The OMMP for the OHSPER site addresses these potential risks by incorporating the following measures:

- In the event of a significant seismic event (defined as greater than a 6.0 magnitude earthquake), a bathymetric survey of the site will be conducted immediately to compare against previous events and look for evidence of uneven settling or fissures in the CAD cap surface. If the results of the survey suggest that significant changes have occurred, additional monitoring techniques such as side scan sonar or diver surveys can be considered to inspect the damage and develop a plan for repair.
- In the event of a major wind or storm event at the site that results in vessels being dislodged from the overlying anchorages such that potential damage could have occurred at the site, the POLB will follow a similar process as with the seismic events, which includes a bathymetric survey and possibly follow-up investigations to look for damage to the site.

If either of the above events are triggered, the POLB will notify the CSTF agencies that monitoring has commenced and will share the results of the field surveys to determine if modifications to the OMMP are warranted. Regardless, it is unlikely that either of these conditions would result in substantial disturbance or remobilization of contaminated sediments before repairs could be implemented. Operation of the OHSPER project would not increase the risks of pollutant releases from inundation by flooding or tsunamis.

As Proposed Plan project construction and operations and land use changes would not risk releases of pollutants due to project inundation in flood hazard, tsunami, or seiche zones, impacts would be less than significant. Therefore, no mitigation is required.

Impact WQ-5: Construction and operations would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

<u>Impact Determination</u>

Construction

Construction activities associated with POLB projects are subject to the requirements of a number of federal, state, and local regulations, as well as POLB plans and policies (Section 3.7.2, Regulatory Setting). Additionally, one of the guiding principles of the POLB Green Port Policy is to distinguish the POLB as a leader in environmental stewardship and regulatory compliance. The POLB WRAP identifies control measures for land use discharges; on-water discharges; sediments; and watershed discharges to ensure compliance with the industrial activities, construction activities, and municipal permits issued to the ports and their respective cities and tenants through the NPDES program.

As a component of the WRAP, POLB developed a sediment management policy and guidance manuals that establish the specific application of the CSTF Long-Term Management Strategy (Los Angeles Regional CSTF 2005) to each Harbor District development project. The policies establish the procedures for coordination with the responsible regulatory agencies (USACE, USEPA, LARWQCB, and CCC) and other interested parties (environmental organizations, other agencies, and stakeholders) on a project-specific basis. In developing control measures for sediment management, the options available are based on the guidance contained in the CSTF Strategy, which POLB helped to develop and which has guided the ports' sediment planning. That guidance includes a number of key principles: inter-agency coordination in planning efforts, including an open public process; use of various BMPs for dredging, particularly of contaminated sediments; beneficial reuse of all sediments; and employment of a defined hierarchy of disposal methods in the planning process.

Priority new development and redevelopment projects shall follow the POLB Stormwater Design Manual, incorporating stormwater harvesting and other LID strategies and conventional stormwater treatment as appropriate to protect water quality. Construction of the Proposed Plan projects would comply with POLB guidance related to surface water and groundwater quality and would not conflict with a water quality control plan or groundwater management plan.

Implementation of the OHSPER project would not require construction as the facility is already operable in its present configuration. Therefore, the OHSPER project would not conflict with a water quality control plan or groundwater management plan, or cause significant environmental effects.

Operations

Proposed Plan project operations would be required to comply with applicable permit and lease conditions. Discharges from the project operations are expected to be limited to stormwater and would be in compliance with the applicable stormwater regulations, including the IGP for stormwater or the Long Beach MS4 permit, depending on applicability. Therefore, none of the project operations are expected to obstruct with implementation of a water quality control plan or groundwater management plan.

Use of the OHSPER site for managing sediments would be in accordance with the OMMP and Section 404 and 401 permits. Consequently, operation of the OHSPER project would comply with applicable local plans and all regulatory requirements and would not interfere with any water quality control plans.

As Proposed Plan project construction and operations and land use changes would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan, impacts would be less than significant. Therefore, no mitigation is required

Impact WQ-6: Construction and operations would not substantially alter water circulation or currents, or result in the long-term detrimental alteration of harbor circulation that would cause reduced water quality.

<u>Impact Determination</u>

Construction

Five of the Proposed Plan projects (Protective Boat Basin [Berth F202], Pier J Terminal Redevelopment, Pier S Shoreline Enhancement, Pier T Improvements, and Pier W Terminal Development) would require in-water construction, placement of fill in areas that are currently open water, and/or excavation (cuts) to create new open-water areas. Combined, the Proposed Plan projects would result in 245 acres of new fill (see Chapter 1, Introduction and Project Description). POLB is authorized by the State Tidelands Grant to create new lands to foster the orderly and necessary development of the Port. The permanent loss of aquatic habitat and function associated with net fill placement requires compensation through the creation or restoration of equivalent habitat. This is addressed through the POLB's Mitigation Bank (see Section 3.3, Biota and Habitats).

Placement of fill in an area that is currently open water would displace the water, such that circulation within the fill footprint would not occur. Creation of open-water areas by constructing cuts is not expected to have a substantial effect on circulation because the cut areas are within basins with limited circulation. Regardless, these cut and fill projects would not restrict tidal or wind driven surface flows along the main channels, which are the primary mechanisms for water circulation within the harbor (POLA and POLB 2009a, POLA and POLB 2009b). The effect of constructing a breakwater for the Protective Boat Basin (Berth F202) on the local water circulation within the boat basin would depend on the design of the breakwater and need to be evaluated after the project design has been completed. None of the Proposed Plan projects, individually or in combination, would have a substantial effect on harbor circulation to an extent that would cause stagnation and degradation of water quality conditions within the San Pedro Bay Harbor Complex.

Implementation of the OHSPER project would not require construction as the facility is already operable in its present configuration. Therefore, there is no risk that the OHSPER project would involve construction activities with the potential to impact water circulation in the harbor or cause significant environmental effects.

Operations

Five of the Proposed Plan projects (Protective Boat Basin [Berth F202], Pier J Terminal Redevelopment, Pier S Shoreline Enhancement, Pier T Improvements, and Pier W Terminal Development) would collectively require placement of 245 acres of fill in areas that are currently open water. The presence of fill would permanently eliminate surface water at those locations. Depending on the final design, the breakwater for the Protective Boat Basin (Berth F202) project could alter circulation within the immediate project area (i.e., inside the breakwater), but this would not have a substantial effect on circulation along the main shipping channels. The effect of a breakwater on circulation and water exchange within the Basin would be evaluated after the project design has been completed. Vessels berthed at a pier could also cause localized changes in water flow patterns, but these would be temporary and would not be expected to result in stagnation to an extent that water quality would be adversely affected.

Per the OMMP for the OHSPER project (Anchor QEA 2017b), the site will be used for sediment management until the seafloor elevations within the site match the surrounding grade (-45 and -50 feet MLLW). Consequently, operation of the OHSPER project will not result in formation of any topographic features that could affect circulation and mixing within the Outer Harbor, or result in degradation of water quality.

As Proposed Plan project construction and operations and land use changes would not substantially alter water circulation or currents, or result in the long-term detrimental alteration of harbor circulation that would cause reduced water quality, impacts would be less than significant. Therefore, no mitigation is required.

3.7.3.4 Alternative 1 (No Plan Alternative)

Alternative 1 (No Plan Alternative) considers what would reasonably occur if the Port did not update the PMP to include updates to the planning districts and allowable land and water use designations within the Harbor District. Alternative 1 includes projects that are 1) consistent with the 1990 PMP as amended, 2) may or may not have been evaluated in a final CEQA document, and/or 3) could be implemented without approval of the Proposed Plan. Alternative 1 includes the following projects: Administrative Building Site Support Yard (Expansion), Fourth Track at Ocean Boulevard, Ocean Boulevard Bicycle Gap Closure, Pier B Street Support Yard, Pier D Street Realignment, Pier S Mixed Use Development, and Pier S Shoreline Enhancement. This alternative also includes the Pier T Echo Support Yard project, which would construct a 17-acre support yard (chassis, empties, or peel-off) that would serve the Pier T container terminal. In addition, use of the WASSS would continue as currently permitted (i.e., placement and reuse of clean sediments).

<u>Impact Determination</u>

Impacts on hydrology and water quality from construction and operations of individual projects under Alternative 1 would be the same as for the Proposed Plan. However, because Alternative 1 would not include any of the container terminal development/redevelopment projects (e.g., Piers J, T, and W) or the Protective Boat Basin (Berth F202) project that are part of the Proposed Plan, there would be no potential for impacts on hydrology and water quality from construction or operation of these projects. Additionally, Alternative 1 would not require any fill. Overall, impacts on hydrology and water quality from Alternative 1 would be less than significant and no mitigation is required.

Under Alternative 1, continued use of the WASSS as currently permitted would result in similar potential for impacts on hydrology and water quality as those associated with the OHSPER project under the Proposed Plan. Impacts would be less than significant impacts and mitigation measures are not required.

3.7.3.5 Alternative 2 (No Terminal Development)

Alternative 2 (No Terminal Development) is similar to the Proposed Plan and would include updates to the planning districts and allowable land and water use designations in the Harbor District. However, Alternative 2 would not include terminal development projects at Pier T, Pier W, or Pier J. Alternative 2 would include the following projects: Administrative Building Site Support Yard (Expansion), Protective Boat Basin (Berth F202), OHSPER, Fourth Track at Ocean Boulevard, Ocean Boulevard Bicycle Gap Closure, Pier B Street Support Yard, Pier D Street Realignment, Pier T Echo Support Yard, Pier S Mixed Use Development, and Pier S Shoreline Enhancement.

<u>Impact Determination</u>

Impacts on hydrology and water quality from construction and operations of individual projects under Alternative 2 would be the same as for the Proposed Plan. However, because Alternative 2 would not include any of the container terminal development/redevelopment projects (e.g., Piers J, T, and W) that are part of the Proposed Plan; there would be no potential for impacts on hydrology and water quality from construction or operation of these projects.

The Protective Boat Basin (Berth F202) project would be the only Alternative 2 project that would require placement of fill in areas that are currently open water. This project is expected to result in 0.3 acre of fill associated with construction of a new breakwater. The effect of constructing a breakwater for this project on the local water circulation within the boat basin would depend on the design of the breakwater and would need to be evaluated after the project design has been completed. The Protective Boat Basin or any other fill associated with Alternative 2 projects would be independently evaluated and would require permits from USACE and the RWQCB. Compliance with these permits would further ensure that construction and operation of the project does not negatively impact water circulation.

Overall, impacts on hydrology and water quality from Alternative 2 would be less than significant and mitigation measures are not required.

3.7.3.6 Alternative 3 (Reduced Terminal Development)

Alternative 3 (Reduced Terminal Development) is similar to the Proposed Plan and would include updates to the planning districts and allowable land and water use designations in the Harbor District. Under Alternative 3, development of the Pier J terminal would be reduced compared to the Pier J Terminal Redevelopment under the Proposed Plan. The Pier J Reduced Development would include dredging and filling the 22-acre triangle, cutting a 9-acre notch, extending the north wharf to the east, and relocating the existing rail line and yard to Pier J South. No development of a new Pier W terminal would occur. Alternative 3 would include the following projects: Administrative Building Site Support Yard (Expansion), Protective Boat Basin (Berth F202), OHSPER, Fourth Track at Ocean Boulevard, Ocean Boulevard Bicycle Gap Closure, Pier B Street Support Yard, Pier D Street Realignment, Pier S Mixed Use Development, Pier S Shoreline Enhancement, Pier T Improvements, and Pier J Reduced Development.

Impact Determination

Impacts on hydrology and water quality from construction and operations of individual projects under Alternative 3 would be the same as for the Proposed Plan. However, because Alternative 3 would not include the Pier W terminal development project, and the Pier J terminal development project would be a reduced scale of the project that is part of the Proposed Plan, there would be a reduced potential for impacts on hydrology and water quality from construction or operation of these projects.

The Protective Boat Basin (Berth F202), Pier T Improvements, and Pier J Reduced Redevelopment projects would be the only Alternative 3 projects that would require placement of fill in areas that are currently open water. Combined, these projects would result in 92.3 acres of fill (see Chapter 1, Introduction and Project Description). The new land constructed for the Pier T and Pier J projects would displace water within the project footprints.

Overall, impacts on hydrology and water quality from Alternative 3 would be less than significant and mitigation measures are not required.

3.7.4 Cumulative Impacts

This section evaluates the potential for the Proposed Plan projects, together with other past, present, and reasonably foreseeable future projects, to make a cumulatively considerable contribution to a significant cumulative impact to hydrology and water quality. The geographic scope for cumulative impacts on hydrology and water quality varies depending on the impact. The geographic scope with respect to water and sediment quality and changes to the surface area of a water body would be open-water areas of the Harbor District and lands draining to that water body, because this water body represents receiving waters for construction and operation of the cumulative projects. The geographic scope for surface water movement includes a broader area consisting of the San Pedro Bay Harbor Complex because the federal breakwater shelters the two ports as a unit and water circulates within the San Pedro Bay Harbor Complex. The region of influence for cumulative impacts on groundwater is the West Coast Basin subdivision of the Los Angeles County Coastal Plain groundwater basin. The significance criteria used for the cumulative analysis are the same as those used for the Proposed Plan in Section 3.7.3.1 (Significance Criteria).

- **WQ-1: Violate any water quality regulatory standards or waste discharge requirements or otherwise substantially degrade surface water or groundwater quality.**

Water and sediment quality within the geographic scope are affected by activities within the Harbor District, inputs from the watershed, and effects from historical (legacy) inputs. As discussed in Section 3.7.1 (Environmental Setting), portions of the San Pedro Bay Harbor Complex are identified on the current 303(d) list as impaired for a variety of chemical and bacteriological stressors and effects on biological communities. For those stressors causing water quality impairments, TMDLs have been developed that specify load allocations from the individual input sources such that the cumulative loadings would be below levels expected to adversely affect water quality and beneficial uses of the water body. In the absence of restricted load allocations, the impairments would likely persist.

Present and reasonably foreseeable future projects with in-water construction components, such as dredging and pier upgrades, would result in temporary and localized effects on water quality that would be comparable to those associated with the proposed appealable/fill projects. Such changes to water quality associated with in-water construction for the related projects would be temporary in nature, with a duration less than or equal to the time during which in-water work was performed. Therefore, cumulative impacts may occur only if both the timeframe and geographic influences of concurrent projects overlapped.

Many projects, once operational, would result in stormwater discharges to the Harbor District. These discharges could contain chemical pollutants; however, discharges would be regulated by NPDES permits, and impacts on water quality from these discharges would be minimized to a level consistent with existing regulations and approved TMDLs for the constituents of concern. The permits specify constituent limits and/or mass emission rates that are intended to protect water quality and beneficial uses of receiving waters.

Cumulative projects associated with the development of POLB facilities are expected to contribute to a greater number of ship visits to the Port. Vessels entering the Port are expected to comply with existing regulations governing handling and discharges of various waste streams. However, increases in vessel traffic would be expected to result in higher mass loadings of contaminants such as copper that is released from vessel hull anti-fouling paints. Portions of the Harbor District are impaired with respect to copper; thus, increased loadings associated with increases in vessel traffic relative to baseline conditions would likely exacerbate water and sediment quality conditions for copper. In addition, with the increase in vessel traffic, the risk of accidental or illegal discharges could reasonably be expected to increase in proportion to the increased ship traffic. The significance of this increased loading related to these discharges would depend on the volumes and composition of the releases and the timing and effectiveness of spill response actions.

All discharges from the Proposed Plan projects would be governed by permit limits intended to ensure that discharges comply with water quality regulatory standards and would not degrade surface water or groundwater quality. Construction activities associated with the Proposed Plan projects, such as dredging, fill placement, and in-water construction, would cause suspension of sediments that could alter water quality parameters (e.g., DO, nutrients, and turbidity). These effects are generally of short duration, affect small localized areas that are usually not adjacent to each other during construction, and do not occur simultaneously for all projects. Cumulative impacts of such disturbances on water quality would be less than significant because the effects are dispersed in time and space and are not expected to exceed regulatory water quality standards. Furthermore, monitoring results indicate that water quality in the harbor has not been degraded even with continued developments over more than 10 years. In-water construction activities for the Proposed Plan projects would have less than significant impacts and would not make a cumulatively considerable contribution to effects on water quality.

Temporary disturbances on land during construction of cumulative project facilities could add a small amount of soils in runoff to harbor waters. Runoff from these projects, however, would not occur simultaneously, but rather spread over time so that construction-related runoff to harbor waters would be dispersed in time and space. Cumulative impacts would be less than significant due in part to this dispersal and also due to the small amount of land affected for each project and implementation of runoff control measures required in project permits, such as SWPPPs. Runoff during operation of the cumulative projects could change as industrial uses and the amount of paving change, but such changes would be small since most areas are already developed and would be merely redeveloped. Thus, cumulative impacts on water quality would be less than significant. Project backland upgrades and railyard construction and operation of these facilities would have less than significant impacts on water quality, and the project would not make a cumulatively considerable contribution to effects on water quality.

Therefore, water quality impacts from the Proposed Plan projects, including operation of the OHSPER site, would be less than cumulatively considerable. Because the Proposed Plan projects would not make a cumulatively considerable contribution to a significant cumulative impact, no mitigation is required.

- **WQ-2: Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.**

Construction of several of the Proposed Plan projects could encounter groundwater, requiring extraction for dewatering. Individually, and cumulatively with the Proposed Plan projects, the amount of water that would be extracted from the groundwater basin would be negligible. Related projects could result in coverage of currently permeable surfaces with impermeable surfaces, which could have a minor cumulative effect on groundwater recharge. However, this small change in recharge potential would be offset by incorporation of LID designs into new projects in accordance with the POLB's Stormwater Design Manual.

Therefore, impacts from the Proposed Plan projects, including operation of the OHSPER site, would be less than cumulatively considerable. The Proposed Plan projects would not make a cumulatively considerable contribution to a significant cumulative impact.

- **WQ-3: Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces in a manner that would: result in substantial erosion or siltation on or off site; substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or off site; create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial sources of polluted runoff; or impede or redirect flood flows.**

A large number of the related projects could involve construction that would require some amount of disturbance to existing surface conditions, resulting in slight changes to drainage patterns. Similarly, several of the Proposed Plan projects would involve construction that could include excavation of soil and regrading that could affect drainage patterns. All Proposed Plan and related projects would be subject to the conditions and requirements of the stormwater permit that are designed to minimize impacts of construction on stormwater flows. Any changes to drainage patterns and runoff volumes would be minor and largely confined to the project site. Thus, the Proposed Plan projects would not contribute to changes to regional or watershed drainage systems with the potential for altering risks of flooding or siltation.

Therefore, water quality impacts from the Proposed Plan projects, including operation of the OHSPER site, would be less than cumulatively considerable. Because the Proposed Plan projects would not make a cumulatively considerable contribution to a significant cumulative impact, no mitigation is required.

- **WQ-4: In flood hazard, tsunami, or seiche zones, risk releases of pollutants due to project inundation.**

The risk of tsunamis or seiches is a part of any ocean-shore interface, and berth infrastructure, cargo/containers, and tanker vessels are subject to some risk of damage from wave run-up. Designing new facilities based on existing building codes and incorporation of emergency planning in accordance with current state and city regulations would prevent substantial damage to structures from coastal flooding. In addition, the Tsunami Hazard Assessment for the Port of Long Beach and Port of Los Angeles (Moffatt & Nichol 2007c) concluded that tsunami-generating earthquakes and landslides are very infrequent. The most likely, worst-case, tsunami scenario was based partially on a 7.6 magnitude earthquake on the offshore Santa Catalina Fault with a recurrence interval of about 10,000 years. Based on this assessment, the chances of a large tsunami during the planning period are very low.

Past, present, and reasonably foreseeable future projects would not change the frequency of or exacerbate the risk associated with tsunamis or seiches. However, past projects have resulted in the backfilling of natural drainages and creation of new low-lying land areas, which are subject to inundation by tsunamis or seiches. In addition, past development has increased the amount of infrastructure, structural improvements, and the number of people working on site in the San Pedro Bay Port Complex. This past development has placed commercial and industrial structures and their occupants in areas that are potentially susceptible to tsunamis and seiches. However, similar to the Proposed Plan projects, related projects that are designed in accordance with existing building codes and operated in accordance with existing regulations and Port requirements (e.g., Port Tariff Number 4) would not exacerbate the risk of pollutant releases from a flood, tsunami, or seiche event.

Therefore, impacts from the Proposed Plan projects, including operation of the OHSPER site, would be less than cumulatively considerable. Because the Proposed Plan projects would not make a cumulatively considerable contribution to a significant cumulative impact, no mitigation is required.

- **WQ-5: Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.**

Any new development required for the related projects will require permits covering construction activities and operations. In general, compliance with the permits and applicable plans will ensure that projects will not conflict with water quality control plans or groundwater management plans. None of the construction activities or operations associated with the Proposed Plan projects are expected to conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. Therefore, impacts from the Proposed Plan projects, including operation of the OHSPER site, would be less than cumulatively considerable. Because the Proposed Plan projects would not make a cumulatively considerable contribution to a significant cumulative impact, no mitigation is required.

- **WQ-6: Substantially alter water circulation or currents, or result in the long-term detrimental alteration of harbor circulation that would cause reduced water quality.**

The San Pedro Bay Harbor Complex has been highly modified by past dredging, filling, and shoreline development in support of maritime operations. The increasing demand of shipping needs, especially with the advent of containerized shipping and growing vessel sizes, has necessitated continued capital improvements of the Port including channel deepening, terminal expansion, and wharf replacement.

The Proposed Plan projects would result in placement of 245 acres of fill. Construction activities associated with these projects would not result in permanent adverse changes in surface water movement because they would not create any barriers to water movement or promote stagnation or other flow modifications that could result in adverse impacts on marine water quality. Long-term changes to water flow patterns in the San Pedro Bay Harbor Complex related to operation of the projects would be minor because the footprints of the cut and fill areas would be small relative to the overall surface water area.

Related past, present, and future projects identified in Table 2.1-1 that could increase or decrease the surface area or volume of the San Pedro Bay Harbor Complex include: Pier G Terminal Redevelopment (#1), Port of Long Beach Deep Draft Navigation Feasibility Study and Channel Deepening Project (#10), Long Beach Cruise Terminal Improvements (#13), Berths 212–224

(Yusen Terminals Inc.) Container Terminal Improvements (#30), and Berth 164 [Valero] Marine Oil Terminal Wharf Improvements (#40). These projects have a minor potential for impacts because they would result in only localized and small changes in surface area or volume of open water, and this would not substantially alter water circulation patterns because the areas to be filled are small, generally in dead-end slips, and scattered throughout the San Pedro Bay Harbor Complex.

Therefore, impacts from the Proposed Plan projects, including operation of the OHSPER site, would be less than cumulatively considerable. Because the Proposed Plan projects would not make a cumulatively considerable contribution to a significant cumulative impact, no mitigation is required.

3.7.5 Mitigation Monitoring Program

As no mitigation measures are required to address impacts on hydrology and water quality, no mitigation monitoring program is required.

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3.8 LAND USE

This section describes the potential impacts on land use that could result from implementation of the Proposed Plan and its alternatives.

3.8.1 Environmental Setting

3.8.1.1 Area of Influence

The area of influence for land use includes the Harbor District and extends to adjacent properties that would be assessed in terms of their compatibility with the intensification of Port uses within the Harbor District.

3.8.1.2 Setting

The Port includes diverse land uses that support various maritime-related activities within the Harbor District. Port operations are predominantly related to cargo shipping activities including general cargo (i.e., containerized, break bulk, neo bulk, and Ro/Ro), dry bulk, and liquid bulk. The Port also supports oil and gas production; light manufacturing and industry; recreational destinations; and commercial operations including sport fishing, hotels, retail shops, and a public boat launch.

To facilitate land use planning within the Harbor District, the 1990 PMP as amended defines planning districts, which are geographic areas generally bound by major landmarks such as transportation corridors or navigational channels. The function of these planning districts is to organize land uses throughout the Harbor District and to promote land use compatibility among existing and new uses. Within each planning district, permitted land uses and water uses are defined based on the planning goals for the district. The 1990 PMP as amended divides the Port into 10 planning districts (Figure 1.2-2) and allows a variety of land uses within each district. The existing permitted land and water uses for each planning district is summarized in Table 3.8-1. Existing land and water use definitions are summarized in Table 3.8-2.

TABLE 3.8-1. 1990 PMP AS AMENDED PLANNING DISTRICTS AND PERMITTED USES

Planning District	Permitted Uses
1 - North Harbor	Port-Related Industries and Facilities, Non-Port Related Areas
2 - Northeast Harbor	Primary Port Facilities, Ancillary Port Facilities, Oil and Gas Production, Utilities
3 - Northwest Harbor	Primary Port Facilities, Ancillary Port Facilities, Oil and Gas Production, Utilities
4 - Terminal Island	Primary Port Facilities, Port-Related Industries and Facilities, Ancillary Port Facilities, Hazardous Cargo Facilities, Navigation, Oil and Gas Production
5 - Middle Harbor	Primary Port Facilities, Port-Related Industries and Facilities, Ancillary Port Facilities, Oil and Gas Production
6 - Southwest Harbor	Anchorage Area, Primary Port Facilities, Ancillary Port Facilities, Hazardous Cargo Facilities
7 - Navigation	Navigation
8 - Southeast Harbor	Primary Port Facilities, Port-Related Industries and Facilities, Ancillary Port Facilities, Oil and Gas Production
9 - Queensway Bay	Commercial/Recreational Facilities, Primary Port Facilities, Ancillary Port Facilities, Oil and Gas Production
10 - Outer Harbor	Navigation, Maneuvering

Source: (POLB 1990)
Key: PMP = Port Master Plan

TABLE 3.8-2. 1990 PMP AS AMENDED LAND AND WATER USE DEFINITIONS

Existing Use	Description
Land Use	
Primary Port Facilities	Areas primarily dependent on access to water frontage. Typically include ship loading/unloading facilities, transshipment warehouses, stevedoring operations, open storage and transfer areas for cargo, industrial operations primarily engaged in the shipment of goods and raw materials, and cruise ship facilities.
Ancillary Port Facilities	Water dependent areas other than those included as Primary Port Facilities. Typical Ancillary Port Facilities include shipbuilding and repair; towboat and salvage operations; bunker barge loading; sport fishing launching; marine research; USCG operations; marine-oriented fire protection; storage of equipment for dredging and waterfront construction; mobilization area for offshore platform crews or oil spill cleanup operations; and improved harbor maintenance facilities.
Port-Related Industries and Facilities	Areas that do not require access to berthing facilities or water frontage, but are heavily dependent on Primary Port operations. This dependency necessitates the siting of Port-Related uses within the Harbor District. Port-Related uses include warehousing; distribution centers; container storage; railroad facilities; container freight stations; ship chandlers; offices of public agencies involved in Port activities; and processing operations whose projects or raw materials normally move through the Port.
Hazardous Cargo Facilities	Operations and terminals engaged in the loading/unloading, storage, and transfer of crude and bulk refined petroleum products and chemicals with a National Fire Protection Association rating of 2 or greater. These facilities are normally included in Primary Port operations, but because of the hazardous nature of the cargoes and the fact that these projects constitute a significant portion of Port tonnage, they have been categorized separately.
Commercial/Recreational Facilities	Those areas primarily serving the general public, such as water-oriented parks, sightseeing, sport fishing areas, water skiing areas, restaurants, hotels, curio shops, marinas, boat sales and manufacturing, charter boat operations, tackle shops, and other special tourist attractions such as the Queen Mary.
Utilities	Areas utilized for surface installations and rights-of-way of public utilities. These uses can and will occur in conjunction with other Port land uses. Utilities include storm drain, gas, water, electrical, sewage, telephone, waste handling, resource recovery, bunkering, and oil transmission systems.
Oil and Gas Production	Areas utilized for oil and gas production, tankage and processing plants, drilling sites, and water injection wells. Major installations and multiple wells may exist in other land use areas. These areas will exist in the Port until such time as the oil and gas resources have been depleted or have become uneconomical to produce.
Non-Port Related Areas	Those portions of the Harbor District that are devoted to activities other than Port-Related, Primary Port, etc. These areas include light industry, commercial businesses, auto salvage, and repair shops.
Federal Use	Areas occupied for various activities such as shipyard and dry-dock operations; U.S. Navy base and support operations; reserved vessel storage for the Navy; and use by USCG and/or other federal agencies.

TABLE 3.8-2. 1990 PMP AS AMENDED LAND AND WATER USE DEFINITIONS

Existing Use	Description
Water Use	
Anchorage Areas	These designations are based on the following anchorage assignment categories: 1) 24-hour limited stay; 2) commercial and recreational anchorage with no bunkering or lightering activities; 3) anchorage for lightering and bunkering; 4) deep draft anchorage with 48-hour limit; 5) anchorage for vessels with a draft over 40 feet and/or 800 feet in length; 6) explosive anchorage; and 7) anchorage for vessels outside the breakwater. The Anchorage Areas outside the Harbor District are important to Port operations, but due to governmental restrictions, the federal government has jurisdictional responsibilities over these areas.
Maneuvering Areas	Water areas needed for handling, turning, and maneuvering of vessels either entering or leaving the Port. Sufficient turning basins must be available to enable a vessel to be turned completely around. Typically, a maneuvering basin will service a group of berths.
Navigable Corridors	Includes all channels used for the movement of vessels into and out of the Port. The main Navigable Corridors include the Long Beach Main Channel, Back Channel, Cerritos Channel, and Channels No. Two and Three.
Recreational/Sport Fishing	Open and sheltered water areas that are used predominately for recreational and sport fishing activities and those facilities in the Port that service these uses. The Queensway Bay and Outer Harbor Planning Districts are typically used in this manner.

Source: (POLB 1990)
Key: Harbor District = Long Beach Harbor District; PMP = Port Master Plan; Port = Port of Long Beach; U.S. = United States; USCG = U.S. Coast Guard

(1990 PMP) Planning District 1 (North Harbor)

Planning District 1 (North Harbor) is located in the northern portion of the Port and bordered by Anaheim Street to the north, Planning District 9 (Queensway Bay) to the east, and Planning District 2 (Northeast Harbor) to the west and south. This district consists of numerous small, Port-owned and privately owned land parcels that are devoted to Port-Related and Non-Port Related uses. The only permitted Non-Port Related use is for a homeless services center. The district has no water frontage. Existing permitted uses include Port-Related Industries and Facilities and Non-Port Related Areas. There are no Primary Port uses in Planning District 1.

(1990 PMP) Planning District 2 (Northeast Harbor)

Planning District 2 (Northeast Harbor) is bordered by the City of Long Beach–City of Los Angeles boundary and Planning District 1 (North Harbor) to the north, Planning District 9 (Queensway Bay) to the east, Planning District 5 (Middle Harbor) to the south, and Planning District 3 (Northwest Harbor) and Planning District 4 (Terminal Island) to the west. Existing permitted uses include Primary Port Facilities, Ancillary Port Facilities, Oil and Gas Production, and Utilities. Primary Port uses within this district include petroleum cargo, dry bulk cargo, automobile storage and distribution, and Pacific Harbor Line on-dock rail support facilities on Pier B; SSA Terminals/Matson operations on Pier C; and bulk operations and warehousing operations on Pier D.

(1990 PMP) Planning District 3 (Northwest Harbor)

Planning District 3 (Northwest Harbor) is located in the northwestern portion of the Port and bordered by the City of Los Angeles–City of Long Beach boundary to the north, Planning District 2

(Northeast Harbor) to the east, Cerritos Channel to the south, and Commodore Schuyler Heim Bridge and Badger Bridge to the west. There is privately owned and Port-owned land within this district as well as SR-47, a public right-of-way. Existing permitted uses include Primary Port Facilities, Ancillary Port Facilities, Utilities, and Oil and Gas Production. Primary Port uses within this district include container terminal operations at Pier A (Berths A88–A96).

(1990 PMP) Planning District 4 (Terminal Island)

Planning District 4 (Terminal Island) is the oldest part of the harbor and comprises the former U.S. Naval Station. This district is bordered by the Cerritos Channel to the north, the Main Channel to the east, the U.S. Navy Mole property to the south, and the City of Long Beach–City of Los Angeles boundary to the west. This district contains privately owned, Port-owned, and federal land. Existing permitted uses include Primary Port Facilities, Port-Related Industries and Facilities, Hazardous Cargo Facilities, Ancillary Port Facilities, Federal Use, Non-Port Related Areas, Oil and Gas Production, Utilities, and Navigable Corridor. Primary Port uses within this district include container terminal operations, a liquid bulk facility, a scrap metal export facility, and a lumber terminal.

The Cerritos Channel crosses the northern portion of the district. The northwest portion of the district is devoted primarily to oil and gas production with the exception of the small-scale manufacturing of pleasure boats at Berth 99 and Vopak Long Beach Terminal adjacent to Berth 101. Recreational uses include pleasure boat marinas at Berths 99–100 and across the Cerritos Channel at Berth 98. The City of Long Beach operates the SERRF, representing a “trash to energy” facility in the northwestern portion of the district.

(1990 PMP) Planning District 5 (Middle Harbor)

Planning District 5 (Middle Harbor) is bordered by the Gerald Desmond Bridge and Ocean Boulevard to the north, Harbor Scenic Drive and the Los Angeles Flood Control District to the east, Pier F Avenue to the south, and the Main Channel to the east. This district is located within the highly industrialized inner Port complex. Existing permitted uses include Primary Port Facilities, Port-Related Industries and Facilities, Ancillary Port Facilities, and Oil and Gas Production. Primary Port uses within this district include the Middle Harbor container terminal and Pier D dry bulk (cement) terminal.

(1990 PMP) Planning District 6 (Southwest Harbor)

Planning District 6 (Southwest Harbor) is an open-water area bordered by the Navy Mole property to the north, Planning District 7 (Navigation) to the east, the Harbor District boundary to the south, and the City of Los Angeles–City of Long Beach boundary to the west. Existing permitted uses include Anchorage Areas, Primary Port Facilities, Ancillary Port Facilities, and Hazardous Cargo Facilities. There are no Primary Port uses in Planning District 6.

(1990 PMP) Planning District 7 (Navigation)

Planning District 7 (Navigation) is an open-water area that is bordered by Berths 122 and 123 to the north; Planning Districts 5 (Middle Harbor), 8 (Southeast), and 10 (Outer Harbor) to the east; open waters outside the federal breakwater and Queens Gate to the south; and Planning Districts 4 (Terminal Island) and 6 (Southwest Harbor) to the west. This district contains the Main Channel that connects Queens Gate to other portions of the harbor. The Main Channel provides direct deep draft access to the Southeast Basin, Middle Harbor, West Basin, and Outer Harbor.

The existing permitted use is Navigable Corridor. There are no Primary Port uses in Planning District 7.

(1990 PMP) Planning District 8 (Southeast Harbor)

Planning District 8 (Southeast Harbor) is located within the inner Port complex. This district is bordered by Planning District 5 (Middle Harbor) to the north, Planning District 9 (Queensway Bay) to the east, Planning District 10 (Outer Harbor) to the south, and Planning District 7 (Navigation) to the west. Existing permitted uses include Primary Port Facilities, Port-Related Industries and Facilities, Ancillary Port Facilities, and Oil and Gas Production. Primary Port uses within this district include Piers G and J container terminal operations, Pier F break bulk (automobiles and heavy equipment), liquid bulk (crude oil), and Pier F dry bulk (cement and salt) terminals.

(1990 PMP) Planning District 9 (Queensway Bay)

Planning District 9 (Queensway Bay) is located in the eastern portion of the Port and bordered by Anaheim Street to the north, Queensway Bay to the east, Planning District 8 (Southeast Harbor) to the south, and the Los Angeles County Flood Control Channel and Harbor Scenic Drive to the west. This district provides visitor-serving commercial and recreational uses such as the Queen Mary, Carnival Cruise Terminal, hotels, and restaurants. Existing permitted uses include Commercial/Recreational Facilities, Primary Port Facilities, Ancillary Port Facilities, and Oil and Gas Production. There are no Primary Port uses in Planning District 9.

(1990 PMP) Planning District 10 (Outer Harbor)

Planning District 10 (Outer Harbor) is an open-water area that is bordered by Pier J to the north, the Harbor District boundary (open water) to the east and south, and Planning District 7 (Navigation) to the west. Existing permitted uses include Navigation and Maneuvering. There are no Primary Port uses in Planning District 10.

3.8.2 Regulatory Setting

Land use planning and development within the Port and its vicinity are governed by federal, state, and local regulations, as described in the following subsections.

3.8.2.1 Federal Regulations

Coastal Zone Management Act

In 1972, the U.S. Congress passed the CZMA to “preserve, protect, develop, and where possible, to restore or enhance, the resources of the nation’s coastal zone for this and succeeding generations” and “encourage and assist the states to exercise effectively their responsibilities in the coastal zone through the development and implementation of management programs to achieve wise use of the land and water resources of the coastal zone” (16 U.S.C. 1452 Section 303[1] and [2]).

The major focus of the CZMA is to assist states in the development and implementation of management programs for coastal zone land and water resources, giving full consideration to ecological, cultural, historic, and aesthetic values as well as to the needs of economic development. The CZMA establishes a “federal consistency” review process whereby each federal agency conducting or supporting activities directly affecting the coastal zone must conduct or support activities in a manner consistent with, to the maximum extent practicable, the Coastal

Zone Management Program. The Coastal Zone Management Program is the means for coordinating all coastal activities.

As provided under the CZMA, determinations of federal consistency review with the Coastal Zone Management Program are made by the federal agency (or applicant for a federal license or permit) and submitted to the state for review and concurrence or disagreement. Under the Coastal Zone Management Program, that final decision does not rest with the local government with an adopted PMP or Local Coastal Program, but rather with the CCC. The CCA (rather than the PMP or Local Coastal Program) is the legal standard upon which the CCC's decision regarding federal consistency will be based. However, the Port may participate in an advisory capacity.

3.8.2.2 State Regulations

California Tidelands Trust Act

The CSLC has authority over California's granted public trust lands and ungranted public trust lands (i.e., tidelands, submerged lands, and navigable waters). The Tidelands Trust also conveyed public trust lands, in trust, to several cities, counties, and governmental agencies, including the five major ports. Pursuant to the Tidelands Trust, state and local tidelands grantees are administrators of their respective public trust lands and are required to manage tidelands in a manner that is consistent with the Public Trust Doctrine. According to the Tidelands Trust, public trust uses are generally limited to water dependent activities, including commerce, fisheries, navigation, ecological preservation, and recreation.

The Port is operated under legal mandates of the Tidelands Trust, 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. According to the Tidelands Trust, Port-Related 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 1990 PMP as amended provides the official planning policies, consistent with the Public Trust Doctrine, for the physical development of the tidelands and submerged lands conveyed and granted in trust to the Port.

California Coastal Act

The CCA of 1976 (PRC Division 20, Section 30700 et seq.) was enacted to establish policies and guidelines that provide direction for the conservation and development of the California coastline. The CCA established policies, the coastal zone boundary, and different permitting procedures for projects within the coastal zone. Pursuant to PRC Section 30608, development prior to the effective date of the CCA (January 1, 1977) and that was previously permitted under the 1972 California Coastal Zone Conservation Act can be maintained and operated as previously permitted or existing. The CCA established the CCC and created a state and local government partnership to ensure that public concerns regarding coastal development are addressed. The following are the basic goals for the coastal zone:

- Protect, maintain, and where feasible, enhance and restore the overall quality of the coastal zone environment and its natural and artificial resources;
- Assure orderly, balanced utilization and conservation of coastal zone resources taking into account the social and economic needs of the people of the state;

- Maximize public access to and along the coast and maximize public recreational opportunities in the coastal zone consistent with sound resources, conservation principles, and constitutionally protected rights of private property owners;
- Assure priority for coastal dependent and coastal-related development over other development on the coast; and
- Encourage state and local initiatives and cooperation in preparing procedures to implement coordinated planning and development for mutually beneficial uses, including educational uses, in the coastal zone (PRC Division 20, Section 30001.5).

Chapter 8 (Ports) of the CCA establishes specific planning and regulatory procedures for California's “commercial ports.” The act requires that a CDP be obtained from the CCC for certain development within these ports. However, a commercial port is granted the authority to issue its own CDPs once it completes a master plan certified by the CCC. The standards for master plans, contained in Chapter 8 of the CCA, require environmental protection while expressing a preference for port-dependent projects. Additionally, PRC Section 30700 establishes the number and locations of California ports. This section of the CCA encourages existing ports to modernize and construct necessary facilities within their boundaries in order to minimize or eliminate the necessity for future dredging to create new ports. The logic behind this process is that it is environmentally and economically preferable to locate major shipping terminals and other existing maritime facilities in the major ports rather than create new ports in new areas of the state. Each commercial port in California has a certified PMP that identifies acceptable development uses. If a port desires to conduct or permit developments that are not consistent with the approved PMP, the port must apply for an amendment to the PMP.

The CCA identifies the Port and its facilities as “primary economic and coastal resources of the state, and an essential element of the national maritime industry” (PRC Section 30701). Existing ports are encouraged to modernize and construct necessary facilities to accommodate deep-draft vessels, considering the needs of waterborne commerce and other traditional and water-dependent and water-related facilities, to avoid the need to develop new ports elsewhere in the state (PRC Sections 30007.5 and 30701 [b]). The CCA also establishes that the highest priority for any water or land area use within the jurisdiction of the BHC shall be for developments that are completely dependent on such harbor water areas and/or harbor land areas for their operations (Sections 30001.5[d], 30255, and 31260). The CCA further provides that ports should “[g]ive highest priority to the use of existing land space within harbors for port purposes, including, but not limited to, navigational facilities, shipping industries, and necessary support and access facilities (Section 30708[c]).”

Under the CCA, water areas may be diked, filled, or dredged when consistent with a certified PMP only for specific purposes, including: 1) construction, deepening, widening, lengthening, or maintenance of ship channel approaches, ship channels, turning basins, berthing areas, and facilities that are required for the safety and the accommodation of commerce and vessels to be served by port facilities; and 2) new or expanded facilities or waterfront land for Port-Related facilities.

In 1978, the CCC certified the Port’s PMP as being in conformance with the policies of Chapter 8 (Ports) of the CCA. PMP amendments certified by the CCC since 1978 are listed in Table 1.2-6. The amendments range from specific projects and programs to comprehensive updates of the PMP. Comprehensive updates to the PMP occurred with Amendment 3 (1983) and Amendment 6 (1990).

3.8.2.3 Local Regulations

Port of Long Beach Master Plan

The Port's PMP is a long-range planning tool to guide future development of the Port and clarify the goals and objectives of the 10 planning districts within the Harbor District. The long-range planning goals and objectives for the Port are essential for developing policies involving future Port development and expansion. These planning goals are intended to be general to maintain flexibility and respond to Port tenant needs. The six long-range planning goals and associated objectives in the 1990 PMP as amended are described below (POLB 1990).

- **Goal 1:** Consolidate similar and compatible land and water areas
- **Goal 2:** Encourage maximum utilization of facilities
- **Goal 3:** Improve internal circulation involving roadways and rail
- **Goal 4:** Provide for the safe cargo handling and movement of vessels within the Port
- **Goal 5:** Develop land for Primary Port Facilities and Port-Related uses
- **Goal 6:** Protect, maintain, and enhance the overall quality of the coastal environment

Port of Long Beach Strategic Plan (2019)

In March 2006, the Port published its first strategic plan in more than two decades. The 2006 plan articulated a vision for the Port for the decade spanning 2006 to 2016. In 2009, in the heart of the Great Recession, the 2006 Plan was updated to reflect the ongoing changes in the Port's operating environment. The Port updated the Strategic Plan in 2016 and again in 2017. The Fiscal Year 2017 Strategic Plan reflects the evolving priorities and overarching goals driven by the continued operating challenges of bigger ships and the transition in the Port's executive leadership. The 2016 Strategic Plan update followed a shift to bigger ships whereas the 2017 Strategic Plan committed the Port to enhancing financial strength and market share growth.

The 2019 Strategic Plan builds on the Port's visionary investments that position it for success as ocean carriers continue to transition to fleets of ever larger ships, while expanding the Port's toolkit to provide operational excellence and, at the same time, meeting the ambitious goals set in the 2017 CAAP Update. The Strategic Plan outlines the Port's priorities for enhancing competitiveness, financial strength, and sustainability while also broadening economic benefits and support to the community and beyond.

The Strategic Plan guides the Port's priorities based on the Port's vision, mission, and core values. To realize the vision for the future, six strategic goals have been defined (POLB 2019a):

- Strengthen the Port's competitive position through secure and efficient movement of cargo while providing outstanding customer service;
- Maintain financial strength and security of assets;
- Develop and maintain state-of-the-art infrastructure that enhances productivity and efficiency in goods movement;
- Improve the environment through sustainable practices and the reduction of environmental impacts from Port operations and development;
- Broaden community access to Port-related opportunities and economic benefits; and
- Attract, develop, and retain a diverse, high-performing workforce.

City of Long Beach General Plan

The City of Long Beach General Plan sets forth the goals, policies, and directions the City will take in managing its future. The General Plan is the citizens' "blueprint" for development and guiding the City's vision. California law requires each local government to adopt a local General Plan, which must contain at least seven elements: Land Use, Transportation, Housing, Conservation, Noise, Open Space, and Safety. The City's General Plan also includes three optional elements: Air Quality, Scenic Routes, and Seismic Safety. Most recently, the City adopted updates to the Mobility Element in 2013 and is currently working on updates to the Land Use Element and creation of an Urban Design Element, anticipated to be completed in 2019.

The General Plan Land Use Element identifies the long-term planning and development framework for the City's existing and planned land uses. The Harbor District is located within Land Use District Twelve, which accommodates Port-Related industrial uses. These industrial uses contain a wide variety of activities, including shipping, open and closed storage, warehousing, transportation, and oil recovery (City of Long Beach 1989). As stipulated in the City of Long Beach General Plan, the 1990 PMP as amended is intended to serve as the official guide to the continued development and operation of the Port and is consistent with the City's General Plan land use designations. The General Plan indicates that the responsibilities for planning within legal boundaries of the Harbor District lie with the BHC.

The General Plan Mobility Element is a policy document that identifies traffic, mobility of people, movement of goods, and management of resources in the City. The element identifies transportation goals and objectives, assesses future needs, evaluates alternative solutions, establishes policies for future improvements, and outlines actions to be implemented. The Mobility Element describes the general location and extent of existing and proposed major thoroughfares, transportation routes, terminals, ports, and other local public utilities and facilities. The Mobility Element provides the framework for future transportation construction and management programs addressing specifically the movement of goods by cargo ships, Port facilities, rail, trucks, and airplanes.

City of Long Beach Zoning Ordinance

The City of Long Beach Zoning Ordinance (Title 21 of the Municipal Code), in conformance with the City of Long Beach General Plan, regulates land use development within the city limits. The ordinance specifies the permitted and prohibited uses and development standards (e.g., setbacks, heights, and parking and design standards) within each of the City's 30 Zoning Districts. The City of Long Beach Zoning Ordinance also includes several special districts including one Specific Plan District and 32 Planned Development Districts. A Specific Plan District establishes more specific land use regulations and design standards for properties and areas requiring special attention or treatment. Planned Development Districts are more comprehensive than zoning districts and are intended to achieve a specific outcome in a geographic area.

Lands within the Harbor District are zoned as IP or Queensway Bay Planned Development District (PD-21). The IP zone is characterized predominantly by maritime industry and marine resources. Uses in this district are primarily Port-Related or water dependent, but may include water-oriented commercial and recreational facilities. The Queensway Bay Planned Development District (PD-21) is zoned to create a visitor-serving destination for recreational and commercial users. The Queen Mary is a focal point for existing and future developments, educational programs, public displays, and other visitor-serving uses. Future development in Queensway Bay (Pier H) is guided by PD-21. The PMP concentrates public access, recreation, and commercial activities within Queensway Bay by supporting revitalization of the area and promoting recreational and tourist activities.

Existing nonconforming uses and structures within the Harbor District can be maintained and repaired, but not expanded with the exception of uses permitted by a conditional use permit (Zoning Ordinance Chapter 21.27).

3.8.3 Impacts and Mitigation Measures

3.8.3.1 Significance Criteria

Criteria for determining the significance of impacts on land use are based on the 2019 CEQA Guidelines, Appendix G (Environmental Checklist), and have been modified as necessary to reflect Port operations within a highly urbanized, industrial complex. Impacts during construction or operation would be considered significant if the Proposed Plan would:

- **LU-1:** Conflict with any applicable land use plan, policy, or regulation of any agency with jurisdiction over the Proposed Plan adopted for the purpose of avoiding or mitigating an environmental effect;
- **LU-2:** Introduce uses or activities incompatible with existing and future land uses; and/or
- **LU-3:** Physically divide an established community.

3.8.3.2 Assessment Methodology

This analysis evaluates the consistency or compliance of the Proposed Plan with adopted plans and policies governing land use and development at the Port. Land use plans with policies applicable to the Proposed Plan were evaluated, including the CZMA, CCA, City of Long Beach General Plan, City of Long Beach Zoning Ordinance, and plans prepared by other agencies with jurisdiction over areas in which the Proposed Plan could create a land use impact.

The land use analysis also evaluates the potential for the Proposed Plan to introduce incompatible land uses relative to existing surrounding land uses or activities. This analysis includes an evaluation of the extent to which off-site land uses potentially would be affected by Proposed Plan-related physical interruption or disruption, or the extent to which other Proposed Plan-related environmental impacts would also constitute land use impacts.

3.8.3.3 Proposed Plan

Impact LU-1: The Proposed Plan would be consistent with applicable land use plans, policies, and regulations adopted for the purpose of avoiding or mitigating an environmental effect.

<u>Impact Determination</u>

CCA Compliance

Proposed Plan Updates

The Proposed Plan includes a number of changes from the 1990 PMP as amended related to the number and configuration of planning districts and land and water use designations for the planning districts. The Proposed Plan proposes to reduce the number of planning districts from ten to seven and modify the boundaries of some individual planning districts (Figure 3.8-1).

1990 PMP as Amended Planning Districts

Proposed PMP Update Planning Districts

Figure 3.8-1. Comparison of Existing and Proposed Planning Districts

The Proposed Plan would also consolidate the existing planning districts based on current and projected land uses. The proposed planning district changes would support the Proposed Plan goal of prioritizing container uses in the Outer Harbor (Planning Districts 4 through 7) and non-container uses in the Inner Harbor (Planning Districts 1, 2, and 3).

The Proposed Plan adds new land and water use designations to planning districts to accommodate the proposed changes in the district boundaries, recognize legacy land uses within the districts, and enable planning for future use of Port lands (Table 3.8-3 and Table 3.8-4). For example, the Oil and Gas Production Facilities land use designation was added to Planning District 1 to recognize that oil and gas production outside of oil operating areas is an existing land use within this planning district. The Hazardous Cargo Facilities and Renewable Energy Resources designations were added to Planning District 3 to recognize legacy land uses within the planning district, including existing petroleum and chemical transfer facilities, a tank farm on the Plains West Coast Terminal, and the SERRF. In addition, the Proposed Plan adds the Institutional Facilities designation to Planning District 7 to recognize legacy land uses related to public facilities, education, and marine research areas. The proposed land and water use designations are consistent with CCA policies that encourage existing ports to modernize and construct as necessary to minimize and/or eliminate the need for the creation of new ports and locate coastal dependent industrial facilities within existing sites whenever possible.

TABLE 3.8-3. EXISTING AND PROPOSED LAND AND WATER USE DESIGNATIONS

1990 PMP As Amended Use Category	Proposed Plan Use Category	Comments
	Land Use	
Primary Port Facilities	Primary Port Facilities	No change.
Hazardous Cargo Facilities	Hazardous Cargo Facilities	No change.
Port-Related Industries and Facilities	Port-Related Facilities	This category has been renamed to eliminate reference to industries.
Ancillary Port Facilities	Maritime Support Facilities	This category has been renamed to specify water dependent facilities.
Commercial/Recreational Facilities	Visitor-Serving Commercial Facilities	This category has been divided into two new categories: one for commercial uses for the general public, and one that includes non-commercial general public areas such as parks and waterfront access.
	Recreational Open Space Facilities	
Non-Port Related Areas	Institutional Facilities	This category consolidates Non-Port Related Areas and Federal Use into a new category that includes activities associated with federal, state, regional, and local public agencies.
Federal Use		
Oil and Gas Production	Oil and Gas Production Facilities	This category has been renamed to specify facilities for production of oil and gas.
Utilities	Utilities	This category has been redefined to include only major utility facilities for electricity generation, water treatment, gas, telecommunications, resource recovery, waste handling, and rights-of-way dedicated for utilities.
N/A[1]	Renewable Energy Resources	This is a new category that includes areas utilized for power generation from renewable sources.

TABLE 3.8-3. EXISTING AND PROPOSED LAND AND WATER USE DESIGNATIONS		
1990 PMP As Amended Use Category	**Proposed Plan Use Category**	**Comments**
N/A[1]	Environmental Protection	This is a new category that includes areas reserved for environmental restoration and protection.
Water Use		
Anchorage Areas	Anchorage Areas	No change.
Navigable Corridor	Navigable Corridor	No change.
Maneuvering Areas	Maneuvering and Berthing	This category was revised to specify the use of berthing areas adjacent to cargo handling berths and designated turning basins.
Recreational/Sport Fishing	Recreational	This category has been revised to include areas designated for general recreational navigation.
N/A[1]	Sediment Management Areas	This is a new category that includes areas for temporary and permanent placement of harbor dredge materials.
N/A[1]	Environmental Protection	This is a new category that includes water areas reserved for environmental restoration and protection.

Key: N/A = not applicable; PMP = Port Master Plan
Note:
[1] These are new land and water use categories that were not included in the 1990 PMP as amended.

TABLE 3.8-4. PROPOSED PLANNING DISTRICTS – EXISTING AND PROPOSED ALLOWABLE USES		
Proposed Plan Planning District	**Existing Designations**	**Proposed Designations**
1 – North	***Land Uses*** Port-Related Industries and Facilities Non-Port Related Areas ***Water Uses*** N/A	***Land Uses*** Port-Related Facilities Institutional Facilities Oil and Gas Production Facilities ***Water Uses*** N/A
2 – Northeast	***Land Uses*** Primary Port Facilities Port-Related Industries and Facilities Hazardous Cargo Facilities Oil and Gas Production ***Water Uses*** Navigable Corridor	***Land Uses*** Primary Port Facilities Port-Related Facilities Maritime Support Facilities Hazardous Cargo Facilities Oil and Gas Production Facilities Utilities Institutional Facilities Visitor-Serving Commercial Facilities ***Water Uses*** Navigable Corridor Maneuvering and Berthing[1] Recreational[1] Sediment Management Areas[2] Environmental Protection[2]

TABLE 3.8-4. PROPOSED PLANNING DISTRICTS – EXISTING AND PROPOSED ALLOWABLE USES		
Proposed Plan Planning District	**Existing Designations**	**Proposed Designations**
3 – Northwest (Formerly 1990 PMP as Amended Districts 3 and 4)	***Land Uses*** Primary Port Facilities Utilities Oil and Gas Production Ancillary Port Facilities ***Water Uses*** Navigable Corridor Maneuvering Areas	***Land Uses*** Primary Port Facilities Port-Related Facilities Maritime Support Facilities Oil and Gas Production Facilities Utilities Hazardous Cargo Facilities[1] Renewable Energy Resources[2] ***Water Uses*** Navigable Corridor Maneuvering and Berthing Sediment Management Areas[2] Environmental Protection[2]
4 – West Basin	***Land Uses*** Primary Port Facilities Hazardous Cargo Facilities Port-Related Industries and Facilities Ancillary Port Facilities Federal Use Oil and Gas Production Utilities Non-Port Related Areas[3] ***Water Uses*** Navigable Corridor	***Land Uses*** Primary Port Facilities Port-Related Facilities Maritime Support Facilities Hazardous Cargo Facilities Oil and Gas Production Facilities Utilities Institutional Facilities Renewable Energy Resources[2] Environmental Protection[2] ***Water Uses*** Navigable Corridor Maneuvering and Berthing[1] Sediment Management Areas[2] Environmental Protection[2]
5 – Southeast (Formerly 1990 PMP as Amended Districts 5, 7, 8, and 10)	***Land Use*** Primary Port Facilities Port-Related Industries and Facilities Ancillary Port Facilities Oil and Gas Production ***Water Uses*** Navigable Corridor Maneuvering Areas	***Land Uses*** Primary Port Facilities Port-Related Facilities Maritime Support Facilities Oil and Gas Production Facilities Hazardous Cargo Facilities[1] Institutional Facilities[1] Environmental Protection[2] ***Water Uses*** Navigable Corridor Maneuvering Areas Sediment Management Areas[2] Environmental Protection[2]
6 – Anchorage and Open Water	***Land Uses*** N/A ***Water Uses*** Navigable Corridor Maneuvering Areas	***Land Uses*** N/A ***Water Uses*** Anchorage Area Navigable Corridor Maneuvering and Berthing Sediment Management Areas[2] Environmental Protection[2]

TABLE 3.8-4. PROPOSED PLANNING DISTRICTS – EXISTING AND PROPOSED ALLOWABLE USES		
Proposed Plan Planning District	**Existing Designations**	**Proposed Designations**
7 – Queensway Bay (Formerly 1990 PMP as Amended District 9)	***Land Use*** Commercial/Recreational Facilities Primary Port Facilities Oil and Gas Production Ancillary Port Facilities ***Water Uses*** Maneuvering Areas Recreational/Sport Fishing	***Land Uses*** Primary Port Facilities Maritime Support Facilities Oil and Gas Production Facilities Visitor-Serving Commercial Facilities Recreational Open Space Facilities Institutional Facilities[1] Environmental Protection[2] ***Water Uses*** Maneuvering and Berthing Recreational Navigable Corridor[1] Sediment Management Areas[2] Environmental Protection[2]
Key: N/A = not applicable; PMP = Port Master Plan Notes: [1] These land and water use designations were not included for this planning district in the 1990 PMP as amended. [2] This is a new land or water use designation that was not included in the 1990 PMP as amended. [3] PMP Amendment #10 removed the Non-Port Related Areas designation from this planning district.		

Proposed Plan Projects

This section describes the conformity of the Proposed Plan projects with CCA policies. Projects involving fill or a change in land or water use designation are proposed for certification by the CCC in association with this Proposed Plan. The CCA conformity analyses for these projects are described below and summarized in Table 3.8-5. Construction and operation of the Proposed Plan projects would be in conformance with the land and water use designations stipulated in the Proposed Plan.

TABLE 3.8-5. CALIFORNIA COASTAL ACT COMPLIANCE								
Planning District	**Proposed Plan Project**	**CCA Section**						
		30705–30706 (Dredge, Fill, & Dikes)	**30708(a) (Minimum Environmental Impact)**	**30708(b) (Vessel Traffic)**	**30708(c) (Priority Port Use)**	**30708(e) (Intermodal Services)**	**30701(b) (Port Modernization)**	**30715 (Appealable)**
2	Fourth Track at Ocean Boulevard		•		•	•		
	Pier B Street Support Yard		•		•		•	
	Pier D Street Realignment		•		•			
3	Pier S Mixed Use Development		•	•	•	•	•	
	Pier S Shoreline Enhancement		•		•		•	
4	Pier T Improvements[1]	•	•	•	•	•	•	

TABLE 3.8-5. CALIFORNIA COASTAL ACT COMPLIANCE

Planning District	Proposed Plan Project	CCA Section: 30705–30706 (Dredge, Fill, & Dikes)	30708(a) (Minimum Environmental Impact)	30708(b) (Vessel Traffic)	30708(c) (Priority Port Use)	30708(e) (Intermodal Services)	30701(b) (Port Modernization)	30715 (Appealable)
	Pier W Terminal Development[1]	•	•	•	•	•	•	
5	Pier J Terminal Redevelopment[1]	•	•	•	•	•	•	
	Protective Boat Basin (Berth F202)[1]	•	•	•	•		•	
	Administrative Building Site Support Yard (Expansion)		•		•		•	
6	OHSPER[1]		•	•	•		•	
7	Ocean Boulevard Bicycle Gap Closure		•		•			

Key: CCA = California Coastal Act; OHSPER = Outer Harbor Sediment Placement and Ecosystem Restoration
Note:
[1] These projects are proposed for certification by the California Coastal Commission in association with the Proposed Plan.

Fourth Track at Ocean Boulevard

This project would construct a fourth track with a modified switch layout connection at Ocean Boulevard and Harbor Scenic Drive, linking the four tracks north and south of the Ocean Boulevard overhead. This project would relocate an existing roadway (i.e., Harbor Scenic Drive southbound) and main line track and add a new track to make a continuous four-track rail corridor to increase efficiency of the rail line, provide operational flexibility, and improve the connection to the Middle Harbor and Pier B railyards. The project would be consistent with CCA Section 30708(a) because it would be designed to minimize environmental impacts with incorporation of mitigation measures and adherence to regulations. The project would comply with CCA Sections 30708(c) and 30701(b) because it would minimize constraints on the rail system so that a greater volume of cargo can move by rail. This project would be consistent with CCA Section 30708(e) because it would increase on-dock rail capabilities within the Port.

Pier B Street Support Yard

This project would be located on an approximately 13-acre parcel site at 1550 Pier B Street, and would be used as a chassis support facility for the distribution, storage, and maintenance of chassis serving the Middle Harbor Terminal. The project would be consistent with CCA Section 30708(a) because it would be designed to minimize environmental impacts with incorporation of mitigation measures and adherence to regulations. The project would comply with CCA Sections 30708(c) and 30701(b) because it would utilize land for empty chassis storage near terminals to optimize cargo handling operations.

Pier D Street Realignment

The project would realign Pier D Street, between the Middle Harbor out gate and Pico Avenue. The project would be consistent with CCA Section 30708(a) because it would be designed to minimize environmental impacts with incorporation of mitigation measures and adherence to regulations. The project would comply with CCA Sections 30708(c) because it would reduce the impacts of Port-related truck traffic on local roadways.

Pier S Mixed Use Development

This project would develop approximately 125 acres of Pier S for non-container uses such as container/chassis storage, peel-off yards, bulk and break bulk terminals, liquefied natural gas (LNG) bunkering facility, auto storage, or other terminal support uses. This project could include construction of administration buildings, rail improvements, wharf construction, and other operational support infrastructure. The project would be consistent with CCA Section 30708(a) because it would be designed to minimize environmental impacts with incorporation of mitigation measures and adherence to regulations. Any potential changes to vessel traffic in the Pier S area associated with additional berth space would be implemented in accordance with Harbor District vessel safety precautions, ensuring compliance with CCA Section 30708(b). The project would comply with CCA Sections 30708(c) and 30701(b) because it would provide new facilities to accommodate forecast demand for diverse cargoes and improve operational efficiencies with the Harbor District. This project would be consistent with CCA Section 30708(e) because it would improve on-dock rail efficiencies within the Port.

Pier S Shoreline Enhancement

This project would retrofit or replace the existing seawall and rock dike at Pier S as a coastal resiliency measure to strengthen the shoreline against SLR and protect vulnerable Port assets on Pier S along the Cerritos Channel. The project would be consistent with CCA Section 30708(a) because it would be designed to minimize environmental impacts with incorporation of mitigation measures and adherence to regulations. The project would comply with CCA Sections 30708(c) and 30701(b) because it would protect *vulnerable Primary Port Facilities from damage or loss associated with SLR.*

Pier T Improvements

This project would extend an existing berth eastward in the area of T-130, dredge and redevelop the berth at Pier T Echo in the area of T-126/128 (5-acre extension fill), and expand the intermodal yard with approximately 65 acres of fill to provide additional storage tracks and arrival/departure tracks. The project would comply with CCA Sections 30705–30706 because dredge and fill activities would be conducted to expand berthing areas to accommodate vessels to be served by the Port and Port-Related facilities. The project would be consistent with CCA Section 30708(a) because it would be designed to minimize environmental impacts with incorporation of mitigation measures and adherence to regulations. Any potential changes to vessel traffic in the Pier T area associated with additional berth space and storage tracks would be implemented in accordance with Harbor District vessel safety precautions, ensuring compliance with CCA Section 30708(b). The project would comply with CCA Sections 30708(c) and 30701(b) because it would modernize and expand the existing Pier T Terminal to accommodate forecast demands for cargoes and achieve more efficient operations. This project would be consistent with CCA Section 30708(e) because it would increase on-dock rail capabilities within the Port.

Pier W Terminal Development

This project would construct a new 100-acre container terminal that would provide one berth and backlands to support cargo handling operations. The project would involve extensive construction, including discharge of fill; dredging to provide a deep-water berth and approach channel; and construction of rock dikes, a wharf, paved container yard, utilities, and buildings. The project would comply with CCA Sections 30705–30706 because dredge and fill activities would be conducted to construct new maritime facilities and deepen ship channels and berthing areas to accommodate vessels to be served by Pier W facilities. The project would be consistent with CCA Section 30708(a) because it would be designed to minimize environmental impacts with incorporation of mitigation measures and adherence to regulations. Any potential changes to vessel traffic in the Pier W area and West Basin associated with the new container terminal and berth would be implemented in accordance with Harbor District navigation and safety systems, ensuring compliance with CCA Section 30708(b). The project would comply with CCA Sections 30708(c) and 30701(b) because it would create a new modernized terminal within the Harbor District to accommodate forecast demands for cargoes and achieve more efficient operations. This project would be consistent with CCA Section 30708(e) because it would increase on-dock rail capabilities within the Port.

Pier J Terminal Redevelopment

This project would redevelop the Pier J terminal, including dredging and filling the 44-acre south slip and 22-acre triangle, cutting a 9-acre notch, and constructing a wharf extension (9-acre extension fill). The redeveloped terminal would consist of an approximately 212-acre container yard, 52-acre intermodal yard, and approximately 23 acres for a reconstructed 4,000-linear foot wharf. This project would also reconfigure the existing rail line and yard. In addition, approximately 14 acres at the tip of Pier F would be cut off to create additional water area and widen the entrance to the Southeast Basin. Existing infrastructure (buildings, wharves, utilities) and operations (e.g., break bulk terminals) within the Pier F cut area would be demolished and relocated to Pier S or other areas in the Harbor District.

This project would comply with CCA Sections 30705–30706 because dredge and fill activities would be conducted to construct new maritime facilities and expand and deepen berthing areas to accommodate vessels to be served by Pier J facilities. The project would be consistent with CCA Section 30708(a) because it would be designed to minimize environmental impacts with incorporation of mitigation measures and adherence to regulations. Any potential changes to vessel traffic in the Pier J area and Southeast Basin associated with the new wharf, container terminal, and wider navigation channels would be implemented in accordance with Harbor District vessel safety precautions, ensuring compliance with CCA Section 30708(b). The project would comply with CCA Sections 30708(c) and 30701(b) because it would modernize and expand the existing Pier J terminal facilities to accommodate forecast demands for cargoes and achieve more efficient operations. This project would be consistent with CCA Section 30708(e) because it would increase on-dock rail capabilities within the Port.

Protective Boat Basin (Berth F202)

This project would construct a small boat basin along the Main Channel to shelter JCCC small craft. The project would involve relocation and extension of the existing Jacobsen Pilots dock; construction of a new multi-use dock with nine boat slips to provide berthing spaces for the POLB Security Division, LBPD, and other visiting Governmental Security Agency boats; and dredging and construction of a fixed breakwater and dike (approximately 12,000 square feet or 0.3 acre of fill) to provide necessary wave protection to the proposed docks. An additional third dock for overflow/haul-out staging would be constructed to the north. The project would also include removal of the docks at Pier F and construction of other support infrastructure and utilities.

This project would comply with CCA Sections 30705–30706 because dredge and fill activities would be conducted to construct a fixed breakwater and dike to protect and ensure the safety of vessels using the new dock. The project would be consistent with CCA Section 30708(a) because it would be designed to minimize environmental impacts with incorporation of mitigation measures and adherence to regulations. Any minor changes in small boat traffic adjacent to the Protective Boat Basin (Berth F202) would be implemented in accordance with Harbor District vessel safety precautions, ensuring compliance with CCA Section 30708(b). The project would comply with CCA Sections 30708(c) and 30701(b) because it would create a new multi-use dock for Port and other government agencies required to support Port operations.

Administrative Building Site Support Yard (Expansion)

This project would expand the existing 7-acre temporary chassis support yard, currently serving the Middle Harbor Terminal and located in the footprint of the former Port Administrative Building parking lot, by approximately 13 acres. The expanded yard would be used as a support yard (chassis, empties, or peel-off) for nearby terminals. This project could involve demolition or construction of infrastructure (e.g., buildings or trailers, utility infrastructure, gates, or other support structures) within the expanded yard. The project would be consistent with CCA Section 30708(a) because it would be designed to minimize environmental impacts with incorporation of mitigation measures and adherence to regulations. The project would comply with CCA Sections 30708(c) and 30701(b) because it would utilize land for empty chassis storage near terminals to optimize cargo handling operations.

OHSPER

The OHSPER project would operate substantially similar to the currently permitted Western Anchorage Sediment Storage Site, but would serve as a permitted CAD location for maintenance dredging and capital development projects that generate contaminated sediments and sediments suitable for ocean disposal. OHSPER operations would involve the placement of contaminated dredged material at an existing depression in the harbor bottom that would store layers of deposited material. All deposited material would be capped with a layer of clean sediment, which would contain and isolate contaminated material from the aquatic environment. The project would be consistent with CCA Section 30708(a) because the site would be designed to isolate contaminated dredged material from the aquatic environment by burying the deposited material and capping it with a clean layer of sediment. The OHSPER project would be consistent with CCA Section 30708(b) because all vessel traffic would be monitored by the COTP and the Marine Exchange via the Vessel Traffic Service (VTS) and be subject to standard safety precautions governing Harbor District navigation. The project would comply with CCA Sections 30708(c) and 30701(b) because the site would accommodate placement of harbor dredged materials generated from Port modernization projects dedicated to maritime-related uses.

Operation of the OHSPER site as an approved CAD location for placement of contaminated sediments and sediments suitable for ocean disposal would be consistent with the Proposed Plan’s water use designations and goals for Planning District 6 (Anchorage and Open Water). The Proposed Plan adds the Sediment Management Areas designation to accommodate areas for temporary and permanent disposal of harbor dredged materials in this planning district. In addition, operation of the OHSPER project would be consistent with the goal stipulated in the Proposed Plan for designating appropriate water areas for contaminated sediment management in Planning District 6. Furthermore, OHSPER project operations would be consistent with the Port’s policies of general applicability that are used to determine if a development proposal is consistent with the CCA. Policy 7 states that dredged sediments that do not meet water quality standards may be deposited in confined disposal facilities or CADs as designated in the Proposed Plan.

Ocean Boulevard Bicycle Gap Closure

This project would provide a Class I bike path (approximately 0.5 mile) connecting the eastern terminus of the Mark Bixby Bicycle Path on the new Gerald Desmond Bridge to the City's bicycle network east of the Los Angeles River. The approximate project limit is between Pico Avenue and Golden Shore along Ocean Boulevard across the Los Angeles River. The project would be consistent with CCA Section 30708(a) because it would be designed to minimize environmental impacts with incorporation of mitigation measures and adherence to regulations. The project would comply with CCA Sections 30708(c) because it would protect and enhance California's coastal resources and public access to the coast and provide safe and secure access to the Port by the public.

General Plan/Zoning Designation Compliance

Proposed Plan projects would be implemented to support Port-Related industrial uses consistent with the City's General Plan goals for Land Use District Twelve, which includes the Harbor District. Construction activities would also be consistent with the City of Long Beach's IP zoning designation; no construction activities would occur within the Queensway Bay Planned Development District (PD-21). Therefore, the Proposed Plan would not conflict with applicable land use plans, policies, and regulations adopted for the purpose of avoiding or mitigating an environmental effect.

As the Proposed Plan projects and land use changes would be consistent with applicable land use plans, policies, and regulations adopted for the purpose of avoiding or mitigating an environmental effect, no mitigation is required. Impacts would be less than significant.

Impact LU-2: Construction and operations would be consistent with existing and future land uses.

<u>Impact Determination</u>

Construction

Construction activities associated with the Proposed Plan projects (i.e., Administrative Building Site Support Yard (Expansion), Protective Boat Basin (Berth F202), Fourth Track at Ocean Boulevard, Ocean Boulevard Bicycle Gap Closure, Pier B Street Support Yard, Pier S Shoreline Enhancement, Pier D Street Realignment, Pier J Terminal Redevelopment, Pier S Mixed Use Development, Pier T Improvements, and Pier W Terminal Development) and land use changes would be consistent with Port-Related industrial land use designations associated with the Proposed Plan. Construction of the Fourth Track at Ocean Boulevard, Pier B Street Support Yard, and Pier D Street Realignment projects would be consistent with the Primary Port Facilities and Port-Related Facilities land use designations in Planning District 2 (Northeast). Pier S Mixed Use Development and Pier S Shoreline Enhancement construction-related activities in Planning District 3 (Northwest) would be consistent with the district's Primary Port Facilities and Maritime Support Facilities land use designations. Construction activities associated with Pier T Improvements and Pier W Terminal Development in Planning District 4 (West Basin) would be consistent with the district's Primary Port Facilities land use designation. Pier J Terminal Redevelopment, Fourth Track at Ocean Boulevard, Protective Boat Basin (Berth F202), and Administrative Building Site Support Yard (Expansion) construction activities would be consistent with the Primary Port Facilities, Maritime Support Facilities, and Port-Related Facilities land use designations in Planning District 5 (Southeast). Construction associated with the Ocean Boulevard Bicycle Gap Closure project in Planning District 5 and Planning District 7 (Queensway Bay) would be consistent with the Recreational Open Space Facilities designation in these districts.

Construction of the Proposed Plan projects would develop and convert approximately 245.3 acres of open-water area to support the Protective Boat Basin (Berth F202) (0.3 acre), Pier J Terminal Redevelopment (75 acres), Pier T Improvements (70 acres), and Pier W Terminal Development (100 acres). Conversion of these water areas to container terminals and backlands (i.e., container storage area) and maritime support facilities would be consistent with the existing and proposed land use designations for Planning District 4 (West Basin) and Planning District 5 (Southeast). Therefore, the Proposed Plan would not conflict with existing and future land uses.

Implementation of the OHSPER project and modifying the existing use of the WASSS to allow placement of contaminated sediment in the Outer Harbor would not require construction activities. Therefore, the OHSPER project would not conflict with existing and future land uses.

Operations

Operations associated with the Proposed Plan projects would be consistent with land use designations associated with the Proposed Plan. Operation of the Fourth Track at Ocean Boulevard, Pier B Street Support Yard, and Pier D Street Realignment projects would be consistent with the Primary Port Facilities and Port-Related Facilities land use designations in Planning District 2 (Northeast). The Pier S Mixed Use Development and Pier S Shoreline Enhancement projects in Planning District 3 (Northwest) would be consistent with the district's Primary Port Facilities and Maritime Support Facilities land use designations. Operational activities associated with Pier T Improvements and Pier W Terminal Development in Planning District 4 (West Basin) would be consistent with the district's Primary Port Facilities land use designation. Operation of the Pier J Terminal Redevelopment, Fourth Track at Ocean Boulevard, Protective Boat Basin (Berth F202), and Administrative Building Site Support Yard (Expansion) projects would be consistent with the Primary Port Facilities, Maritime Support Facilities, and Port-Related Facilities land use designations in Planning District 5 (Southeast). Recreational activities associated with the Ocean Boulevard Bicycle Gap Closure project in Planning District 5 and Planning District 7 (Queensway Bay) would be consistent with the permitted Recreational Open Space Facilities designation in these districts. Therefore, the Proposed Plan would not conflict with existing and future land uses.

The 1990 PMP as amended allows for the placement of uncontaminated dredged sediments from the Port that are suitable for unconfined ocean disposal into the WASSS (i.e., disposal of contaminated sediment is not permitted). However, the Proposed Plan re-designates the WASSS as the OHSPER site and allows placement of contaminated sediment at this CAD location. Therefore, OHSPER operations would be consistent with the Proposed Plan's water use designations for Planning District 6 (Anchorage and Open Water).

As the Proposed Plan projects and land use changes would be consistent with existing and future land uses, no mitigation is required. Impacts would be less than significant.

Impact LU-3: The Proposed Plan would not physically divide an established community.

Impact Determination

The Harbor District encompasses all lands within the Port's coastal zone boundary. There are no established communities located within the Harbor District. The closest established communities are the City of Long Beach and Wilmington. All Proposed Plan projects and land use changes would be constructed within the Harbor District; construction and/or modification of existing infrastructure within the City of Long Beach and Wilmington would not be required. The majority of operations associated with the Proposed Plan projects would occur within the Harbor District. The transport of cargo to destinations outside the Harbor District associated with the Pier S Mixed Use Development, Pier T Improvements, Pier J Terminal Redevelopment, and Pier W Terminal Development projects would occur on existing designated transportation corridors and routes. Therefore, the Proposed Plan would not physically divide an established community.

The OHSPER site is located offshore within the Outer Harbor, and is not located near any established communities. Implementation of the OHSPER project and modifying the existing use of the WASSS to allow placement of contaminated sediment in the Outer Harbor would not require construction activities. OHSPER operations associated with placing contaminated sediment in the Outer Harbor would not occur near any established communities. Therefore, the OHSPER project would not physically divide an established community.

As the Proposed Plan projects and land use changes would not physically divide an established community, no mitigation is required. No impacts on land use would occur.

3.8.3.4 Alternative 1 (No Plan Alternative)

Alternative 1 (No Plan Alternative) considers what would reasonably occur if the Port did not update the PMP to include updates to the planning districts and allowable land and water use designations within the Harbor District. Alternative 1 includes projects that are 1) consistent with the 1990 PMP as amended, 2) may or may not have been evaluated in a final CEQA document, and/or 3) could be implemented without approval of the Proposed Plan. Alternative 1 includes the following projects: Administrative Building Site Support Yard (Expansion), Fourth Track at Ocean Boulevard, Ocean Boulevard Bicycle Gap Closure, Pier B Street Support Yard, Pier D Street Realignment, Pier S Mixed Use Development, and Pier S Shoreline Enhancement. This alternative also includes the Pier T Echo Support Yard project, which would construct a 17-acre support yard (chassis, empties, or peel-off) that would serve the Pier T container terminal. In addition, use of the WASSS would continue as currently permitted (i.e., placement and reuse of clean sediments).

Impact Determination

Although the extent of construction activity and new structures/infrastructure would be reduced under Alternative 1 compared the Proposed Plan, this alternative would be less consistent with existing plans and policies compared to the Proposed Plan. The development scenario under Alternative 1 (i.e., elimination of container terminal development on Piers T, W, and J, and the Protective Boat Basin [Berth F202]) would result in less than significant impacts and mitigation measures are not required. Even though the impacts from both Alternative 1 and the Proposed Plan would be less than significant, from a programmatic perspective, the impacts from Alternative 1 would be comparatively greater in magnitude because it does not maximize consistency with existing plans and polices (e.g., CCA and POLB Strategic Plan [2019]) compared to the Proposed Plan. Under Alternative 1, continued use of the WASSS as currently permitted would result in similar potentials for impacts on land use resources as those associated with the

OHSPER project under the Proposed Plan. As impacts would be less than significant, no mitigation is required.

3.8.3.5 Alternative 2 (No Terminal Development)

Alternative 2 (No Terminal Development) is similar to the Proposed Plan and would include updates to the planning districts and allowable land and water use designations in the Harbor District. However, Alternative 2 would not include terminal development projects at Pier T, Pier W, or Pier J. Alternative 2 would include the following projects: Administrative Building Site Support Yard (Expansion), Protective Boat Basin (Berth F202), OHSPER, Fourth Track at Ocean Boulevard, Ocean Boulevard Bicycle Gap Closure, Pier B Street Support Yard, Pier D Street Realignment, Pier T Echo Support Yard, Pier S Mixed Use Development, and Pier S Shoreline Enhancement.

Impact Determination

The extent of construction activity and new structures/infrastructure would be reduced under Alternative 2 compared the Proposed Plan; however, this alternative would be less consistent with existing plans and policies compared to the Proposed Plan. The development scenario under Alternative 2 (i.e., no container terminal development on Piers T, W, and J) would result in less than significant impacts and mitigation measures are not required. Even though the impacts from both Alternative 2 and the Proposed Plan would be less than significant, from a programmatic perspective, the impacts from Alternative 2 would be comparatively greater in magnitude because it does not maximize consistency with existing plans and polices (e.g., CCA and POLB Strategic Plan [2019]) compared to the Proposed Plan.

Under Alternative 2, operations associated with the OHSPER project would result in similar impacts on land use as those associated with the OHSPER project under the Proposed Plan. As impacts would be less than significant, no mitigation is required.

3.8.3.6 Alternative 3 (Reduced Terminal Development)

Alternative 3 (Reduced Terminal Development) is similar to the Proposed Plan and would include updates to the planning districts and allowable land and water use designations in the Harbor District. Under Alternative 3, development of the Pier J terminal would be reduced compared to the Pier J Terminal Redevelopment under the Proposed Plan. The Pier J Reduced Development would include dredging and filling the 22-acre triangle, cutting a 9-acre notch, extending the north wharf to the east, and relocating the existing rail line and yard to Pier J South. No development of a new Pier W terminal would occur. Alternative 3 would include the following projects: Administrative Building Site Support Yard (Expansion), Protective Boat Basin (Berth F202), OHSPER, Fourth Track at Ocean Boulevard, Ocean Boulevard Bicycle Gap Closure, Pier B Street Support Yard, Pier D Street Realignment, Pier S Mixed Use Development, Pier S Shoreline Enhancement, Pier T Improvements, and Pier J Reduced Development.

Impact Determination

The extent of construction activity and new structures/infrastructure would be reduced under Alternative 3 compared the Proposed Plan; however, this alternative would be less consistent with existing plans and policies compared to the Proposed Plan. The reduced terminal development scenario under Alternative 3 (i.e., no Pier W container terminal development and Pier J Terminal Redevelopment) would result in less than significant impacts and mitigation measures are not required. Even though the impacts from both Alternative 3 and the Proposed Plan would be less than significant, from a programmatic perspective, the impacts from Alternative 3 would be slightly greater in magnitude because it does not maximize consistency with existing plans and polices (e.g., CCA and POLB Strategic Plan [2019]) compared to the Proposed Plan.

Under Alternative 3, operations associated with the OHSPER project would result in similar impacts on land use as those associated with the OHSPER project under the Proposed Plan. As impacts would be less than significant, no mitigation is required.

3.8.4 Cumulative Impacts

This section evaluates the potential for the Proposed Plan projects, together with other past, present, and reasonably foreseeable future projects, to make a cumulatively considerable contribution to a significant cumulative impact on land use. The region of influence for cumulative impacts on land use is the same as the analysis presented in Section 3.8.1.1 (Area of Influence), which includes the Harbor District and adjacent properties. The significance criteria used for the cumulative analysis are the same as those used for the Proposed Plan and alternatives in Section 3.8.3.1 (Significance Criteria).

- **LU-1: Conflict with any applicable land use plan, policy, or regulation of any agency with jurisdiction over the Proposed Plan adopted for the purpose of avoiding or mitigating an environmental effect.**

Cumulative buildout of the reasonably foreseeable related projects could conflict with applicable land use plans, policies, and regulations adopted for the purpose of avoiding or mitigating an environmental effect. However, the existing industrial land uses and land use plans and policies governing development within the San Pedro Bay Port Complex minimize the potential for cumulative land use impacts. In addition, past and present actions within the San Pedro Bay Port Complex have been developed to ensure proposed projects are consistent with applicable land use plans and policies, including the CZMA, CCA, Tidelands Trust, 1990 PMP as amended, and Port of Los Angeles PMP. Furthermore, construction and operations of foreseeable related projects have been and will continue to be modified during the project review process to ensure consistency with applicable land use plans and policies. Cumulative impacts on land use associated with buildout of the reasonably foreseeable related projects would be less than significant.

The Proposed Plan's contribution to this cumulative impact would be negligible because it would comply with all applicable land use plans and policies adopted for avoiding or mitigating environmental effects, including the CZMA, CCA, Tidelands Trust, and City of Long Beach General Plan and Zoning Ordinance. Therefore, the Proposed Plan's contribution to cumulative impacts on land use would be less than significant.

- **LU-2: Introduce uses or activities incompatible with existing and future land uses.**

Construction and operation of the reasonably foreseeable related projects could potentially introduce activities that would be incompatible with existing and future land uses. However, buildout of the related projects would be required to comply with existing and future land use designations as stipulated in applicable land use plans and policies. Related projects would be modified as necessary during the project review process to ensure consistency with existing land use designations, and/or land use designations would be amended to accommodate new future uses. Cumulative impacts on land use associated with buildout of the reasonably foreseeable related projects would be less than significant. The Proposed Plan's contribution to this cumulative impact would be negligible because it would be compatible with the allowable land uses that govern development at the Port. Therefore, the Proposed Plan’s contribution to cumulative impacts on land use would be less than significant.

- **LU-3: Physically divide an established community.**

Construction and operation of the reasonably foreseeable related projects could potentially divide an established community. However, the Proposed Plan would not contribute to this cumulative impact because all construction and the majority of operations associated with Proposed Plan projects would occur within the Harbor District, which is located away from established communities.

3.8.5 Mitigation Monitoring Program

As no mitigation measures are required to address impacts on land use, no mitigation monitoring program is required.

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3.9 NOISE

This section describes the potential noise impacts on humans and noise-sensitive land uses that could result from implementation of the Proposed Plan and its alternatives.

3.9.1 Noise Fundamentals

Noise may be described as unwanted sound. Sound is defined as any pressure variation that can be heard. Sounds can be characterized by their *pitch* and *loudness*. *Pitch* depends on the relative rapidity (frequency) of the vibrations produced by the source. *Loudness* is the perceived amplitude of sound waves. Amplitude may be compared with the height of an ocean wave; the higher the amplitude, the louder the sound. In general, intermediate pitched signals sound louder to humans than sounds with a lower or higher pitch. Technical acoustical terms commonly used in this section are defined in Table 3.9-1.

TABLE 3.9-1. DEFINITIONS OF ACOUSTICAL TERMS

Term	Definition
A-Weighted Sound Level (dBA)	The sound pressure level in dB as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective human reactions to noise.
Ambient Noise Level	The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.
Community Noise Equivalent Level (CNEL)	The average A-weighted noise level during a 24-hour day, obtained after addition of 5 dB to sound levels in the evening from 7:00 p.m. to 10:00 p.m. and after addition of 10 dB to sound levels in the night between 10:00 p.m. and 7:00 a.m.
Day-Night Noise Level (L_{dn})	The average A-weighted noise level during a 24-hour day, obtained after addition of 10 dB to levels measured in the night between 10:00 p.m. and 7:00 a.m.
Decibel (dB)	A unit describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the sound pressure to the reference pressure. The reference pressure for air is 20 micropascals.
Equivalent Sound Level (L_{eq})	The average A-weighted sound level during the measurement period. The hourly L_{eq} used for this report is denoted as dBA $L_{eq[h]}$.
Frequency, Hertz (Hz)	The number of complete pressure fluctuations per second above and below atmospheric pressure. Normal human hearing is between 20 Hz and 20,000 Hz. Infrasonic sounds are below 20 Hz and ultrasonic sounds are above 20,000 Hz.
Intrusive Noise	Noise that intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends on its amplitude, duration, frequency, time of occurrence, and tonal or informational content, as well as the prevailing ambient noise level.
Noise	Sound that is loud, unpleasant, unexpected, or otherwise undesirable.
Single Event Noise Equivalent Level (SENEL)	The sound exposure level for a defined noise threshold level.
Sound	A vibratory disturbance created by a vibrating object, that when transmitted by pressure waves through a medium such as air, is capable of being detected by a receiving mechanism such as a human ear or a microphone.

TABLE 3.9-1. DEFINITIONS OF ACOUSTICAL TERMS

Term	Definition
Sound Exposure Level (SEL)	A measure of the total noise energy within an event that accounts for duration.
Sound Pressure Level	Sound pressure is the sound force per unit area, usually expressed in micropascals (or 20 micronewton per square meter), where 1 Pascal is the pressure resulting from a force of 1 newton exerted over an area of 1 square meter. The sound pressure level is expressed in dB, as 20 times the logarithm to the base 10 of the ratio between the pressures exerted by the sound to a reference sound pressure (e.g., 20 micropascals). Sound pressure level is the quantity that is directly measured by a sound level meter.
Key: dB = decibels; dBA = A-weighted sound level; Hz = Hertz; L_{eq} = equivalent sound level	

3.9.1.1 Noise Descriptors

The decibel (dB) is a unit of measurement, used herein, that indicates the amplitude of a sound. Zero on the dB scale is based on the lowest sound pressure that a healthy, unimpaired human ear can detect and 120 dB is the threshold at which sound begins to cause discomfort.

Understanding the way in which changing dB sound levels are perceived is important to understanding noise impacts. Each 10 dB (tenfold) increase in sound pressure level is perceived as an approximate doubling of loudness. Increases in sound level of 3 dB are typically perceived as barely perceptible in a non-laboratory setting. These perceptions of changing loudness are independent of the starting sound level. For example, an increase from 70 dB to 73 dB would be barely perceptible, as would an increase from 80 dB to 83 dB.

It is important to understand that sound levels expressed in dB are calculated on a logarithmic scale rather than a linear basis and cannot be added like normal numbers. If two sounds of equal sound pressure level occur simultaneously at the same location, the result is an overall sound pressure level that is 3 dB higher than either sound alone. In other words, a doubling of sound energy results in a 3 dB increase in overall sound pressure level. As noted previously, a 3 dB increase in sound level is barely perceptible.

When two sounds are combined that differ from each other, the louder sound is dominant and the less-loud sound is “drowned out.” In general, if there is a difference of 0 to 1 dB between the two pieces of equipment (that is, they are nearly the same), the resultant sound pressure level would be 3 dB above the noise level of the louder piece of equipment. A difference of 2 to 3 dB would cause the total sound pressure level to be 2 dB above the higher noise level, and a difference of 4 to 9 dB would cause the total sound pressure level to be 1 dB above the higher noise level. A 10 dB difference or more would result in a total sound pressure level of much less than 1 dB (rounding to zero).

Some frequencies of sound are heard more effectively by human ears than others. A process known as “A-weighting” is used to mathematically emphasize sound energy at frequencies to which the human ear is most sensitive and de-emphasize frequencies to which it is less sensitive. A-weighted sound levels are denoted “dBA.” Figure 3.9-1 shows typical A-weighted noise levels that occur in human environments.

Most commonly, environmental sounds are described in terms of an average level that has the same acoustical energy as the summation of all the time-varying events. This energy-equivalent sound/noise descriptor is called equivalent sound level (L_{eq}). A common averaging period is hourly, but L_{eq} can describe any series of noise events of any duration.

The time at which a sound occurs affects the way in which people perceive and react to it. The day-night average sound level (L_{dn}) and community noise equivalent level (CNEL) noise metrics include mathematical penalties for time periods during which ambient noise levels tend to be lower and when people's sensitivity to noise tends to be higher. Both metrics include "penalties" (i.e., disproportionate weighting) for noise during the "acoustic night," which is defined as 10:00 p.m. to 7:00 a.m. The CNEL metric also penalizes noise during the "acoustic evening," which is defined as 7:00 p.m. to 10:00 p.m., although to a lesser extent. CNEL and L_{dn} in a given acoustic environment are normally within 1 dBA of each other.

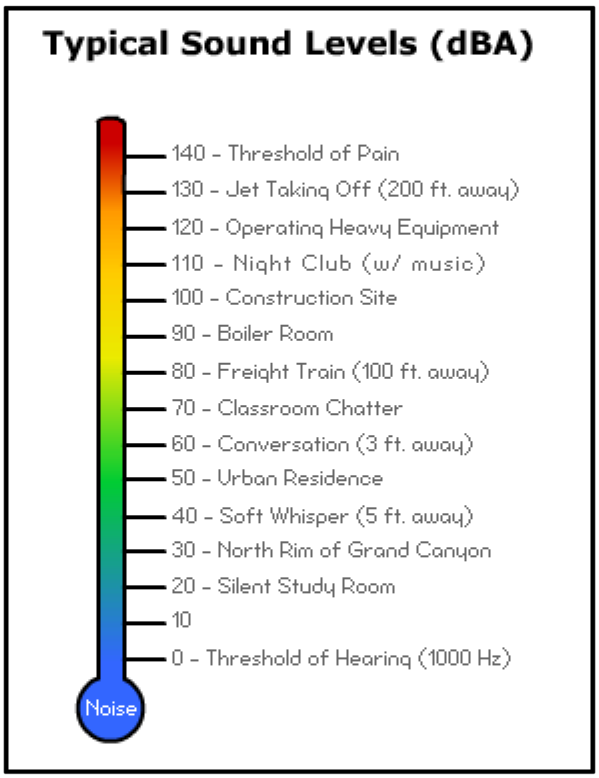

Figure 3.9-1. Typical Sound Levels

(OSHA 2019)

3.9.1.2 Sound Propagation

When sound propagates over a distance, it changes in both level and frequency content. The manner in which noise is reduced with distance depends on the following important factors:

- **Geometric spreading from point sources:** Sound from a single source (i.e., a "point" source) radiates uniformly outward as it travels away from the source in a spherical pattern. The sound level attenuates (or drops off) at a rate of 6 dBA for each doubling of distance (intensity drops to one-quarter of the previous level with each doubling of distance).
- **Geometric spreading from line sources:** Some sound generators are not point sources. Highway noise, for example, is not a single stationary point source of sound. The movement of vehicles on a highway makes the source of the sound appear to emanate

from a line (i.e., a "line" source) rather than from a point. This results in cylindrical spreading rather than the spherical spreading resulting from a point source. The change in sound level from a line source is 3 dBA per doubling of distance (intensity drops to one-half of the previous level with each doubling of distance).

- **Ground absorption:** Usually the noise path between the source and the observer is very close to the ground. Noise attenuation from ground absorption and reflective wave canceling adds to the attenuation caused by geometric spreading. Traditionally, the excess attenuation over geometric spreading is also expressed in terms of attenuation per doubling of distance. This approximation is done for simplification only; for distances of less than 200 feet, prediction results based on this scheme are sufficiently accurate. For acoustically "hard" sites (i.e., sites with a reflective surface, such as a parking lot or a smooth body of water, between the source and the receiver), no excess ground attenuation is assumed. For acoustically absorptive or "soft" sites (i.e., sites with an absorptive ground surface, such as soft dirt, grass, or scattered bushes and trees), an excess ground attenuation value of 1.5 dBA per doubling of distance is normally assumed. When added to the geometric spreading, the excess ground attenuation for a soft site results in an overall drop-off rate of 4.5 dBA (3 + 1.5) per doubling of distance for a line source and 7.5 dBA (6 + 1.5) per doubling of distance for a point source. Although some ground attenuation is expected in most situations, it is difficult to quantify accurately, and is often ignored to ensure that reported noise levels are not underestimated.
- **Atmospheric effects:** Research by Caltrans and others has shown that atmospheric conditions can have a major effect on noise levels within 200 feet of a highway. Wind has been shown to be the single most important meteorological factor within approximately 500 feet, whereas vertical air temperature gradients are more important over longer distances. Other factors, such as air temperature, humidity, and turbulence, also have major effects. Receivers located downwind from a source can be exposed to increased noise levels relative to calm conditions, whereas locations upwind can have lower noise levels. Increased sound levels can also occur because of temperature inversion conditions (i.e., increasing temperature with elevation), which cause sound energy that had been moving upwards to be refracted back toward the ground. Atmospheric effects vary over time, and are often ignored.
- **Shielding by natural or human-made features:** A large object or barrier in the path between a noise source and a receiver can substantially attenuate noise levels at the receiver. The amount of attenuation provided by this shielding depends on the size of the object and the frequency content of the noise source. Natural terrain features (such as hills and dense woods) and human-made features (such as buildings and walls) can substantially reduce noise levels. Walls are often constructed between a source and a receiver specifically to reduce noise. A barrier that breaks the line of sight between a source and a receiver will typically result in at least 5 dB of noise reduction. A higher barrier may provide as much as 20 dB of noise reduction. Lightly built barriers or vegetation provide less attenuation.

3.9.1.3 Human Response to Noise

While annoyance is the most prevalent community response in a population exposed to environmental noise (Beutel, et al. 2016), a number of studies have linked increases in noise with health effects, including hearing impairment, sleep disturbance, cardiovascular effects, psychophysiological effects, and potential impacts on fetal development (Babisch 2005). Potential health effects appear to be caused by both short- and long-term exposure to very loud noises and long-term exposure to lower levels of sound (chronic exposure). Acute exposure to sound levels greater than 120 dB can cause mechanical damage to hair cells of the cochlea (the auditory portion of the inner ear) and hearing impairment (Babisch 2005).

The World Health Organization and USEPA consider 70 dBA L_{eq} to be a safe daily average noise level for the human ear. Some research has suggested that even this "ear-safe" level may cause disturbance to sleep and concentration and may be linked to chronic health impacts such as hypertension and heart disease (Babisch 2006). A number of studies have looked at the potential health effects from the sound of chronic lower noise levels, such as traffic, especially as these noise levels affect children. In a study of school children in Germany, blood pressure was found to be 10 millimeters of mercury higher in a group of students exposed to road traffic noise from high-traffic transit routes (Babisch 2006). A study by Kawada (2004) showed that in pregnant women, exposure to airplane noise was found to be associated with decreased fetal body weight.

However, an analysis of 43 epidemiological studies of the association between noise exposure and blood pressure and ischemic heart disease (van Kempen, et al. 2002) found no statistically significant correlation between community exposure and heart disease, although small but statistically significant correlations were found for occupational exposures. The study also found a positive correlation between high blood pressure and elevated noise exposure in the workplace. It was not, however, able to identify a threshold above which significant health effects could be expected to occur in the general population. The analysis concluded that "epidemiological evidence on noise exposure, blood pressure, and IHDs [ischemic heart diseases] is still limited" (van Kempen, et al. 2002).

In conclusion, there appears to be a relationship between exposure to higher than normal noise levels and some health effects, though the evidence is inconsistent at this time. Recent research has not unequivocally identified community noise levels above which specific health effects may occur. In the absence of more definitive research, a sound level of 120 dBA may be a suitable threshold above which acute exposure would be health threatening. Similarly, chronic exposures above the 70 dBA threshold used by the World Health Organization and USEPA may potentially be health threatening.

3.9.2 Vibration Fundamentals

The amplitude of ground vibrations is described using the dB scale, but is denoted as "VdB" to reduce confusion with dB sound levels. Ground-borne vibration is usually measured in terms of vibration velocity, either the root mean square (RMS) velocity or peak particle velocity (PPV). RMS is best for characterizing human response to building vibration, and PPV is used to characterize potential for damage. The typical reference level used in calculation of ground vibration dB is 1 microinch per second RMS. Use of RMS allows positive and negative displacement velocities to be averaged as if both were in the same direction (otherwise the average would always be zero). Typical background vibration levels in residential areas are usually 50 VdB or lower, well below the threshold of perception for most humans. Perceptible vibration levels inside residences are usually attributed to the operation of heating and air conditioning systems, door slams, and foot traffic. Construction activities, train operations, and street traffic are some of the most common external sources of vibration that can be perceptible inside residences. Figure 3.9-2 summarizes common sources of vibration and the association to human perception or the potential for structural damage. Note that pile driving, as could be used for construction of one or more of the Proposed Plan projects, represents one of the highest-level sources of vibration.

Low-level vibrations frequently cause irritating secondary vibration, such as a slight rattling of windows, doors, or stacked dishes. Rattling sounds can give rise to vibration complaints, even though there is very little risk of actual structural damage. In high-noise environments, which are more prevalent where ground-borne vibration approaches perceptible levels, this rattling phenomenon may also be produced by loud airborne environmental noise that causes induced vibration in exterior doors and windows.

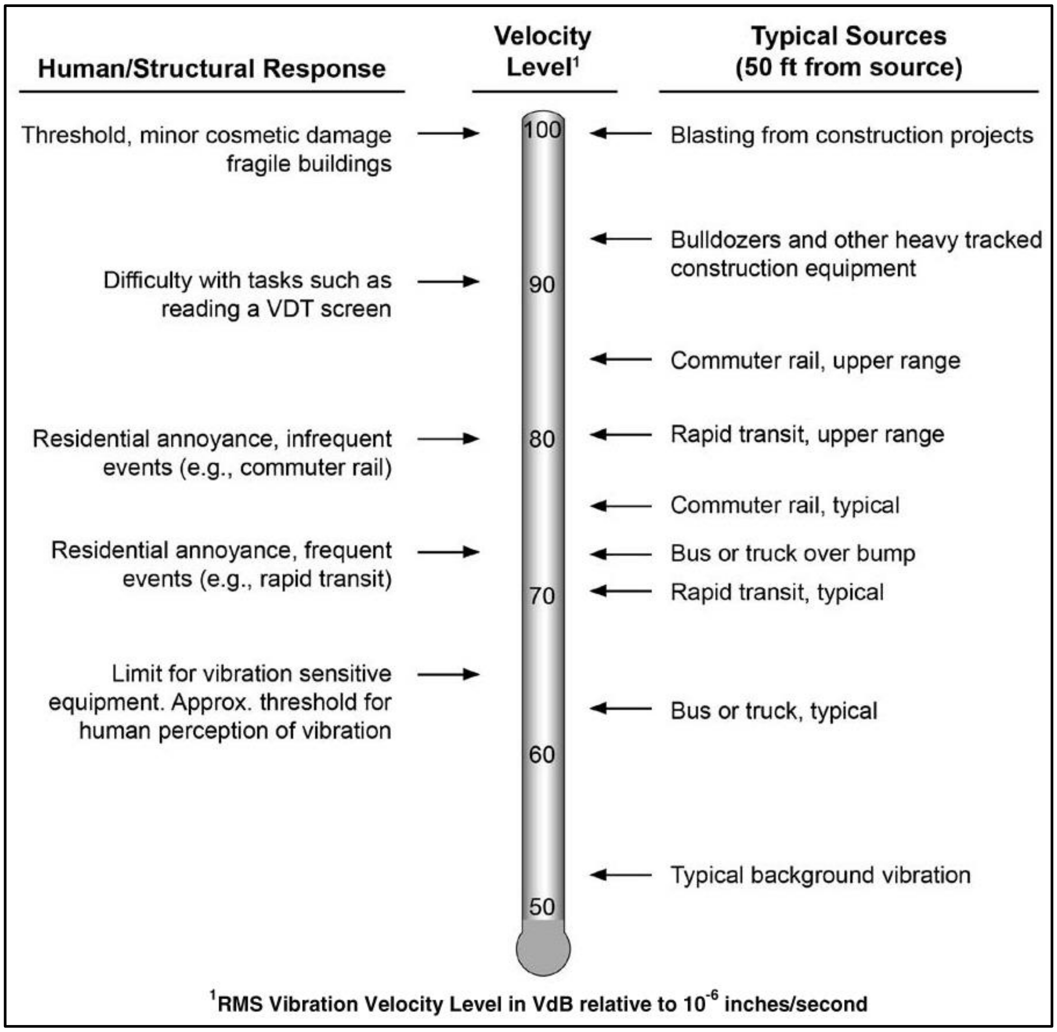

Figure 3.9-2. Typical Levels of Ground-Borne Vibration

(FTA 2018)

3.9.3 Environmental Setting

3.9.3.1 Area of Influence

The Port is located within a heavy industrial use area, surrounded by other industrial uses. For the purposes of noise and vibration impact analysis, the area of influence includes sensitive receptors closest to the Harbor District as well as those that might potentially be affected by indirect effects from the Proposed Plan, such as noise associated with truck transportation.

3.9.3.2 Setting

Noise

The Harbor District is characterized by industrial and Port-related facilities, visitor-serving commercial areas, marine services and support facilities, and open space and recreational areas. Noise-sensitive uses generally considered most sensitive to noise impacts include residences, transient lodging (hotels/motels), schools, parks, playgrounds, libraries, churches, hospitals, and nursing homes. Noise-sensitive land uses located within the Harbor District include hotels and a park. Noise-sensitive uses in the Harbor District vicinity include hotels, neighborhoods, parks, and marinas (yacht basins) that allow live-aboards. Noise-sensitive uses along the freeways, major truck routes, and rail corridors in the Port region include neighborhoods, parks, and schools (POLB 2016d).

Long-term and short-term noise monitoring at several of these sensitive receivers has been performed in support of previous EIRs, including Cesar Chavez Park, Cesar Chavez Elementary School, Hotel Maya, and the Long Beach Hilton (AECOM 2010, POLB 2009a, POLB 2018c). The predominant source of noise was vehicles on local roadways. The following are recorded daytime (workday, 8:00 a.m. to 5:00 p.m.) 1-hour L_{eqs} for these receptors:

- Cesar Chavez Park/Elementary School: 61 to 68 dBA;
- Hotel Maya: 62 to 66 dBA; and
- Long Beach Hilton: 66 to 67 dBA.

Noise levels in the Harbor District primarily result from ships, gantry cranes, truck/train loading/unloading, forklifts, yard tractors, and mechanical equipment, as well as intermittent short-term noise from warning signals (backup alarms and warning bells), ship horns, and the metallic clang of containers in motion (POLB 2016d). Additionally, the Harbor District has undergone multiple major construction projects throughout the years, involving both in-water and landside projects that feature noise-generating construction including pile driving. These noise sources are confined within the Harbor District and are generally separated from the closest residences by significant distances (hundreds or thousands of feet) and intervening non-sensitive land uses (industrial properties, roadways, railroads, the Los Angeles River, etc.) (POLB 2016d).

Port-related truck traffic generates noise within the community along freeways and major truck routes that border sensitive land uses including neighborhoods, parks, and schools. Noise from Port-related trucks exceeds 65 dBA L_{dn} at land uses directly adjacent to many of the roadways in the Port region (POLB 2016d). However, the contribution of Port-related trucks to overall traffic noise levels generally decreases with distance from the Port and is generally not noticeable at receptors located more than 5 miles from the Port (POLB 2016d).

A study by Khoo and Nguyen (2014) found that the most significant sources of noise at the Port consisted of truck activities followed by cargo handling activities. They found that the contribution of noise from railroad activities was not significant. The study found that the average 24-hour daily noise levels across eight locations at the Port ranged from a low of 64.1 dB (recorded on a Sunday) to a weekday high of 71.8 dB (Khoo and Nguyen 2014). Average 24-hour daily noise levels at the eight locations ranged from 65.8 dB (at a point on South Harbor Scenic Drive between the cruise ship terminal at Pier H and the Pier J breakwaters) to 72.8 dB (near the intersection of Pico Avenue and Seaside Freeway).

Vibration

Vibration-sensitive uses are similar to noise-sensitive uses and generally include residences, commercial areas, transient lodging (hotels/motels), schools, parks, playgrounds, libraries, churches, hospitals, and nursing homes.

Ground-borne vibrations at sensitive receptors in the Harbor District would be generated primarily by heavy trucks and trains. The amount of vibration experienced at each receiver is dependent on the source type, source-to-receiver distance, soil characteristics, vehicle type/weight, pavement type/condition, and trail type/condition. Vibration measurements taken at Cesar Chavez Park taken during train operations were below the acceptability base curve prescribed by American National Standards Institute Standard S3.29-1983 (POLB 2009a).

3.9.4 Regulatory Setting

The only regulations that apply to noise are federal and local. There are no state regulations that are not encompassed by local regulations.

3.9.4.1 Federal Regulations

Federal Highway Administration Noise Standards

The FHWA has adopted standards, regulations, and policies related to traffic noise (FHWA 2011). Federal regulations addressing highway noise are defined in 23 CFR Part 772. However, these standards are not directly applicable to the Proposed Plan because it is not a Type 1 federally funded highway improvement project. However, they do identify noise abatement criteria, which are another useful measure of the potential noise impacts of the Proposed Plan. The noise abatement criteria, both interior and exterior, established by the FHWA for various land uses are shown in Table 3.9-2.

TABLE 3.9-2. FHWA NOISE ABATEMENT CRITERIA

Activity Category	Noise Abatement Criterion (dBA) $L_{eq[h]}$[1]	Description of Activity Category
A	57 (Exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67 (Exterior)	Residential
C	67 (Exterior)	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) (historic) sites, schools, television studios, trails, and trail crossings.
D	52 (Interior)	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
E	72 (Exterior)	Hotels, motels, offices, restaurants/bars, and other developed lands, properties or activities not included in other Activity Categories.

TABLE 3.9-2. FHWA NOISE ABATEMENT CRITERIA

Activity Category	Noise Abatement Criterion (dBA) $L_{eq[h]}$[1]	Description of Activity Category
F	None	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing.
G	None	Undeveloped lands that are not permitted.

Source: (FHWA 2011)
Key: dBA = A-weighted sound level; FHWA = Federal Highway Administration
Note: [1]Noisiest hour expressed as the energy-average of the A-weighted noise level occurring during a 1-hour period or $L_{eq[h]}$

Federal Transit Authority Transit Noise and Vibration Impact Assessment

The Federal Transit Administration (FTA) includes procedures for predicting and assessing noise and vibration impacts of proposed transit projects for different stages of project development and different levels of analysis. Additional topics include descriptions of noise and vibration mitigation measures, construction noise, and vibration (FTA 2018).

<u>Operational Noise</u>

The FTA operational noise impact criteria are based on comparison of existing outdoor noise levels and the future outdoor noise levels from the Proposed Plan and are dependent on land use as defined in Table 3.9-3. FTA impacts are defined as one of three levels: no impact, moderate impact, and severe impact (Figure 3.9-3). Consideration of mitigation would be mandatory for a severe impact and advisory for a moderate impact.

TABLE 3.9-3. FTA LAND USE CATEGORIES AND METRIC FOR NOISE IMPACT CRITERIA

Land Use Category	Noise Metric (dBA)	Description of Land Use Category
1	Outdoor $L_{eq[h]}$[1]	Land where quiet is an essential element of its intended purpose. Example land uses include preserved land for serenity and quiet, outdoor amphitheaters and concert pavilions, and national historic landmarks with considerable outdoor use. Recording studios and concert halls are also included in this category.
2	Outdoor L_{dn}	This category is applicable all residential land use and buildings where people normally sleep, such as hotels and hospitals.
3	Outdoor $L_{eq[h]}$[1]	This category is applicable to institutional land uses with primarily daytime and evening use. Example land uses include schools, libraries, theaters, and churches where it is important to avoid interference with such activities as speech, meditation, and concentration on reading material. Places for meditation or study associated with cemeteries, monuments, museums, campgrounds, and recreational facilities are also included in this category.

Source: (FTA 2018)
Key: dBA = A-weighted sound level; FTA = Federal Transit Administration; L_{dn} = day-night average sound level
Note:
[1] $L_{eq[h]}$ is the noisiest hour of transit-related activity during hours of noise sensitivity.

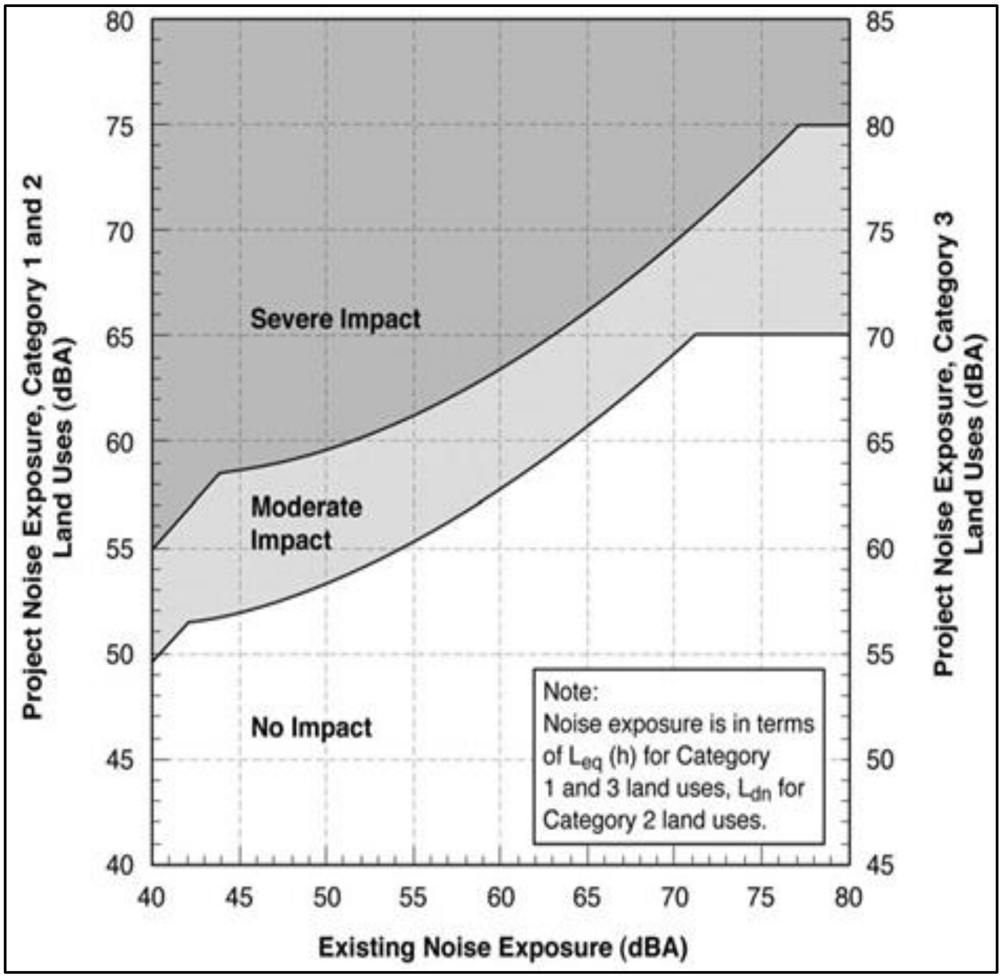

Figure 3.9-3. FTA Noise Impact Criteria

Construction Noise

The FTA construction noise impact criteria are based on the existing noise environment, the absolute noise levels during construction activities, the duration of the construction, and the adjacent land use. Table 3.9-4 presents maximum 1-hour L_{eq} for day and night for construction noise for residential, commercial, and industrial land uses.

TABLE 3.9-4. FTA NOISE IMPACT CRITERIA

Land Use Category	Day $L_{eq[h]}$ (dBA)	Night $L_{eq[h]}$ (dBA)
Residential	90	80
Commercial	100	100
Industrial	100	100

Source: (FTA 2018)
Key: dBA = A-weighted sound level; FTA = Federal Transit Administration
Note:
$L_{eq[h]}$ is the noisiest hour of construction-related activity.

Vibration

The FTA ground-borne vibration impact criteria describe human response to vibration and potential interference as relates to the operation of vibration-sensitive equipment. The criteria for acceptable ground-borne vibration are expressed in terms of RMS velocity levels in VdB and are based on the maximum levels for a single event. The background vibration velocity level in residential areas is usually 50 VdB or lower and the threshold of perception for humans is approximately 65 VdB (FTA 2018). Table 3.9-5 presents the vibration impact criteria for various land use categories and the frequency of events.

TABLE 3.9-5. FTA GROUND-BORNE VIBRATION IMPACT CRITERIA FOR HUMAN ANNOYANCE

Land Use Category	Ground-borne Vibration Impact Level (VdB in microinches per second)		
	Frequent Events[1]	Occasional Events[2]	Infrequent Events[3]
Category 1: Buildings where vibration would interfere with interior operations	65 VdB[4]	65 VdB[4]	65 VdB[4]
Category 2: Residences and buildings where people normally sleep	72 VdB	75 VdB	80 VdB
Category 3: Institutional land uses with primarily daytime use	75 VdB	78 VdB	83 VdB

Source: (FTA 2018)
Key: FTA = Federal Transit Administration; VdB = ground vibration decibels
Notes:
[1] Frequent events is defined as more than 70 vibration events of the same source per day.
[2] Occasional events is defined as between 30 and 70 vibration events of the same source per day.
[3] Infrequent events is defined as fewer than 30 vibration events of the same kind per day.
[4] This criterion limit is based on levels that are acceptable for most moderately sensitive equipment, such as optical microscopes. Vibration-sensitive manufacturing or research will require detailed evaluation to define the acceptable vibration levels. Ensuring vibration levels in a building often requires custom design of the heating, ventilation, and air conditioning system and stiffening floors.

Construction activities can also result in varying degrees of ground vibration, depending on the equipment and method employed. Table 3.9-6 summarizes FTA construction vibration limits for structures.

TABLE 3.9-6. FTA CONSTRUCTION VIBRATION DAMAGE CRITERIA

Building Category	PPV (inches per second)	Approximate L_v[1]
Reinforced-concrete, steel, or timber (no plaster)	0.50	102
Engineered concrete and masonry (no plaster)	0.30	98
Non-engineered timber and masonry buildings	0.20	94
Buildings extremely susceptible to vibration damage	0.12	90

Source: (FTA 2018)
Key: FTA = Federal Transit Administration; L_v = velocity level in decibels and based on the root mean square velocity amplitude; PPV = peak particle velocity
Note:
[1] Regarding 1 microinch per second.

3.9.4.2 Local Regulations

City of Long Beach Municipal Code

Noise

Section 8 of the LBMC prescribes exterior noise level limits (Table 3.9-7). These limits apply to noise sources that persist for a cumulative total of more than 30 minutes in any hour or:

- The noise standard plus 5 dB for a cumulative period of more than 15 minutes in any hour;
- The noise standard plus 10 dB for a cumulative period of more than 5 minutes in any hour;
- The noise standard plus 15 dB for a cumulative period of more than 1 minute in any hour; or
- The noise standard plus 20 dB or the maximum measured ambient noise level, for any period of time.

TABLE 3.9-7. CITY OF LONG BEACH MUNICIPAL CODE EXTERIOR NOISE LIMITS

Noise Land Use District	Land Uses within the District	Exterior Noise Limits (dBA)		
		Daytime[1]	Nighttime[2]	Anytime
One	Predominantly residential	50	45	-
Two	Predominantly commercial	60	55	-
Three[3]	Predominantly industrial	-	-	65
Four[3]	Predominantly industrial	-	-	70
Five	Airports, freeways, and waterways	Regulated by other agencies		

Source: City of Long Beach Municipal Code, Section 8.80.150 and Section 8.80.160
Key: dBA L_{eq} = average A-weighted sound level
Notes:
[1] 7:00 a.m. to 10:00 p.m.
[2] 10:00 p.m. to 7:00 a.m.
[3] Limits for Districts. Noise Land Use Districts Three and Four are intended primarily for use at their boundaries rather than for noise control within those districts. Port Master Plan planning districts are located within Noise Land Use Districts Three and Four.

In the event that the noise source contains a steady audible tone such as a whine, screech, or hum, or is a repetitive noise such as hammering or riveting, Section 8.80.160 of the LBMC requires that the exterior noise limits presented in Table 3.9-7 be reduced (made more stringent) by 5 dB. This 5 dB penalty for tonal/impulsive noise would apply to many construction activities, such as pile driving.

In receptor locations where the existing ambient noise level exceeds the permissible noise limit within any of the first four Noise Land Use District categories, the LBMC allows the noise exposure standard to be increased in 5 dB increments as necessary to encompass or reflect the ambient noise level. Noise Land Use Districts, as defined by the LBMC, are presented in Figure 3.9-4.

Vibration

Section 8.80.200.G of the LBMC imposes additional regulations on vibration. Operating or permitting the operation of a device that creates vibration above the perception threshold of an individual at or beyond the property boundary of the sources (if on private property) or at 150 feet from the source (if on a public space or public right-of-way) is a violation of the City's ordinance.

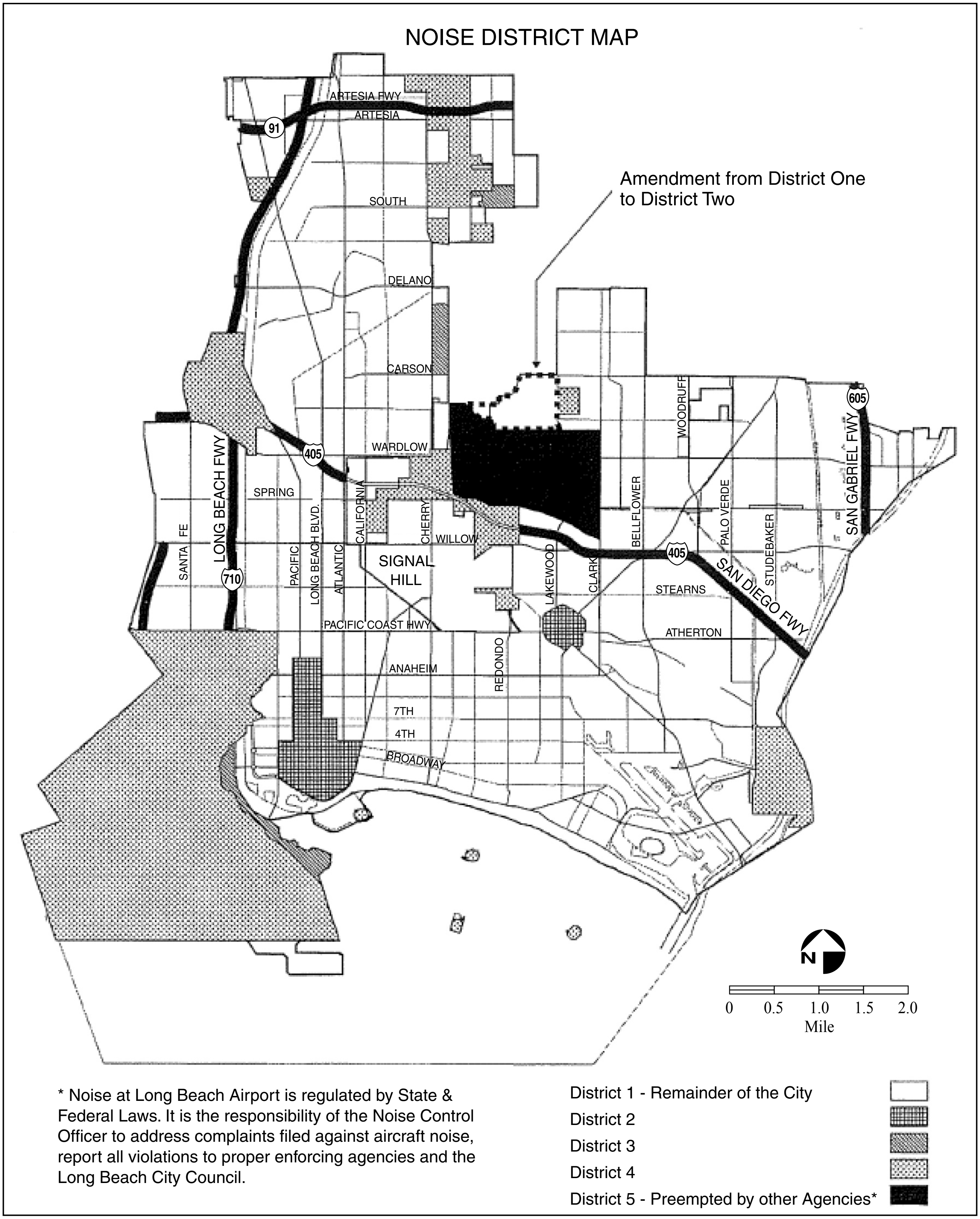

Figure 3.9-4. Noise Land Use District

Section 8.80.200.G of the LBMC prescribes vibration perception thresholds. This is defined as 0.001 g (“g” is 0.1 percent of Earth’s gravitational force) in the frequency range 0 to 30 Hertz and 0.003 g in the frequency range 30 to 100 Hertz.

3.9.5 Impacts and Mitigation Measures

3.9.5.1 Significance Criteria

Criteria for determining the significance of impacts on noise are based on the 2019 CEQA Guidelines, Appendix G (Environmental Checklist), and have been modified as necessary to reflect Port operations within a highly urbanized, industrial complex. Impacts during construction or operation would be considered significant if the Proposed Plan would:

- **NOI-1:** Result in a substantial temporary or permanent increase (3 dBA or more in L_{eq}) in ambient noise levels at the property line of a noise-sensitive receptor;
- **NOI-2:** Exceed Land Use Noise District noise levels allowed by the LBMC;
- **NOI-3:** Result in exposure of persons to or generation of ground-borne vibration in excess of the standards established by the LBMC; and/or
- **NOI-4:** Result in a substantially increased number of vibration events that exceed the standards established by the LBMC.

3.9.5.2 Assessment Methodology

Potential impacts on sensitive receptors as a result of the Proposed Plan were assessed through a comparison of data presented in references (including applicable noise standards), baseline noise conditions as documented from previous studies, and results from noise modeling (for construction projects, using FHWA Construction Noise Model Version 1.1) and past/current operations in the Port (for operations) to estimate noise levels and other consequences of the Proposed Plan using scientific expertise of the preparers.

The impacts of noise levels resulting from implementation of the Proposed Plan were estimated based on the proximity of sensitive uses to construction and operational activities associated with the Proposed Plan projects and associated land and water use changes. Construction and operations involving equipment that would produce noise levels exceeding impact criteria at specific distances from sensitive receptors would have significant impacts.

Noise levels for various sources used in the analysis were based on previous data collected at the Port, previous environmental documents, and/or from the available literature. Future transportation noise exposure and increases in transportation noise levels relative to existing noise conditions were estimated based on a comparison of existing and future project-generated traffic volumes on the main roadways in proximity to sensitive receptors. Potential vibration impacts (i.e., annoyance, activity interference, and structural damage) were assessed for construction activities and operations.

Impacts on the existing noise environment were evaluated in the context of land use designation changes, foreseeable growth in operations, and with respect to the Proposed Plan projects that are identified in Section 1.8.4 (Proposed Plan Projects Analyzed in the PEIR).

3.9.5.3 Proposed Plan

Impact NOI-1: Construction and operational activities would potentially result in a substantial temporary or permanent increase (3 dBA or more in L_{eq}) in ambient noise levels at the property line of a noise-sensitive receptor.

Impact Determination

Construction

With the exception of the OHSPER project and potentially the Pier B Street Support Yard, all of the Proposed Plan projects would involve construction activities within portions of the project sites. Depending on the nature and extent of the activities, construction activities of several of the Proposed Plan projects would have the potential to exceed ambient noise levels by 3 dBA or more in L_{eq} over baseline ambient conditions at the property lines of noise-sensitive receptors.

Construction activities would generally involve grading, earth movement, stockpiling, steel work, and truck hauling. Similar activities would occur upon site decommissioning. These activities would generate temporary and intermittent noise at and near the project sites. Noise levels would fluctuate depending on the particular type, number, and duration of use of various pieces of construction equipment. In addition, construction-related material haul trips would raise ambient noise levels along haul routes depending on the number of haul trips and the types of vehicles used. Table 3.9-8 shows typical noise levels produced by various types of construction equipment at a distance of 50 feet. The table also states the calculated composite 1-hour L_{eq} generated under a hypothetical scenario in which all of the listed equipment types are used at a single construction site simultaneously.

TABLE 3.9-8. TYPICAL NOISE LEVELS FOR CONSTRUCTION EQUIPMENT

Equipment	Noise Level, L_{max} at 50 feet	Composite Noise Level (L_{eq} 1-hour) at 50 feet
Dozer	82	87
Concrete Mixer Truck	79	
Dump Truck	77	
Man Lift	75	
Generator	81	
Grader	85	
Compactor (ground)	83	
Front End Loader	79	
Flat Bed Truck	74	
Compressor (air)	78	
Excavator	81	

Source: Federal Highway Administration Roadway Construction Noise Model (USDOT 2006)
Key: L_{eq} = equivalent sound level; L_{max} = maximum level for a single event

Using a baseline daytime 1-hour L_{eq} of 65 dBA for area sensitive receivers (based on daytime measurements taken in support of other projects) and a construction equipment composite noise 1-hour L_{eq} of 87 dBA at 50 feet, sensitive receivers within 630 feet of a construction site would experience an increase of 3 dBA (630 feet is the distance at which construction noise drops below 68 dB L_{eq}). These impacts would be significant. Proposed Plan projects that are within 630 feet of sensitive receptors include the Ocean Boulevard Bicycle Gap Closure (affected sensitive receivers: Cesar Chavez Park and Cesar Chavez Elementary School), the Fourth Track at Ocean Boulevard (affected sensitive receiver: Maya Hotel), the Administrative Building Site Support Yard

(Expansion) (affected sensitive receiver: Maya Hotel), and the Pier S Shoreline Enhancement (affected sensitive receiver: live-aboards at the yacht basin) located directly across the Cerritos Channel and approximately 500 feet from the Pier S Shoreline Enhancement location).

Proposed Plan projects that have in-water construction elements would likely require pile driving. Including pile driving in the construction equipment composite increases the 1-hour L_{eq} noise level to 93 dBA L_{eq} at 50 feet (USDOT 2006). The Pier S Shoreline Enhancement project location is 450 feet from a yacht basin that allows live-aboards. Noise experienced at the yacht basin from construction featuring pile driving at Pier S would be 74 dBA. This impact would be significant. Other Proposed Plan projects that likely require pile driving are located well within the Harbor District and over 1,300 feet from sensitive receptors (1,300 feet is the distance at which construction including pile driving noise drops below 68 dB L_{eq}). While noise from impact pile driving is qualitatively different from other construction noise due to its repetitive nature, sensitive receptors would not experience significant impacts from pile driving at these locations as noise from pile driving would have attenuated to a level less than 3 dBA above ambient.

The total number of construction-related trips would vary during the construction activities related to the Proposed Plan projects. Construction activities associated with the Proposed Plan projects would generate a temporary increase in traffic associated with construction workers and trucks moving construction materials and earth in and out of the Port. Construction haul routes would likely be via the I-710 (to Harbor Scenic Drive, Pico Avenue, or Navy Way) or via I-110 across the Vincent Thomas Bridge, as well as the arterial streets connecting these corridors with individual project sites.

Construction-worker-based vehicle trips would represent a small fraction of the morning (7:00 to 8:00 a.m.) and evening (4:00 to 5:00 p.m.) peak hour traffic volumes in the Proposed Plan. Refer to Section 3.13 (Ground Transportation) for information on baseline and Proposed Plan traffic volumes. This fraction of construction worker vehicles compared to the overall traffic in the Harbor District would not result in noticeable increases in noise levels.

Implementation of the OHSPER project would not require construction as the facility is already operable in its present configuration. Therefore, implementation of the OHSPER project would not result in noise levels that exceed thresholds.

Operations

As Proposed Plan projects would increase the operational capacity of several areas at the POLB, operations occurring at project areas may result in novel or new noise sources at the POLB. Current allowable use operations would continue at their present locations but may now be in a planning district that covers a different area (e.g. Proposed Plan District 5 encompasses 1990 PMP as amended Districts 5, 7, 8, and 10, which all had varied allowable uses).

Depending on the location and type of new operational noise sources, a permanent increase over baseline ambient conditions at the property lines of noise-sensitive receptors may occur. Project-specific operational noise assessments would be conducted when project details are finalized to determine significance of impacts.

Proposed Plan project-related truck and automobile traffic would generate noise on local streets and the Port's perimeter roadways. Increases in traffic noise level along road segments near sensitive locations were calculated from modeled traffic volume data for the baseline year (2018). Calculations were performed using the FHWA Traffic Noise Model software (version 2.5) maintaining a consistent vehicle mix. Calculated traffic noise level changes relative to the

2018 baseline are provided in Table 3.9-9. The difference between the predicted hourly equivalent noise level with the Proposed Plan projects and that without the Proposed Plan project-related traffic at any of the road segments studied at any time of day would be no more than 0.4 dBA.

TABLE 3.9-9. PREDICTED ROAD TRAFFIC NOISE INCREASES ($L_{EQ[H]}$) RELATIVE TO BASELINE (2018)

Road Segment	Time of Day[1]	Proposed Plan	Alternative 1 (No Plan Alternative)	Alternative 2 (No Terminal Development)	Alternative 3 (Reduced Terminal Development)
Pacific Coast Highway between Santa Fe Avenue and Canal Avenue	AM	0.2	0.1	0.1	0.1
	MD	0.2	0.1	0.1	0.1
	PM	0.3	0.2	0.2	0.2
Pacific Coast Highway between Blinn Avenue and O Street	AM	0.3	0.2	0.2	0.2
	MD	0.4	0.2	0.2	0.3
	PM	0.2	0.1	0.1	0.2
Pacific Coast Highway between Long Beach Boulevard and Linden Avenue	AM	0.1	0.1	0.1	0.1
	MD	0.3	0.2	0.2	0.2
	PM	0.1	0.1	0.1	0.1
Anaheim Street between Long Beach Boulevard and Elm Avenue	AM	0.1	0.1	0.1	0.1
	MD	0.2	0.1	0.1	0.2
	PM	0.1	0.1	0.1	0.1
Ocean Boulevard between Long Beach Boulevard and Elm Avenue	AM	0.1	0.0	0.0	0.1
	MD	0.2	0.2	0.2	0.2
	PM	0.1	0.1	0.1	0.1

Key: $L_{eq[h]}$ = noisiest hour expressed as the energy-average of the A-weighted noise level occurring during a 1-hour period
Note:
[1] AM = 7:00 to 8:00 AM (morning peak); MD = 2:00 to 3:00 PM (midday peak); PM = 4:00 to 5:00 PM (afternoon peak)

As shown in Table 3.9-9, traffic noise associated with Proposed Plan projects would not increase ambient noise levels by more than three dBA. Therefore, traffic noise impacts would be less than significant.

The OHSPER would operate substantially similar to the currently permitted WASSS, and the equipment and techniques employed in depositing and removing sediments in the OHSPER site would generate similar noise levels. Because the area already experiences similar noise-generating activities, is over 10,000 feet removed from the nearest sensitive receivers, and is approximately 2,700 feet from the nearest Harbor District boundary, operation of the OHSPER site would not result in noise levels that exceed thresholds.

Mitigation Measures

Construction

The following measures would be implemented as applicable to minimize impacts associated with temporary construction noise.

NOI-1a: Noise Barriers. Temporary noise barriers shall be located between noise-generating construction activities (e.g., concrete demolition) and noise-sensitive locations. Temporary barriers would be designed with the goal of reducing noise levels to below significance thresholds where such reductions are practicable using commercially available products.

NOI-1b: Time of Day Restrictions. Noise-generating activities shall be limited to the hours of 7:00 a.m. to 7:00 p.m. on weekdays, between 9:00 a.m. and 6:00 p.m. on Saturdays, and prohibited anytime on Sundays and holidays as prescribed by Section 8.80.202 of the LBMC.

NOI-1c: Equipment Selection. All construction equipment powered by internal combustion engines would be properly muffled and maintained. Quiet construction equipment would be used during Proposed Plan project construction to the extent feasible.

NOI-1d: Idling Minimization. The idling of internal combustion engines near noise-sensitive areas would be prohibited during Proposed Plan project construction.

NOI-1e: Equipment Location. All stationary noise-generating construction equipment, such as air compressors and portable power generators, would be located as far as practical from existing noise-sensitive land uses.

NOI-1f: Public Notification. The Port would publish notices in the *Press Telegram* and all property managers adjacent to the Proposed Plan project site would be notified in advance of the construction schedule.

Operations

Because project-specific details are not known at this time, project-tailored mitigation measures would be developed as part of the project-specific operational noise assessments. As operations would not increase ambient noise levels by 3 dBA or more over baseline ambient conditions, no mitigation is required.

Significance of Impact after Mitigation

Construction

The above mitigation measures are not anticipated to reduce residual construction impacts of Impact NOI-1 to less than significant levels in all cases. Noise impacts from construction of the Proposed Plan projects at distances from sensitive receptors of less than 1,300 feet for pile driving and 630 feet for general construction would be significant and unavoidable.

The above mitigation measures could reduce noise intensity or duration at certain noise-sensitive locations. However, the level of project detail currently available does not support development of mitigation designs that would demonstrably reduce potentially significant NOI-1 impacts to below significance thresholds.

Because sound barrier (**Mitigation Measure NOI-1a**) performance is affected by factors not known at the time of this analysis, no specific noise level reduction value can be assigned to **Mitigation Measure NOI-1a**. Sound barriers can provide substantial noise level reductions when line of sight between the noise source and receiver is broken and when the barrier is sufficiently large to also block most diffracted sound energy transmission (e.g. sound rays projected over the barrier, which then bend into the area behind the wall). For example, installation of a typical temporary construction sound barrier at the boundary of the Administrative Building Site Support Yard would provide reduction in construction noise levels at the first floor of a nearby hotel, but would not meaningfully affect noise levels on upper floors of the hotel (where construction activities would still be visible over the wall). In locations where line of sight is blocked, a portion of the sound energy would still reach areas behind the barrier by diffraction/reflection around or transmission through the barrier.

The exact location of construction activities within the Administrative Building Site Support Yard, which is not known at this time, would affect how much noise would reach areas behind the barrier. It is also worth noting that sound barriers are less effective at blocking low-frequency noise energy. Certain construction activities (e.g., pile driving) generate noise predominately at low frequencies that is not effectively blocked by barriers. The effectiveness of sound barriers would be evaluated during project-level impact analyses to determine whether potentially significant impacts could be reduced to less than significant.

Mitigation Measure NOI-1b limits the times at which noise could be experienced in accordance with local regulations, but it does not affect noise levels at other times. **Mitigation Measure NOI-1c**, utilization of properly muffled and maintained equipment and/or selection of quiet equipment, would potentially reduce noise levels; however, because project-level specific equipment have not been identified, it is not possible to determine if the noise levels would be reduced to less than significant levels. Similarly, **Mitigation Measure NOI-1d**, the reduction of idling, would potentially reduce overall noise levels but would not be expected to reduce noise levels to less than significant levels because other equipment would likely still be in use. **Mitigation Measure NOI-1e** would also potentially reduce noise levels; however, it may not reduce noise levels in all instances as placement of equipment may be constrained or limited based on project requirements or available space. **Mitigation Measure NOI-1f**, public notifications, would not reduce noise levels; however, it would enable the public to plan for any potential noise related disruptions.

While noise attenuation measures, such as use of noise barriers, quiet equipment, and construction procedures, may be applicable and are likely to reduce sound levels from construction, functional constraints and uncertainties as to the effectiveness of available measures or the availability of equipment with lower noise emissions may limit the effectiveness of mitigation. In addition, even with noise attenuation devices, the noise of pile driving would be audible and may be perceived as intrusive or annoying by some individuals. While residual impacts of construction or pile driving are considered significant and unavoidable, given the limited duration of construction activities, the impacts would be short-term (e.g. not permanent, lasting weeks or months).

Operations

Because project-specific details and project-tailored mitigation measures are not known at this time, it is not possible to determine if mitigation measures would reduce noise levels to less than significant levels at sensitive noise receptors.

Impact NOI-2: Construction and operational activities would potentially exceed Land Use Noise District noise levels allowed by the LBMC.

Impact Determination

Construction

With the exception of the OHSPER project and potentially the Pier B Street Support Yard, all of the other Proposed Plan projects would likely involve construction activities within portions of the project sites. All of the Proposed Plan projects are located in Noise Land Use District Four. Depending on the nature and extent of the activities, construction activities of several of the Proposed Plan projects would have the potential to exceed maximum noise levels allowed by the City.

Construction activities would generally involve grading, earth movement, stockpiling, steel work, and truck hauling. Similar activities would occur upon site decommissioning. These activities would generate temporary and intermittent noise at and near the project sites. Noise levels would fluctuate depending on the particular type, number, and duration of use of various pieces of construction equipment. In addition, construction-related material haul trips would raise ambient noise levels along haul routes depending on the number of haul trips and the types of vehicles used. Table 3.9-8 shows typical noise levels produced by various types of construction equipment at a distance of 50 feet.

Using a construction equipment composite noise 1-hour L_{eq} of 87 dBA at 50 feet, Proposed Plan project construction activities closer than 354 feet to the Noise Land Use District Four boundary would exceed 70 dBA L_{eq} at the boundary, the threshold set by Section 8.80 of the LBMC. These projects include the Ocean Boulevard Bicycle Gap Closure, the Fourth Track at Ocean Boulevard, and the Administrative Building Site Support Yard (Expansion).

Proposed Plan projects that have in-water construction elements could require pile driving. Including pile driving raises the 1-hour L_{eq} noise level to 93 dBA L_{eq} at 50 feet; construction featuring pile driving activities closer than 1,300 feet to the Noise Land Use District Four boundary would exceed 65 dBA L_{eq} at the boundary. 65 dBA L_{eq} is used here because pile driving noise is repetitive noise such as hammering or riveting. No Proposed Plan projects that would likely require pile driving are located within 1,300 feet of the Noise Land Use District Four Boundary.

Implementation of the OHSPER project would not require construction as the facility is already operable in its present configuration. Therefore, the OHSPER project would not involve construction activities with the potential to violate noise standards.

Operations

As Proposed Plan projects would increase the operational capacity of several areas at the POLB, operations occurring at project areas may result in novel or new noise sources at the POLB. Current allowable use operations would continue at their present locations but may now be in a planning district that covers a different area (e.g. Proposed Plan District 5 encompasses 1990 PMP as amended Districts 5, 7, 8, and 10).

Depending on the location and type of operational noise sources, a permanent increase exceeding LBMC Noise Land Use District thresholds may occur. Project-specific operational noise and vibration assessments would be conducted when project details are finalized to determine significance of impacts.

The equipment and techniques employed in depositing and removing sediments in the OHSPER site would generate noise levels similar to current operations. Because the area already experiences similar noise-generating activities, is over 10,000 feet removed from the nearest sensitive receivers, and is approximately 2,700 feet from the nearest Noise Land Use District Four boundary, operation of the OHSPER site would not result in noise levels that exceed LBMC exterior noise level limits.

Mitigation Measures

Construction

Mitigation Measures NOI-1a, **NOI-1c, NOI-1d, and NOI-1e** would apply to this impact.

Operations

Because project-specific details are not known at this time, project-tailored mitigation measures would be developed as part of the project-specific operational noise and vibration assessments.

Significance of Impact after Mitigation

Construction

The above mitigation measures are not anticipated to reduce residual construction impacts of Impact NOI-2 to less than significant levels in all cases. Noise impacts from construction of the Proposed Plan projects that are within 354 feet of the Noise Land Use District Four boundary would be significant and unavoidable.

As discussed under Impact NOI-1, noise attenuation measures, such as use of noise barriers and construction procedures, may be applicable and are likely to reduce sound levels from construction, functional constraints and uncertainties as to the effectiveness of available measures or the availability of equipment with lower noise emissions may limit the effectiveness of mitigation. While residual impacts of construction are considered significant and unavoidable, given the limited duration of construction activities, the impacts would be short-term.

Operations

Because project-specific details and project-tailored mitigation measures are not known at this time, it is not possible to determine if mitigation measures would reduce noise levels to less than significant levels at LBMC Land Use Noise District boundaries.

Impact NOI-3: Construction activities would not result in exposure of persons to or generation of ground-borne vibration in excess of the standards established by the LBMC. Operational activities would potentially result in exposure of persons to or generation of ground-borne vibration; however, project-specific details are not known at this time to determine a level of significance.

Impact Determination

Construction

Pile driving is the most likely source of vibration during construction. Heavy truck and construction worker traffic would travel on properly maintained roads where the vibration from traffic is rarely perceptible and is therefore not discussed further. Pile driving during construction can result in vibration transmitted through the earth, which results from the impact from the pile driver and subsequent transmission through the pile to the sub-surface strata. This vibration can, under some circumstances, damage structures and create annoyance to sensitive receptors. Table 3.9-10 shows the distances to vibration thresholds for pile driving.

Only pile driving occurring within 640 feet of the Harbor District boundary would result in exceeding the LBMC vibration perception threshold outside of the Harbor District boundary. As all Proposed Plan projects likely requiring pile driving are located more than 640 feet from the

Harbor District boundary, construction-related vibration would be within the acceptability limits. In addition, only buildings located within 80 feet of pile driving would potentially be susceptible to damage caused by vibration. There are no non-POLB/Harbor District buildings located within 80 feet of projects that would include pile driving.

TABLE 3.9-10. PILE DRIVING DISTANCES TO VIBRATION THRESHOLDS

Category	Threshold Criteria	Approximate Distance to Threshold (feet)[4]
Human Vibration Perception Threshold[1]	0.001 g (0–30 Hz)[3]	640
Reinforced-concrete, steel, or timber (no plaster)[2]	0.50 PPV (inches/second)	30
Engineered concrete and masonry (no plaster)[2]	0.30 PPV (inches/second)	40
Non-engineered timber and masonry buildings[2]	0.20 PPV (inches/second)	55
Buildings extremely susceptible to vibration damage[2]	0.12 PPV (inches/second)	75

Sources: see Notes below
Key: g = 0.1 percent of Earth's gravitational force; Hz = Hertz; PPV = peak particle velocity
Notes:
[1] (Section 8.80.200.G of the LBMC)
[2] (FTA 2018)
[3] Corresponds to 0.005 PPV (inches/second) (STI Vibration Monitoring Inc. 2019) at 13 Hz (estimate for dominant pile driving frequency, typical range of 8 to 15 Hz (Massarsch and Fellenius 2008))
[4] Assuming a typical pile driver PPV of 0.644 inches per second at 25 feet (FTA 2018) and using the following formula:
$PPVequip = PPVref \times (25/D)^{1.5}$
where:
PPV (equip) is the peak particle velocity in inches per second of the equipment adjusted for distance.
PPV (ref) is the reference vibration level in inches per second at 25 feet.
D is the distance from the equipment to the receiver.

Implementation of the OHSPER project would not require construction as the facility is already operable in its present configuration. Therefore, there is no risk that re-designation of the OHSPER site would entail construction activities with the potential to violate vibration standards.

Operations

Heavy truck and POLB worker traffic would travel on properly maintained roads where the vibration from traffic is rarely perceptible and is therefore not discussed further.

While Proposed Plan projects would increase the operational capacity of several areas at the POLB, operations occurring at project areas may result in novel or new ground vibration sources at the POLB.

Depending on the location and type of operational vibration sources, ground vibrations perceptible at or beyond the Harbor District boundary may occur. From a programmatic perspective, and in the absence of project-specific details, operational vibration impacts cannot be accurately quantified and, therefore, are considered significant.

The equipment and techniques employed in operations of the OHSPER would be the same as those used for current site operations. Due to the distance to land and the nature of sediment placement methods, the operation of the OHSPER would not result in ground vibration that would exceed acceptability limits.

Therefore, construction-related impacts from vibration would be less than significant, whereas operations-related impacts would be potentially significant due to the lack of project-specific details related to potential sources of vibration.

Mitigation Measures

Construction

As construction would not cause ground vibration levels to exceed the acceptability limits, no mitigation is required. Impacts would be less than significant.

Operations

Because project-specific details are not known at this time, project-tailored mitigation measures would be developed as part of the project-specific operational noise and vibration assessments.

Significance of Impact after Mitigation

Operations

Because project-specific details and project-tailored mitigation measures are not known at this time, it is not possible to determine if mitigation measures would reduce ground vibration levels to less than significant levels.

Impact NOI-4: Construction and operational activities could result in exposure to a substantially increased number of ground-borne vibration events that exceed the acceptability limits.

Impact Determination

Construction

As detailed for Impact NOI-3, construction of the Proposed Plan projects would not result in vibrations exceeding acceptability limits. Therefore, there would be no increase in vibrations exceeding acceptability limits.

Implementation of the OHSPER project would not require construction as the facility is already operable in its present configuration. Therefore, there is no risk that the OHSPER project would involve construction activities with the potential to violate vibration standards.

Operations

As Proposed Plan projects would increase the operational capacity of several areas at the POLB, operations occurring at project areas may result in novel or new vibration sources at the POLB. Current allowable use operations would continue at their present locations but may now be in a planning district that covers a different area (e.g., Proposed Plan District 5 encompasses 1990 PMP as amended Districts 5, 7, 8, and 10).

Depending on the location and type of operational vibration sources, increases in the number of ground vibration events that are perceptible at or beyond the Harbor District boundary may occur.

From a programmatic perspective, and in the absence of project-specific details, operational vibration impacts cannot be accurately quantified and, therefore, are considered significant.

The equipment and techniques employed in OHSPER site operations would be the same as those that are currently used. Due to the distance to land, the operation of the OHSPER would not result in ground vibration exceeding acceptability limits at the Harbor District boundary.

As construction would not result in exposure to a substantially increased number of vibration events that exceed the acceptability limits, no mitigation is required. Impacts would be less than significant. While impacts from project operation vibrations are considered significant, it is not possible to specify measures that could effectively reduce the magnitude of the impacts without specific information related to the source and location of the vibrations. In the absence of effective mitigation, the impact would remain significant.

3.9.5.4 Alternative 1 (No Plan Alternative)

Alternative 1 (No Plan Alternative) considers what would reasonably occur if the Port did not update the PMP to include updates to the planning districts and allowable land and water use designations within the Harbor District. Alternative 1 includes projects that are 1) consistent with the 1990 PMP as amended, 2) may or may not have been evaluated in a final CEQA document, and/or 3) could be implemented without approval of the Proposed Plan. Alternative 1 includes the following projects: Administrative Building Site Support Yard (Expansion), Fourth Track at Ocean Boulevard, Ocean Boulevard Bicycle Gap Closure, Pier B Street Support Yard, Pier D Street Realignment, Pier S Mixed Use Development, and Pier S Shoreline Enhancement. This alternative also includes the Pier T Echo Support Yard project, which would construct a 17-acre support yard (chassis, empties, or peel-off) that would serve the Pier T container terminal. In addition, use of the WASSS would continue as currently permitted (i.e., placement and reuse of clean sediments).

Impact Determination

Impacts from noise and vibration under Alternative 1 would be of similar magnitude to those described for the Proposed Plan.

Under Alternative 1, POLB planning districts would remain the same. However, construction and growth at the POLB would occur. Impacts would be similar to those described for the Proposed Plan. As discussed above, many of the Proposed Plan projects are retained in this alternative, some of which would result in significant construction noise impacts.

Alternative 1 projects that are within 630 feet of sensitive receptors include the Ocean Boulevard Bicycle Gap Closure (affected sensitive receivers: Cesar Chavez Park and Cesar Chavez Elementary School), Fourth Track at Ocean Boulevard (affected sensitive receiver: Maya Hotel), the Administrative Building Site Support Yard (Expansion) (affected sensitive receiver: Maya Hotel), and the Pier S Shoreline Enhancement (affected sensitive receiver: live-aboards at the yacht basin). These construction projects would result in an increase in ambient noise levels by 3 dBA or more in L_{eq} over baseline ambient conditions at the sensitive receiver. Alternative 1 project construction activities closer than 354 feet to the Land Use District Four boundary would exceed the threshold at the boundary. These projects include the Ocean Boulevard Bicycle Gap Closure, the Fourth Track at Ocean Boulevard, and the Administrative Building Site Support Yard (Expansion).

The Pier S Shoreline Enhancement project could involve pile driving that would result in an increase in ambient noise levels by 3 dBA or more in L_{eq} over baseline ambient conditions at the sensitive receiver (adjacent yacht basin). None of the Alternative 1 projects that would likely require pile driving are within 1,300 feet of the Land Use District Four Boundary.

Depending on the location and type of operational vibration sources, increases in the number of ground vibration events that are perceptible at or beyond the Harbor District boundary may occur. From a programmatic perspective, and in the absence of project-specific details, operational vibration impacts cannot be accurately quantified and, therefore, are considered significant. Mitigations and impacts after mitigation would be the same as those described for the Proposed Plan.

3.9.5.5 Alternative 2 (No Terminal Development)

Alternative 2 (No Terminal Development) is similar to the Proposed Plan and would include updates to the planning districts and allowable land and water use designations in the Harbor District. However, Alternative 2 would not include terminal development projects at Pier T, Pier W, or Pier J. Alternative 2 would include the following projects: Administrative Building Site Support Yard (Expansion), Protective Boat Basin (Berth F202), OHSPER, Fourth Track at Ocean Boulevard, Ocean Boulevard Bicycle Gap Closure, Pier B Street Support Yard, Pier D Street Realignment, Pier T Echo Support Yard, Pier S Mixed Use Development, and Pier S Shoreline Enhancement.

<u>Impact Determination</u>

Impacts from noise and vibration under Alternative 2 would be of similar magnitude to those described for the Proposed Plan.

Under Alternative 2, POLB planning districts would be updated. Construction and growth at the POLB would occur. Impacts on noise would be similar to those described for the Proposed Plan. As discussed above, many of the Proposed Plan projects are retained in this alternative, some of which would result in significant construction noise impacts.

Alternative 2 projects that are within 630 feet of sensitive receptors include the Ocean Boulevard Bicycle Gap Closure (affected sensitive receivers: Cesar Chavez Park and Cesar Chavez Elementary School), Fourth Track at Ocean Boulevard (affected sensitive receiver: Maya Hotel), the Administrative Building Site Support Yard (Expansion) (affected sensitive receiver: Maya Hotel), and the Pier S Shoreline Enhancement (affected sensitive receiver: live-aboards at the yacht basin). These construction projects would result in an increase in ambient noise levels by 3 dBA or more in L_{eq} over baseline ambient conditions at the sensitive receiver. Alternative 2 project construction activities closer than 354 feet to the Land Use District Four boundary would exceed 70 dBA L_{eq} at the boundary, the threshold set by Section 8.80 of the LBMC. These projects include the Ocean Boulevard Bicycle Gap Closure, the Fourth Track at Ocean Boulevard, and the Administrative Building Site Support Yard (Expansion).

The Pier S Shoreline Enhancement project could require pile driving that would result in an increase in ambient noise levels by 3 dBA or more in L_{eq} over baseline ambient conditions at the yacht basin that allows live-aboards. No Alternative 2 projects that would require pile driving would generate noise levels that exceeded thresholds at the Land Use District Four boundary.

Depending on the location and type of operational vibration sources, increases in the number of ground vibration events that are perceptible at or beyond the Harbor District boundary may occur. From a programmatic perspective, and in the absence of project-specific details, operational vibration impacts cannot be accurately quantified and, therefore, are considered significant.

Mitigations and impacts after mitigation for Alternative 2 would be the same as those described for the Proposed Plan.

3.9.5.6 Alternative 3 (Reduced Terminal Development)

Alternative 3 (Reduced Terminal Development) is similar to the Proposed Plan and would include updates to the planning districts and allowable land and water use designations in the Harbor District. Under Alternative 3, development of the Pier J terminal would be reduced compared to the Pier J Terminal Redevelopment under the Proposed Plan. The Pier J Reduced Development would include dredging and filling the 22-acre triangle, cutting a 9-acre notch, extending the north wharf to the east, and relocating the existing rail line and yard to Pier J South. No development of a new Pier W terminal would occur. Alternative 3 would include the following projects: Administrative Building Site Support Yard (Expansion), Protective Boat Basin (Berth F202), OHSPER, Fourth Track at Ocean Boulevard, Ocean Boulevard Bicycle Gap Closure, Pier B Street Support Yard, Pier D Street Realignment, Pier S Mixed Use Development, Pier S Shoreline Enhancement, Pier T Improvements, and Pier J Reduced Development.

Impact Determination

Impacts from noise and vibration under Alternative 3 would be of similar magnitude to those described for the Proposed Plan.

Under Alternative 3, POLB planning districts would be updated. Construction and growth at the POLB would occur. Impacts would be similar to those described for the Proposed Plan. As discussed above, many of the Proposed Plan projects are retained in this alternative, some of which would result in significant construction noise impacts.

Alternative 3 projects that are within 630 feet of sensitive receptors include the Ocean Boulevard Bicycle Gap Closure (affected sensitive receivers: Cesar Chavez Park and Cesar Chavez Elementary School), the Fourth Track at Ocean Boulevard (affected sensitive receiver: Maya Hotel), the Administrative Building Site Support Yard (Expansion) (affected sensitive receiver: Maya Hotel), and the Pier S Shoreline Enhancement (affected sensitive receiver: live-aboards at the yacht basin). These construction projects would result in an increase in ambient noise levels by 3 dBA or more in L_{eq} over baseline ambient conditions at the sensitive receiver. Alternative 3 project construction activities closer than 354 feet to the Land Use District Four boundary would exceed 70 dBA L_{eq} at the boundary, the threshold set by Section 8.80 of the LBMC. These projects include the Ocean Boulevard Bicycle Gap Closure, the Fourth Track at Ocean Boulevard, and the Administrative Building Site Support Yard (Expansion).

The Pier S Shoreline Enhancement project would likely require pile driving that would result in an increase in ambient noise levels by 3 dBA or more in L_{eq} over baseline ambient conditions at the yacht basin that allows live-aboards. No Alternative 3 projects that would likely require pile driving would generate noise levels that would exceed the threshold at the Land Use District Four boundary.

Depending on the location and type of operational vibration sources, increases in the number of ground vibration events that are perceptible at or beyond the Harbor District boundary may occur. From a programmatic perspective, and in the absence of project-specific details, operational vibration impacts cannot be accurately quantified and, therefore, are considered significant. Mitigations and impacts after mitigation for Alternative 3 would be the same as those describe for the Proposed Plan.

3.9.6 Cumulative Impacts

This section evaluates the potential for the Proposed Plan projects, together with other past, present, and reasonably foreseeable future projects, to make a cumulatively considerable contribution to a significant cumulative impact to noise. The geographic scope for cumulative noise impact includes those sensitive receptors closest to the Proposed Plan project sites, which potentially could be affected by construction noise, or adjacent to major transportation corridors (truck haul routes or local rail lines) serving the project areas. This analysis considers the potential for the proposed projects and land use changes, along with related projects within the geographic scope, to cause substantial increases in noise as a result of future construction and operations (e.g., on-site operations, truck traffic on local streets, and rail activity). When considering the cumulative impacts resulting from the interaction of noise due to the proposed projects in combination with noise that originates from other projects that would be occurring in the vicinity of the Proposed Plan project sites, not all of the cumulative projects are close enough to make an impact. The noise level that results from distant cumulative projects is diminished by geometric spreading and ground attenuation. Other factors such as line-of-sight obstructions and louder and closer existing noise sources may also further diminish the noise impacts associated with these other cumulative projects.

Cumulative noise impacts would potentially occur from the construction of other projects within the area. Noise from the construction of these projects would tend to be localized, thus, potentially affecting the areas immediately surrounding each project site.

The significance criteria used for the cumulative analysis are the same as those used for the Proposed Plan in Section 3.9.5.1 (Significance Criteria).

- **NOI-1: Result in a substantial temporary or permanent increase (3 dBA or more in L_{eq}) in ambient noise levels at the property line of a noise-sensitive receptor.**

Projects involving construction, except those far removed from areas where ambient noise levels are relatively low, would occasionally generate noise that exceeds local ambient levels by 3 dBA. Construction noise resulting from reasonably foreseeable future projects would generate localized higher noise levels in the Harbor District. Therefore, the combined construction noise of future projects could result in cumulatively significant noise impacts associated with construction. However, construction projects are of limited duration and the noise from any given project would affect a limited geographic area since noise attenuates rapidly with distance. Also, projects far removed from each other, even if under construction at the same time, could be too far apart for the noise from both projects to adversely affect the same location. Nevertheless, cumulative noise from construction of related projects as it relates to Cumulative Impact NOI-1 could exceed local ambient levels by 3 dBA and this would be cumulatively significant.

Many of the Proposed Plan projects would be constructed within the interior portions of the Harbor District. Noise generated by these projects likely would attenuate to background levels at the Harbor District boundary and, therefore, have a negligible contribution to cumulative noise levels in areas outside of the Port. Nevertheless, certain construction activities for Proposed Plan projects located close to the Harbor District boundary, as well as pile driving near a public yacht basin, could contribute to noise levels that, when combined with other concurrent, construction projects outside the Harbor District, could expose sensitive receptors to noise levels greater than 3 dBA above ambient. However, these conditions would require that the related project would be located close to the Harbor District boundary and would overlap in time with the Proposed Plan project. Nevertheless, construction activities associated with the Proposed Plan projects would make a cumulatively significant contribution to cumulative construction noise impacts.

Implementation of **Mitigation Measures NOI-1a through NOI-1f** would minimize construction noise impacts associated with the Proposed Plan projects. However, impacts would remain significant; therefore, the contribution of the Proposed Plan projects to significant noise impacts would be cumulatively considerable.

- **NOI-2: Exceed Land Use Noise District noise levels allowed by the LBMC.**

Many of the Proposed Plan projects would be constructed within the interior portions of the Harbor District. Noise generated by these projects likely would attenuate to background levels at the Noise Land Use boundary and, therefore, have a negligible contribution to cumulative noise levels in areas outside of the Port. However, certain Proposed Plan projects located closer to the Harbor District boundary could include construction activities including pile driving, which would generate noise levels that potentially exceed the threshold at the Noise Land Use District Four boundary. Further, construction of Proposed Plan projects located near the Harbor District boundary could, in combination with other projects outside the Harbor District, contribute to cumulative noise levels that exceeded noise thresholds at the Noise Land Use District Four boundary. However, these projects would have to be close enough and with concurrent construction activities. Nevertheless, construction activities associated with the Proposed Plan projects would potentially result in a cumulatively significant contribution to cumulative construction noise impacts if they were to happen at the same time.

Implementation of **Mitigation Measures NOI-1a through NOI-1f** would minimize construction noise impacts. However, impacts would remain significant; therefore, the contribution of the Proposed Plan projects to significant noise impacts would be cumulatively significant.

- **NOI-3: Result in exposure of persons to or generation of ground-borne vibration in excess of the standards established by the LBMC.**

Vibration attenuates rapidly with distance. Therefore, construction projects would have to occur at the same time and be very close (within a matter of feet) to each other to be considered cumulatively considerable. No known past, present, or reasonably foreseeable future projects would occur this close together and at the same time. Because construction activities associated with the related projects would not occur close enough together and at the same time, cumulative vibration impacts would not be greater than the impacts of individual projects. Project-specific construction activity vibration assessments would be conducted when project details are finalized to determine significance of individual project impacts.

Ground vibration from truck or rail traffic associated with operations of the Proposed Plan projects and land use changes would not exceed LBMC and FTA ground-borne vibration criteria at sensitive receptor locations. Depending on the location and type of operational vibration sources associated with the Proposed Plan projects, increases in the number of ground vibration events that are perceptible at or beyond the Harbor District boundary may occur. From a programmatic perspective, and in the absence of project-specific details, operational vibration impacts cannot be accurately quantified and, therefore, could be cumulatively significant.

- **NOI-4: Result in a substantially increased number of vibration events that exceed the standards established by the LBMC.**

Because cumulative vibration levels would not exceed the LBMC and FTA ground-borne vibration criteria at sensitive receptor locations, there would be no substantially increased number of vibration events that exceed the criteria. Depending on the location and type of operational vibration sources associated with the Proposed Plan projects, increases in the number of ground vibration events that are perceptible at or beyond the Harbor District boundary may occur. From a programmatic perspective, and in the absence of project-specific details, operational vibration impacts cannot be accurately quantified and, therefore, could be cumulatively significant.

3.9.7 Mitigation Monitoring Program

Implementation of **Mitigation Measures NOI-1a through NOI-1f** would be required to reduce short-term construction impacts on sensitive noise receptors during noise-generating activities. These mitigation measures and monitoring requirements are summarized in Table 3.9-11.

TABLE 3.9-11. MITIGATION MONITORING PROGRAM

Mitigation Measure	Responsible Party	Timing/Frequency
NOI-1a: Noise Barriers. Temporary noise barriers shall be located between noise-generating construction activities (e.g., concrete demolition) and noise-sensitive locations. Temporary barriers would be designed with the goal of reducing noise levels to below significance thresholds where such reductions are practicable using commercially available products.	POLB	During noise-generating activity
NOI-1b: Time of Day Restrictions. Noise-generating activities shall be limited to the hours of 7:00 a.m. to 7:00 p.m. on weekdays, between 9:00 a.m. and 6:00 p.m. on Saturdays, and prohibited anytime on Sundays and holidays as prescribed by Section 8.80.202 of the LBMC.	POLB	During noise-generating activity
NOI-1c: Equipment Selection. All construction equipment powered by internal combustion engines would be properly muffled and maintained. Quiet construction equipment would be used during Proposed Plan project construction to the extent feasible.	POLB	Prior to and during noise-generating activity
NOI-1d: Idling Minimization. The idling of internal combustion engines near noise-sensitive areas would be prohibited during Proposed Plan project construction.	POLB	During noise-generating activity
NOI-1e: Equipment Location. All stationary noise-generating construction equipment, such as air compressors and portable power generators, would be located as far as practical from existing noise-sensitive land uses.	POLB	During noise-generating activity
NOI-1f: Public Notification. The Port would publish notices in the Press Telegram and all property managers adjacent to the Proposed Plan project site would be notified in advance of the construction schedule.	POLB	Prior to noise-generating activity.
Key: LBMC = City of Long Beach Municipal Code; POLB = Port of Long Beach		

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3.10 POPULATION AND HOUSING

This section describes the potential impacts on population and housing that could result from implementation of the Proposed Plan and its alternatives.

3.10.1 Environmental Setting

The environmental setting includes existing (baseline) conditions and describes population and housing in the vicinity of the Port and within the larger region of Southern California. In addition, employment conditions are described since employment growth influences regional population and housing growth. For the purposes of this analysis and used in this section, Southern California refers to the five-county region that includes the counties of Los Angeles, Orange, Riverside, San Bernardino, and Ventura.

The baseline year for this PEIR is 2018. Baseline population estimates for cities and counties and population projections used in this section are based on data from the California Department of Finance. The most recent SCAG profiles for each county are used to describe baseline housing and employment conditions in the five-county area (SCAG 2017a, SCAG 2017b, SCAG 2017c, SCAG 2017d, SCAG 2017e), as well as the most recent RTP/Sustainable Communities Strategy (SCS), adopted in 2016 (SCAG 2016).

3.10.1.1 Area of Influence

The area of influence for this analysis includes the counties of Los Angeles, Orange, Riverside, San Bernardino, and Ventura.

3.10.1.2 Regional Setting

Population

As of January 1, 2018, the population in the area of influence was approximately 19.019 million people of which an estimated 2.5 percent (475,984 people) were in the City of Long Beach (California DOF 2019a, California DOF 2019b). As shown in Table 3.10-1, the population in the five-county region increased by over 1.1 million persons since 2010 at an average annual growth rate of 0.75 percent. Riverside County experienced the highest rate of growth while Ventura County experienced the lowest. Based on 2010 Census estimates and 2018 California Department of Finance estimates, the population of the City of Long Beach increased at a lower rate than Los Angeles County during the same period with an average annual growth of 0.37 percent (USCB 2010, California DOF 2019b).

Similar to state and national trends, the area of influence has experienced slow growth over the last several years and slow growth is anticipated to continue. Population projections from the California Department of Finance are also presented in Table 3.10-1. The data represent the same timeframes covered by the Proposed Plan. The base year for the population projections is 2016. The area of influence is forecasted to experience average annual population growth of 0.57 percent between 2018 and 2040. Of the five-county region, Riverside County is forecasted to continue to experience the largest growth and Los Angeles County forecasted to experience the smallest growth (California DOF 2019a). Population estimates from the 2016 RTP/SCS indicate the population of the City of Long Beach would reach 484,500 by 2040 of which the majority would be the result of natural increases in the population (i.e., births) as opposed to net migration (SCAG 2016).

TABLE 3.10-1. PROJECTED POPULATION THROUGH 2040

County	2010	2018	Total Population Change (2010–2018)	Average Annual Growth (2010–2018)	2040	Total Population Change (2018–2040)	Average Annual Growth (2018–2040)
Los Angeles	9,838,771	10,327,815	489,044	0.61%	11,144,846	817,031	0.35%
Orange	3,014,677	3,220,451	205,774	0.83%	3,558,071	337,620	0.45%
Riverside	2,196,083	2,425,939	229,856	1.25%	3,159,599	733,660	1.21%
San Bernardino	2,043,484	2,185,083	141,599	0.84%	2,730,966	545,883	1.02%
Ventura	824,441	860,426	35,985	0.54%	959,354	98,928	0.50%
Five-County Region	17,917,456	19,019,714	1,102,258	0.75%	21,552,836	2,533,122	0.57%

Source: (California DOF 2019a)
Note: Population projections by the California Department of Finance (2019a) are based on 2016 population estimates.

Housing

Attributes of housing described below include trends in construction and housing prices. Southern California housing construction experienced periods of expansion between 1967 and 1972, 1975 and 1977, 1982 and 1986, and 1995 to 2006, with periods of decline in between. The decline in housing construction in the late 1980s and early 1990s was in response to economic dislocation associated with reductions in military defense spending and base closures. Due to more recent economic declines, the number of new housing units constructed in Los Angeles County dropped by more than 80 percent from 2006 to 2009.

In comparison, between 2000 and 2010, the housing market experienced new residential construction at all-time highs and lows. During this period, the shares of housing units constructed in Riverside County and Los Angeles County were similar, equaling about one-third of the regional total, with San Bernardino County having less than 20 percent of the regional total. The contributions made to new housing constructed in Southern California by Riverside County and San Bernardino County have risen rapidly in recent decades when compared to Los Angeles County.

Employment

Regional employment (number of jobs) in the five-county region totaled approximately 7.9 million in 2015 (Table 3.10-2), representing an increase by almost 749,000 persons between 2010 and 2015 at an average rate of 1.9 percent (SCAG 2016). Between 2015 and 2040, the region is estimated to gain 1.818 million jobs or increase employment by an average annual rate of 0.83 percent (SCAG 2016). Table 3.10-2 presents employment projections prepared by SCAG in the RTP/SCS, 2016–2040.

Unemployment rates in the region peaked around 2010, with average annual unemployment rates ranging between a low of 9.7 percent in Orange County to 13.8 percent in Riverside County (BLS 2010). The most recent labor force data, annual averages, indicate that unemployment rates in the counties range between a low of 2.9 percent in Orange County to a high of 4.7 percent in Los Angeles County (BLS 2018).

TABLE 3.10-2. PROJECTED REGIONAL EMPLOYMENT THROUGH 2040 (ROUNDED TO NEAREST THOUSAND)

Area	2010	2015	2040	Average Annual Percent Change (2015–2040)
Los Angeles County	4,140,000	4,463,000	5,226,000	0.63%
Orange County	1,493,000	1,633,000	1,899,000	0.61%
Riverside County	592,000	742,000	1,175,000	1.86%
San Bernardino County	653,000	729,000	1,028,000	1.38%
Ventura County	323,000	363,000	420,000	0.59%
Five-County Region	7,201,000	7,930,000	9,748,000	0.83%

Source: (SCAG 2016)

The economic downturn during the 2007 to 2010 period had an adverse impact on many industrial sectors within the region, particularly construction and manufacturing. As shown in Table 3.10-3, between 2007 and 2015, the number of construction jobs decreased in each county. The greatest decrease was in Los Angeles County (over 53,000 jobs) for a total loss of 138,405 jobs lost in the sector since 2007 (SCAG 2017a, SCAG 2017b, SCAG 2017c, SCAG 2017d, SCAG 2017e). The loss of construction jobs and other high paying salaried jobs has had a negative impact on the economic quality of the region's residents (SCAG 2016). Projections for the region indicate that the area will continue to diversify and shift away from manufacturing jobs and other production-oriented industries to more service-oriented industries (SCAG 2016). The construction industry is projected to regain strength and be a key industry in the region through at least 2040 in terms of employment, along with health care and social assistance, professional and business services, and education services (SCAG 2016).

TABLE 3.10-3. CONSTRUCTION EMPLOYMENT

Area	2007	2010	2015	Total Change (2007–2015)
Los Angeles County	194,097	128,901	140,127	-27.8%
Orange County	119,599	79,000	89,866	-24.9%
Riverside County	80,503	41,399	52,990	-34.2%
San Bernardino County	51,199	28,600	32,325	-36.9%
Ventura County	23,301	14,000	14,986	-35.7%
Five-County Region	468,699	291,900	330,294	-29.5%

Source: (SCAG 2017a, SCAG 2017b, SCAG 2017c, SCAG 2017d, SCAG 2017e)

The Port is an important economic contributor to the local and regional areas and to the nation. Throughout a five-county area, the Port supports 576,350 jobs, provides $30.8 billion in income, and generates $88.5 billion in economic output. Of the total jobs supported by the Port within the five-county area, 394,220 jobs are within Los Angeles County and 51,090 are within the City of Long Beach; 51,090 jobs equates to 1 in 5 jobs in the City and provides $3.2 billion in income. Within the City, the Port generates approximately $9.0 billion in output to the economy. A recent economic study on the contributions of the Port at the local, regional, and national level reports that 7 percent of City workers were directly associated with the POLB (POLB 2019g).

3.10.2 Regulatory Setting

The only regulations that apply to population and housing are state and local regulations. There are no applicable federal regulations.

3.10.2.1 State Regulations

California Housing Element Law

California Government Code Section 65300 requires each city and county to adopt a general plan for future growth. Section 65302(c) of the California Government Code requires that every city and county in California adopt a housing element as provided in Article 10.6 as part of its general plan. The purpose of this plan is to ensure that the governments meet the housing needs of all people in the community regardless of their income.

3.10.2.2 Local Regulations

City of Long Beach General Plan and Housing Element

The most recent housing element of the City of Long Beach General Plan was adopted in 2014 and covers the 8-year planning period between October 15, 2013, and October 15, 2021. There are five main issues that the housing element identifies including:

- Conserve and improve existing affordable housing;
- Provide adequate sites for new housing;
- Assist in the development of affordable housing;
- Remove governmental constraints to housing development; and
- Promote equal housing opportunities for residents of the City of Long Beach.

Southern California Association of Governments Regional Plans

The SCAG is a "Joint Powers Authority under California state law, established as an association of local government and agencies that voluntarily convene as a forum to address regional issues" (SCAG 2019a). The SCAG represents Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura counties, covering over 38,000 square miles. The agency is responsible for preparing the Regional Housing Needs Allocation, which quantifies the need for housing within each jurisdiction resulting from population, employment, and household growth.

3.10.3 Impacts and Mitigation Measures

3.10.3.1 Significance Criteria

Criteria for determining the significance of impacts on population and housing are based on the 2019 CEQA Guidelines, Appendix G (Environmental Checklist), and have been modified as necessary to reflect Port operations within a highly urbanized, industrial complex. Impacts during construction or operation would be considered significant if the Proposed Plan would:

- **POP-1:** Induce substantial unplanned population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure); and/or

- **POP-2:** Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere.

3.10.3.2 Assessment Methodology

The methodology for assessing potential impacts on population and housing focused on the baseline conditions and any economic growth that construction or operations may generate that would result in substantial in- or out-migration of populations and subsequent changes in demand for housing. Additionally, any construction or operations that would occur in populated areas outside the Harbor District and result in substantial shifts in population or housing trends were assessed.

3.10.3.3 Proposed Plan

Impact POP-1: Construction and operations would not induce substantial unplanned population growth in an area, either directly or indirectly.

Impact Determination

Construction

Impacts associated with construction for Proposed Plan projects could result in additional employment opportunities. However, past, present, and potential trends in the construction industry throughout the region suggest that the existing population in the region would be able to support any additional jobs and would not result in an in-migration of workers that would induce substantial unplanned population growth. As discussed previously (Section 3.10.1.2, Regional Setting), there are over 576,000 jobs throughout the five-county region that are supported by the POLB. Of the more than 9.7 million full-time and part-time jobs in the five-county region, there are 330,000 construction-related jobs. As reported by SCAG (2016), the number of construction jobs declined between 2007 and 2015, which could indicate the existing construction labor force in the area is underutilized, but SCAG projections also forecast that construction will regain strength and be a key industry in the region through 2040, the duration of the Proposed Plan. Therefore, based on the existing large employment base supported by the Port and the number of jobs related to the construction industry throughout the region, it is anticipated that any new construction-related jobs would be filled by the existing labor force within the region.

Additionally, due to budget and logistical constraints associated with the Port, projects would not occur all at once and would be initiated at different times. The timing of the construction projects would likely allow construction employees to work on multiple projects, which could also reduce the potential for any additional population growth due to employment opportunities. Although direct and indirect benefits to the local economy from construction-related employment and income are temporary, lasting only for the duration of the activity, areas where there are multiple and ongoing construction activities could lead to long-term economic benefits, which may induce population growth. Regional planners anticipate population growth for the area based on forecasts suggesting the construction industry will regain strength and population growth will increase annually by 0.57 percent until 2040, with employment increasing annually by 0.83 percent during the same time period.

Since construction would not induce substantial unplanned population growth in the area, either directly or indirectly, construction impacts resulting from Proposed Plan projects on population would be less than significant.

Implementation of the OHSPER project would not require construction as the facility is already operable in its present configuration. Therefore, no substantial unplanned population growth would occur as a result of this project, and impacts on population would be less than significant.

Operations

Operational activities associated with the various Proposed Plan projects may result in direct or indirect new job creation. The Port is a major job generator at the local, regional, and national level. A 2019 study prepared for the Port by the Economic Development Research Group (POLB 2019g) estimated that the Port supports almost one in five jobs throughout the five-county region. The estimate represents an increase over previous findings largely in association with strong gains in cargo volumes and a 66 percent increase in the annual total value of goods moving through the Port, reaching $194.1 billion in 2017. Operational activities associated with various Proposed Plan projects are anticipated to be supported by jobs filled by the existing local population, which is trained and experienced through a pathway of educational institutions and experience working at similar port and port-related facilities. The Center for a Competitive Workforce, part of the Los Angeles Economic Development Corporation, published a study (LAEDC 2017) detailing short-term forecasts of specific industries within the Los Angeles Basin (Los Angeles and Orange Counties). The study indicated that the average number of jobs in the sectors of Ports and Supporting Transportation Activities (North American Industry Classification System codes 481, 483, and 488) was forecasted to grow from 83,750 jobs to 84,400 jobs from 2016 to 2021, an increase of 0.8 percent. By comparison, the 5-year population growth for the Los Angeles Basin for the same time period is 3.0 percent (California DOF 2019b), which would outpace the growth of jobs in these industries. Based on a population that is educated and trained in the same proportion as the past and as forecasted, the workforce for operational activities from Proposed Plan projects would continue to be supplied by the existing and future population and would not induce substantial unplanned population growth, either directly or indirectly. Therefore, impacts on population would be less than significant.

The OHSPER site would operate substantially similar to the currently permitted WASSS but would serve as an approved CAD location for maintenance dredging and capital development projects that generate contaminated sediments and sediments suitable for ocean disposal (see Section 1.8.4.5, OHSPER, for additional details). Operation of the OHSPER project would not induce substantial unplanned population growth since additional jobs likely would be filled primarily by the local labor force.

As construction and operations would not induce substantial unplanned population growth in an area, no mitigation is required. Impacts would be less than significant.

Impact POP-2: Construction and operations would not displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere.

Impact Determination

Construction

Construction activities associated with the Proposed Plan projects would not occur in residential areas that would require demolition of housing or displace areas zoned for housing. Therefore, construction activities would not displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere, and impacts would be less than significant.

Implementation of the OHSPER project would not require construction as the facility is already operable in its present configuration. In addition, the site is located entirely offshore and approximately 2 miles from the closest residential area. Therefore, no construction-related impacts would be anticipated that would displace substantial numbers of existing people or housing or necessitate the construction of replacement housing elsewhere.

Operations

Operational activities associated with Proposed Plan projects would increase the capacity and traffic through the Port, which may require additional permanent personnel to manage the increase in input/output. However, any additional jobs associated with operational activities would be filled by the local workforce within the five-county region. Proposed Plan projects would be within the Port boundaries and would not displace a substantial number of people or housing. Therefore, no new housing units would be required, and operational impacts on population and housing would be less than significant.

Operation of the OHSPER site would not displace existing people or housing or necessitate the construction of housing elsewhere because the project site is located entirely offshore. The nearest residential development from the site is located 2 miles northeast from the offshore project site. Therefore, the project would not displace people or housing or require additional housing units to be constructed.

As construction and operations would not displace substantial numbers of existing people or housing, no mitigation is required. Impacts would be less than significant.

3.10.3.4 Alternative 1 (No Plan Alternative)

Alternative 1 (No Plan Alternative) considers what would reasonably occur if the Port did not update the PMP to include updates to the planning districts and allowable land and water use designations within the Harbor District. Alternative 1 includes projects that are 1) consistent with the 1990 PMP as amended, 2) may or may not have been evaluated in a final CEQA document, and/or 3) could be implemented without approval of the Proposed Plan. Alternative 1 includes the following projects: Administrative Building Site Support Yard (Expansion), Fourth Track at Ocean Boulevard, Ocean Boulevard Bicycle Gap Closure, Pier B Street Support Yard, Pier D Street Realignment, Pier S Mixed Use Development, and Pier S Shoreline Enhancement. This alternative also includes the Pier T Echo Support Yard project, which would construct a 17-acre support yard (chassis, empties, or peel-off) that would serve the Pier T container terminal. In addition, use of the WASSS would continue as currently permitted (i.e., placement and reuse of clean sediments).

Impact Determination

From a programmatic perspective, Alternative 1 would likely result in less job creation than the Proposed Plan due to the reduced construction and operational activities and consequently would have less impact on population and housing. However, similar to the impact determination under the Proposed Plan, construction activities proposed under Alternative 1 would not occur in residential areas that would require demolition of housing or displace areas zoned for housing. Therefore, construction activities would not displace substantial numbers of people or housing, necessitating construction of replacement housing elsewhere, and impacts would be less than significant. Under this alternative it would be anticipated that any additional jobs associated with operational activities would be filled by the local workforce within the five-county region. Alternative 1 projects would be within the Port boundaries and would not displace a substantial number of people or housing. Therefore, no new housing units would be required, and operational impacts on population and housing would be less than significant under Alternative 1. Implementation of Alternative 1 would result in less than significant impacts and no mitigation is required.

3.10.3.5 Alternative 2 (No Terminal Development)

Alternative 2 (No Terminal Development) is similar to the Proposed Plan and would include updates to the planning districts and allowable land and water use designations in the Harbor District. However, Alternative 2 would not include terminal development projects at Pier T, Pier W, or Pier J. Alternative 2 would include the following projects: Administrative Building Site Support Yard (Expansion), Protective Boat Basin (Berth F202), OHSPER, Fourth Track at Ocean Boulevard, Ocean Boulevard Bicycle Gap Closure, Pier B Street Support Yard, Pier D Street Realignment, Pier T Echo Support Yard, Pier S Mixed Use Development, Pier S Shoreline Enhancement, and land use changes.

<u>Impact Determination</u>

Alternative 2 would likely result in less job creation than the Proposed Plan due to the reduced construction and operational activities and consequently would have less impact on population and housing. However, similar to the impact determination under the Proposed Plan, construction activities proposed under Alternative 2 would not occur in residential areas that would require demolition of housing or displace areas zoned for housing. Therefore, construction activities would not displace substantial numbers of the existing population or housing, necessitating the construction of replacement housing elsewhere, and impacts would be less than significant. Under this alternative it would be anticipated that any additional jobs associated with operational activities would be filled by the local workforce within the five-county region. Projects associated with Alternative 2 would be within the Port boundaries and would not displace a substantial number of people or housing. Therefore, no new housing units would be required, and operational impacts on population and housing would be less than significant under Alternative 2. Implementation of Alternative 2 would result in less than significant impacts and no mitigation is required.

3.10.3.6 Alternative 3 (Reduced Terminal Development)

Alternative 3 (Reduced Terminal Development) is similar to the Proposed Plan and would include updates to the planning districts and allowable land and water use designations in the Harbor District. Under Alternative 3, development of the Pier J terminal would be reduced compared to the Pier J Terminal Redevelopment under the Proposed Plan. The Pier J Reduced Development would include dredging and filling the 22-acre triangle, cutting a 9-acre notch, extending the north wharf to the east, and relocating the existing rail line and yard to Pier J South. No development of a new Pier W terminal would occur. Alternative 3 would include the following projects: Administrative Building Site Support Yard (Expansion), Protective Boat Basin (Berth F202), OHSPER, Fourth Track at Ocean Boulevard, Ocean Boulevard Bicycle Gap Closure, Pier B Street Support Yard, Pier D Street Realignment, Pier S Mixed Use Development, Pier S Shoreline Enhancement, Pier T Improvements, Pier J Reduced Development, and land use changes.

Impact Determination

Alternative 3 would likely result in less job creation than the Proposed Plan due to the reduced construction and operational activities and consequently would have less impact on population and housing. However, similar to the impact determination under the Proposed Plan, construction activities proposed under Alternative 3 would not occur in residential areas that would require demolition of housing or displace areas zoned for housing. Therefore, construction activities would not displace substantial numbers of people or housing, necessitating the construction of replacement housing elsewhere, and impacts would be less than significant. Under this alternative it would be anticipated that any additional jobs associated with operational activities would be filled by the local workforce within the five-county region. Projects associated with Alternative 3 would be within the Port boundaries and would not displace a substantial number of people or housing. Therefore, no new housing units would be required, and operational impacts on population and housing would be less than significant under this alternative. Implementation of Alternative 3 would result in less than significant impacts and no mitigation is required.

3.10.4 Cumulative Impacts

This section evaluates the potential for the Proposed Plan projects, together with other past, present, and reasonably foreseeable future projects, to make a cumulatively considerable contribution to a significant cumulative impact on population and housing. The area of influence for cumulative impacts on population and housing is the SCAG five-county region, including the counties of Los Angeles, Orange, Riverside, San Bernardino, and Ventura. The significance criteria used for the cumulative analysis are the same as those used for the Proposed Plan in Section 3.10.3.1 (Significance Criteria).

- **POP-1: Induce substantial unplanned population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure).**

Many of the past, present, and reasonably foreseeable future projects (see Table 2.1-1) in the region of influence would involve construction, demolition, or renovation of Port facilities. Construction activities associated with these projects would provide short-term economic benefits from the use of local labor and supplies. Cumulative effects from construction activities could create longer-term employment opportunities for the foreseeable future. Construction activities associated with the Proposed Plan would also likely result in additional direct, indirect, and induced number of jobs. However, there are approximately 330,000 construction-related jobs throughout the five-county region and, with recent jobs losses in the industry between 2007 and 2015, it would be expected that the local labor supply would be able to fill any construction-related employment. The Proposed Plan projects combined with other current and reasonably foreseeable Port operations would continue the Port's contribution to the local economy through employment and income-generating activities and is likely to be a source of direct, indirect, and induced population growth for the area. However, based on its history, population growth associated with the Port would likely not result in a substantial unplanned population growth. This is because the SCAG forecasts take into consideration, "a combination of recent and past trends, reasonable key technical assumptions, and regional growth policies" (SCAG 2019b). Therefore, population impacts from the Proposed Plan projects, including operation of the OHSPER project, would be less than cumulatively considerable. Because the Proposed Plan projects would not make a cumulatively considerable contribution to a significant cumulative impact, no mitigation is required.

- **POP-2: Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere.**

Planned projects in the area of influence include several new residential units (see Table 2.1-1 for related projects within the City), many of which could induce population growth and create new jobs. Incremental impacts of the Proposed Plan with other past, present, and reasonably foreseeable future projects would not have a significant impact on population and housing in the five-county region given that the number of additional jobs required for construction and operational activities would be minor compared to the overall region and likely would be filled primarily by the local labor force. Therefore, population and housing impacts from the Proposed Plan projects, including operation of the OHSPER project, would be less than cumulatively considerable. Because the Proposed Plan projects would not make a cumulatively considerable contribution to a significant cumulative impact, no mitigation is required.

3.10.5 Mitigation Monitoring Program

As no mitigation measures are required to address impacts on population and housing, no mitigation monitoring program is required.

3.11 PUBLIC SERVICES AND SAFETY

This section describes the potential impacts on public services (i.e., police protection, fire protection, the Multi-Service Center that provides a variety of services to the homeless, and parks and schools) that could result from implementation of the Proposed Plan and its alternatives.

3.11.1 Environmental Setting

3.11.1.1 Area of Influence

The area of influence for public services and safety would include the Harbor District.

3.11.1.2 Setting

Multi-Service Center

The Multi-Service Center is located within the Harbor District at 1301−1327 West 12th Street (Figure 3.11-1). The Multi-Service Center is operated by the City of Long Beach Department of Health and Human Services, along with 12 public and private partner organizations as part of the City's Continuum of Care System, a communitywide planning effort to address issues of homelessness in a coordinated manner. The Multi-Service Center is a nonresidential facility designed to provide one-stop access to resources for homeless individuals and families within the City. Services range from basic amenities (shower, laundry, mail and message center) to street outreach, van/shuttle transportation, medical care, mental health services, substance abuse treatment, human immunodeficiency virus/acquired immunodeficiency syndrome (HIV/AIDS) services, integrated case management, and housing coordination (City of Long Beach 2019c). The mission of the Multi-Service Center is to provide comprehensive supportive services to promote progress toward permanent housing and self-sufficiency, by creating a community where health, safety, and well-being are established. Annually, the Multi-Service Center averages 26,000 client visits and services (City of Long Beach 2019c).

Fire Protection

The LBFD provides fire protection and emergency services for the Harbor District. Fire protection capabilities are based on the distance from the emergency to the nearest fire station and the number of simultaneous emergency or fire-related calls.

The LBFD is divided into four bureaus that report to the Fire Chief: Operations Bureau, Fire Prevention Bureau, Support Services Bureau, and Administrative Bureau. The Operations Bureau is responsible for all field operations including fire suppression, marine safety, and basic and advanced life support (City of Long Beach 2019d). The Operations Bureau is managed by a Deputy Chief and an Assistant Chief (LBFD 2019a). There are three operations Battalion Chiefs daily per district (Gregory 2019).

The LBFD operates 23 fire stations throughout the City, which serve 462,257 Long Beach residents and cover 7 miles of beaches and 22 square miles of waterways (Gregory 2019). Each station is equipped with various types of trucks and firefighting apparatus. Fire prevention, fire protection, and emergency medical services within the Port are the responsibility of the LBFD. The Port has an MOU with LBFD to provide a full range of fire and emergency services within the Port. In the Harbor District, LBFD facilities include land-based fire stations and fireboat companies. These stations are part of the LBFD's District 1, serving the southwest part of the City.

Figure 3.11-1. Location of Public Services in the Harbor District Vicinity

The fire stations in the Harbor District are:

- **Fire Station 6 (Land-based Fire Station):** Located at 330 Windsor Way on Pier H, Station 6 operates an engine company, paramedic, and urban search-and-rescue unit.
- **Fire Station 15 (Fireboat Station):** Located at Pier F, Berth 202, Station 15 operates an engine company, fireboat, and apparatus storage facility.
- **Fire Station 20 (Fireboat Station):** Located at 331 Pier D Avenue West, Station 20 operates an engine company, fireboat, and apparatus storage facility.
- **Fire Station 24 (Land-based Fire Station):** Located at 111 Pier S Avenue, Station 24 operates an engine company, paramedic, and urban search-and-rescue unit.

Three fire stations serving the Harbor District are located outside of the Port, within the City:

- **Fire Station 1 (Land-based Fire Station):** Located at 100 Magnolia Avenue, Station 1 operates a ladder truck and a paramedic rescue ambulance (Gregory 2019).
- **Fire Station 3 (Land-based Fire Station):** Located at 1222 Daisy Avenue, Station 3 operates three 24-hour ambulances (Gregory 2019).
- **Fire Station 13 (Land-based Fire Station):** Located at 2475 Adriatic Avenue, Station 13 operates a paramedic rescue ambulance.

Fire Stations 1 and 3 are part of District 1, while Fire Station 13 is located in District 3, serving the northwest part of the City. The LBFD has approximately 527 full-time equivalent uniformed and civilian personnel budgeted (LBFD 2019b). There are 124 on-duty fire suppression staff per day. There are four staff members on all engines and trucks and two firefighters/paramedics on all paramedic rescue ambulances (Gregory 2019).

The Marine Safety Division of the LBFD is responsible for operation and management of the Marine Safety/Lifeguard Divisions, public safety of recreational vehicles moored in the City's marinas, and response to water emergencies in rivers and lakes (LBFD 2019c). The Division has 27 full-time employees and 140 seasonal personnel (LBFD 2019c).

The citywide LBFD response time target for on-scene arrival of the first appropriate unit is within 6 minutes and 20 seconds from call initiation, 90 percent of the time (City of Long Beach 2019d).

Police Protection

Security at the Port is the multi-jurisdictional responsibility of many government agencies including the LBPD Port Police Division, Port Security Division, Port Harbor Patrol, USCG, CBP, and state and federal homeland security offices. In addition, some tenants occupying a berth or berths in the Port maintain their own internal security staff.

The Port Security Division and Harbor Patrol are housed in the JCCC, located within the Harbor District at 1249 Pier F Avenue (Figure 3.11-1). The JCCC also houses the LBPD Port Police Division, Port of Los Angeles, USCG, CPB, and the Marine Exchange of Southern California (Marine Exchange) during an emergency (POLB 2018g). The JCCC operates 24 hours per day, 7 days per week, and is a regional resource that houses emergency management facilities, including a Department Operations Center that is used to coordinate emergencies in the San Pedro Bay Port Complex. The Center's state-of-the-art technology enables real-time information sharing with the Port's security partners at the local, state, regional, and federal levels.

Long Beach Police Department

The LBPD Port Police Division provides contracted law enforcement services to the Port through an MOU. The Port Police Division provides law enforcement on all Long Beach waterways, conducts landside patrols, conducts cruise line and ship escorts, assists recreational vessels, conducts ship sea marshalling, and deploys police dive personnel (LBPD 2018). Officers respond to calls for service, conduct investigations, develop fire reports, issue citations, and make arrests as necessary. The officer-to-population ratio is 1.69 officers per 1,000 residents (Governing.com 2018). Average response time for Priority 1 calls (i.e., potentially life-threatening emergencies) is 5 minutes or less (City of Long Beach 2019e).

Port Security Division

The Port Security Division is responsible for patrol and surveillance of the Port to ensure a safe and secure environment for all staff, tenants, customers, and the public. The Port Security Division enforces federal, state, and local public safety statutes, as well as environmental and maritime safety regulations. Their primary goal is to protect the Port against all criminal activity; endure free flow and protection of commerce; and identify and apprehend persons who direct criminal activity toward POLB properties, customers, or Port users.

Harbor Patrol

The Harbor Patrol provides security and public safety at the Port. Harbor Patrol officers monitor Port facilities, public roads, marine terminals, and cargo at the Port. The Harbor Patrol provides service to the Port 24 hours a day, 7 days a week, through camera surveillance and radio-directed patrol cars. In addition, they utilize mobile underwater sonar, a dive team, explosive detectors, and other technologies to maintain security of the Port.

U.S. Coast Guard

USCG is a federal agency responsible for a broad scope of regulations, law enforcement, humanitarian, and emergency response duties. The USCG mission includes maritime safety, maritime law enforcement, natural resources protection, maritime mobility, national defense, and homeland security. USCG maintains a post at Base Los Angeles/Long Beach on Terminal Island in the Port of Los Angeles to serve both the Port of Los Angeles and Port of Long Beach. USCG's primary responsibility in the Port is to ensure the safety of vessel traffic in the Port and in coastal waters.

USCG 11th District Sector Los Angeles/Long Beach supports the Port and Harbor District. It handles marine safety issues such as inspection of U.S. and foreign vessels; maritime security; vessel traffic management; search and rescue; response to and planning for pollution incidents; response to vessel or Port emergencies and natural disasters; inspections of waterfront facilities and hazardous material containers; monitoring of oil transfers and explosive loads; licensing of mariners; investigation of marine casualties; and enforcement of fisheries, drug, and other maritime laws.

USCG 11th District Sector Los Angeles/Long Beach's AOR encompasses 300 miles of California coast from the Monterey County line to Dana Point and extends offshore 200 miles. The command uses 430 people to perform missions including operation of four helicopters, four 87-foot patrol boats, three 47-foot boats, four 41-foot boats, and nine rigid hull inflatable boats (POLA 2013). USCG field presence in the Port of Long Beach and Port of Los Angeles fluctuates daily depending on San Pedro Bay Complex operations and incidents, but typically involves between 30 and 50 people in the field who manage vessel traffic; conduct boating safety checks, harbor patrols, commercial vessel inspections, waterfront facility inspections, and container inspections; investigate reports of hazardous material and oil spills; and conduct search-and-rescue efforts (POLA 2013).

USCG response times are determined based on the distance required for travel to various waterfront facilities. USCG evaluates the location of an operation to ensure that it can adequately respond to a maritime safety situation. According to USCG policy, response time must be within 20 minutes (POLA 2013). From underway time to any location, in the worst weather conditions, USCG can reach the Harbor District in less than 15 minutes (10 minutes for getting underway and 5 minutes for travel time) (POLA 2013). The travel time to any portion of the Harbor District is within USCG policy goals (POLA 2013).

Parks and Recreational Facilities

There are several park facilities adjacent to the Harbor District in the City, including Cesar E. Chavez Park, Golden Shore Marine Biological Reserve Park, Harvey Milk Promenade Park and Equality Plaza, Marina Green Park, Rainbow Lagoon Park, Shoreline Aquatic Park, and Victory Park (see Section 3.12, Recreation, and Figure 3.12-1 for additional details). Harry Bridges Memorial Park, located on Pier H within the visitor-serving commercial and recreational area, is the only park located within the Harbor District.

Schools

There are no schools within the Harbor District. Two public schools are within 0.25 mile of the Harbor District, including Edison Elementary School and Cesar Chavez Elementary School (see Section 3.12, Recreation, and Figure 3.12-2 for additional information).

3.11.2 Regulatory Setting

3.11.2.1 Federal Regulations

Maritime Transportation Security Act

The MTSA and its international equivalent, the ISPS Code (adopted by the IMO), require port authorities, facility operators, and vessel owners to meet minimum security standards. Submission and implementation of Facility Security Plans and Vessel Security Plans are required to comply with these initiatives. USCG is responsible for ensuring that U.S. port and facility operators comply with the MTSA and ISPS. Due to the parallel nature of the MTSA and ISPS requirements, compliance with the MTSA is equivalent to compliance with the ISPS. The MTSA sets minimum security standards for vessels and facilities. It requires owners and operators of facilities to designate and train company, vessel, and facility security officers; develop security plans for facilities and vessels based on security assessments and surveys; implement security measures specific to the operations of each facility; and comply with Maritime Security Levels. The requirements for submission of the security plans became effective on December 31, 2003. Operational compliance was required by July 1, 2004. Facilities within the Harbor District are subject to the requirements of the MTSA.

Container Security Initiative

On the international level, several other new port security initiatives have been implemented to provide increased cooperation, greater use of technology, and additional port security facility enhancements. Two primary programs in these areas are the Container Security Initiative and Operation Safe Commerce. The Container Security Initiative, an existing DHS program, incorporates side-by-side teamwork with foreign port authorities to identify, target, and search high-risk cargo. This program is being expanded to strategic locations beyond the initial 20 major ports to include areas of the Middle East such as Dubai, as well as Turkey, and Malaysia.

Operation Safe Commerce

Operation Safe Commerce, in coordination with the USDOT, brings together private business; ports; and local, state, and federal representatives to analyze current security procedures for cargo entering the country. The objective of the program is to promote research and development for emerging technology to monitor the movement and ensure the security and integrity of containers through the supply chain. The major container port complexes of Seattle/Tacoma, Los Angeles/Long Beach, and New York/New Jersey are participating in the pilot program.

Application of Terrorism Risk Principles

Terrorism risk can be generally defined by the combined factors of threat, vulnerability, and consequence. In this context, terrorism risk represents the expected consequences of terrorist actions, taking into account the likelihood that these actions will be attempted and the likelihood that they will be successful. Of the three elements of risk, the threat of a terrorist action is not directly affected by activities in the Port. The vulnerability of the Port and of individual cargo terminals can be reduced by implementing security measures. The expected consequences of a terrorist action can also be affected by certain measures, such as emergency response preparations.

Terrorism Risk Associated with Port Cargo Facilities

The cargo facilities in the Port are the locations where cargo moving through the international supply chain is transferred between vessels and land transportation (i.e., either over-the-road tractor-trailers or railroad). Because this function is critical to the international supply chain and, therefore, to the U.S. economy, these facilities could be targeted for terrorist actions. During operational periods, access to these terminals is generally limited to terminal staff members, longshore workers, and truck drivers. There is no public access to these terminals. Port facilities could be subject to terrorist actions from the land or the water, and there could be attempts to disrupt cargo operations through various types of actions.

Terrorism Risk Associated with Containerized Cargo

Containerized cargo represents a substantial segment of maritime commerce and is the focus of much of the attention regarding seaport security. Containers are used to transport a wide variety of goods. A large container ship can carry as many as 16,000 containers or more, of which as many as 1,000 or more might be off-loaded at a given terminal. Intermodal cargo containers could be used to transport a harmful device, such as a weapon of mass destruction or a conventional explosive device, into the Port to harm another location, such as a highly populated or economically important region. The potential environmental effects of hazardous materials are addressed in Section 3.6 (Hazards and Hazardous Materials).

Cargo containers represent one of many potential ways to smuggle a weapon of mass destruction. With current security initiatives, cargo containers may be less desirable than other established smuggling routes (e.g., land-based ports of entry, cross border tunnels, illegal vessel transportation).

3.11.2.2 State Regulations

California Fire Code

The California Fire Code is provided in Part 9 of the California Building Standards Code (CCR Title 24). The California Fire Code contains fire safety-related building standards referenced in other parts of the California Building Standards Code (i.e., CBC, California Fire Code, California Electrical Code, California Mechanical Code, California Plumbing Code, and California Historical Building Code). The California Fire Code stipulates fire safety standards for all new construction, including new buildings, additions, alterations, and repairs for nonresidential buildings. The provisions of the California Fire Code are enforced by the State Fire Marshal and LBFD Fire Chief.

California Public Safety Code

The California Public Safety Code (CCR Title 19) establishes minimum standards for the prevention of fire and the protection of life and property against fire, explosion, and panic. The provisions of the California Fire Code are enforced by the State Fire Marshal and LBFD Fire Chief.

3.11.2.3 Local Regulations

City of Long Beach General Plan – Public Safety Element

The Public Safety Element of the City of Long Beach General Plan (City of Long Beach 1975) sets forth specific policies and objectives related to safety. These policies and objectives emphasize fire protection, geologic hazard (seismic, mudslide/landslide, erosion, flooding, and subsidence), crime prevention, utilities, industrial/transportation, and disaster operations.

3.11.3 Impacts and Mitigation Measures

3.11.3.1 Significance Criteria

Criteria for determining the significance of impacts on public services and safety are based on the 2019 CEQA Guidelines, Appendix G (Environmental Checklist), and have been modified as necessary to reflect Port operations within a highly urbanized, industrial complex. Impacts during construction or operation would be considered significant if the Proposed Plan would:

- **PSS-1:** Require the addition, expansion, modification, or relocation of an existing government facility to maintain acceptable service ratios, response times, or other performance objectives, the construction or operation of which could cause significant environmental impacts; and/or
- **PSS-2:** Result in substantial adverse physical impacts on existing school or park facilities, or create a need for new or physically altered school or park facilities, the construction or operation of which could cause significant environmental impacts, to maintain acceptable service ratios or other performance objectives.

3.11.3.2 Assessment Methodology

Potential impacts on public services were assessed by considering how additional construction and operational activities would affect requirements for new or renovated public facilities, which could adversely impact the ability of police, fire, and USCG to respond to an emergency situation. The assessment was performed by comparing the existing staffing, available equipment, and emergency response rates with projected service capacity, response times, and other performance measures as a result of the Proposed Plan and its alternatives.

3.11.3.3 Proposed Plan

Impact PSS-1: Construction and operations would not require the addition, expansion, modification, or relocation of an existing public facility to maintain acceptable service ratios, response times, or other performance objectives, the construction of which could cause significant environmental impacts.

<u>Impact Determination</u>

Construction

Construction activities associated with the Proposed Plan projects and land use changes could place additional demands on public services, including fire, police, and security. However, the existing public service facilities and personnel serving the POLB adequately support current and anticipated future construction needs that are required of a functioning and operational Port. For reasons related to Port budgetary constraints, limited staffing resources, obtaining environmental credits and permitting, and avoidance of disruptions to normal Port operations, construction activities associated with the Proposed Plan projects would be phased. Project phasing would minimize potentials for temporary surges in demands for public services. Implementation of applicable local, state, and federal regulations, and coordination between the Port and local agencies (LBPD, LBFD, Port Security, Harbor Patrol, and USCG, as appropriate), related to public safety during construction activities would also reduce the potential for adverse construction-related impacts on public services and safety. Consequently, construction activities would not require physical alterations to an existing public facility that could otherwise cause significant impacts.

Construction details associated with the Proposed Plan projects are not available at this time and project-specific environmental analysis will be required when the projects are initiated and carried forward. If during the environmental analysis and planning process, it is determined that additional services or physical modifications to existing public facilities are required, and the demand could result in significant environmental impacts related to construction, then appropriate mitigation measures may be identified at that time to reduce construction-related impacts on public services and safety.

Implementation of the OHSPER project would not require construction as the facility is already operable in its present configuration. Therefore, this project would not adversely impact public services and safety and impacts would be less than significant.

Operations

Operations of the Proposed Plan projects and land use changes may result in direct and indirect increases in public access or use of services within the Harbor District associated with new job creation and additional ground and vessel traffic. The existing public service facilities and personnel serving the POLB adequately support the dynamic environment typical of a functioning and operational Port and would not be anticipated to require physical alterations to an existing public facility. However, additional environmental analysis will be performed once project-specific information is available to determine whether and to what extent any changes to the public access within the Harbor District may impact the need for additional or modifications to public service facilities.

Operation of the Protective Boat Basin (Berth F202) under the Proposed Plan would relocate and extend the existing Jacobsen Pilots dock and construct a new multi-use dock, which would benefit the POLB Security Division, LBPD, and other visiting governmental security agencies by providing additional docking space and protection for agency vessels. The strategic location and enhancements to the dock resulting from this project would facilitate quick emergency response and help maintain security performance objectives.

As described in Section 3.14 (Vessel Transportation), modifications to vessel traffic may result from operational changes associated with use of the OHSPER site but would not result in substantial changes in risks to vessel safety. Therefore, no additional LBFD oversight would be required. As described in Section 3.11.1.2 (Setting) and shown in Figure 3.11-1, there are several fire stations within the Harbor District and in proximity to the OHSPER site, which would ensure response times remain within acceptable levels. Compliance with all applicable federal, state, and local public and safety regulations and Port security operations would reduce the potential for adverse effects to response times or other performance objectives and ensure adequate police and fire protection. Operations of the OHSPER project would not result in additional employment opportunities that would result in permanent population changes that would affect service ratios or require additional or physical modifications to existing public service facilities.

As construction and operations of the Proposed Plan projects and land use changes would not require the addition, expansion, modification, or relocation of an existing public facility to maintain acceptable performance objectives, impacts would be less than significant. No mitigation is required.

Impact PSS-2: Construction and operations would not result in substantial adverse physical impacts on existing school or park facilities, or create a need for new or physically altered school or park facilities, the construction of which could cause significant environmental impacts, to maintain acceptable service ratios or other performance objectives.

Impact Determination

Construction

The two land use zones within the Harbor District include Port Industrial (IP) and the Queensway Bay Planned Development District (PD-21) (see Section 3.8.2.3, Local Regulations). The only park located within the Harbor District is the Harry Bridges Memorial Park, which is located on Pier H within the PD-21 visitor-serving commercial and recreational area. There are no schools located within the Harbor District. No construction activities would occur within PD-21. Any construction within the IP zone would not impact parks or schools. Therefore, construction of Proposed Plan projects and land use changes would not result in substantial adverse physical impacts on existing schools or park facilities or create a need for new or physically altered school or park facilities that would result in construction-related environmental impacts.

Implementation of the OHSPER project would not require construction as the facility is already operable in its present configuration. Therefore, this project would not result in construction-related impacts on public services and safety and impacts would be less than significant.

Operations

Operation of the Proposed Plan projects would occur within the IP zone, which is characterized predominantly by maritime industry and marine resources. Proposed Plan operations would not impact any parks or schools because there are no schools within the Harbor District and the only park within the Harbor District is the Harry Bridges Memorial Park located on Pier H. Therefore, operations would not result in substantial adverse physical impacts on existing school or park facilities or create a need for new or physically altered school or park facilities, construction of which could cause significant environment impacts.

Operation of the OHSPER project would not impact schools or park facilities because the project site is located in the Outer Harbor portion of the Port. Additionally, operation of the OHSPER project would not create additional employment opportunities that would result in population growth, which then would cause an increase in demand for public services and facilities. Therefore, operation of the OHSPER project would not adversely impact public services and safety and impacts would be less than significant.

As construction and operations of the Proposed Plan projects and land use changes would not result in substantial adverse physical impacts on existing school or park facilities, impacts would be less than significant. No mitigation is required.

3.11.3.4 Alternative 1 (No Plan Alternative)

Alternative 1 (No Plan Alternative) considers what would reasonably occur if the Port did not update the PMP to include updates to the planning districts and allowable land and water use designations within the Harbor District. Alternative 1 includes projects that are 1) consistent with the 1990 PMP as amended, 2) may or may not have been evaluated in a final CEQA document, and/or 3) could be implemented without approval of the Proposed Plan. Alternative 1 includes the following projects: Administrative Building Site Support Yard (Expansion), Fourth Track at Ocean Boulevard, Ocean Boulevard Bicycle Gap Closure, Pier B Street Support Yard, Pier D Street Realignment, Pier S Mixed Use Development, and Pier S Shoreline Enhancement. This alternative also includes the Pier T Echo Support Yard project, which would construct a 17-acre support yard (chassis, empties, or peel-off) that would serve the Pier T container terminal. In addition, use of the WASSS would continue as currently permitted (i.e., placement and reuse of clean sediments).

<u>Impact Determination</u>

Potential construction and operational impacts on public services and safety under Alternative 1 would be similar but less than those identified under the Proposed Plan because there would be fewer construction activities planned and the extent of new structures and infrastructure would be the same as or less than those of the Proposed Plan. Therefore, implementation of Alternative 1 would result in less than significant impacts and no mitigation is required.

3.11.3.5 Alternative 2 (No Terminal Development)

Alternative 2 (No Terminal Development) is similar to the Proposed Plan and would include updates to the planning districts and allowable land and water use designations in the Harbor District. However, Alternative 2 would not include terminal development projects at Pier T, Pier W, or Pier J. Alternative 2 would include the following projects: Administrative Building Site Support Yard (Expansion), Protective Boat Basin (Berth F202), OHSPER, Fourth Track at Ocean Boulevard, Ocean Boulevard Bicycle Gap Closure, Pier B Street Support Yard, Pier D Street Realignment, Pier T Echo Support Yard, Pier S Mixed Use Development, and Pier S Shoreline Enhancement.

Impact Determination

Potential construction and operational impacts on public services and safety under Alternative 2 would be similar but less than those identified under the Proposed Plan because there would be fewer construction activities planned and the extent of new structures and infrastructure would be the same as or less than those of the Proposed Plan. Therefore, implementation of Alternative 2 would result in less than significant impacts and no mitigation is required.

3.11.3.6 Alternative 3 (Reduced Terminal Development)

Alternative 3 (Reduced Terminal Development) is similar to the Proposed Plan and would include updates to the planning districts and allowable land and water use designations in the Harbor District. Under Alternative 3, development of the Pier J terminal would be reduced compared to the Pier J Terminal Redevelopment under the Proposed Plan. The Pier J Reduced Development would include dredging and filling the 22-acre triangle, cutting a 9-acre notch, extending the north wharf to the east, and relocating the existing rail line and yard to Pier J South. No development of a new Pier W terminal would occur. Alternative 3 would include the following projects: Administrative Building Site Support Yard (Expansion), Protective Boat Basin (Berth F202), OHSPER, Fourth Track at Ocean Boulevard, Ocean Boulevard Bicycle Gap Closure, Pier B Street Support Yard, Pier D Street Realignment, Pier S Mixed Use Development, Pier S Shoreline Enhancement, Pier T Improvements, and Pier J Reduced Development.

Impact Determination

Potential construction and operational impacts on public services and safety under Alternative 3 would be similar but less than those identified under the Proposed Plan because there would be fewer construction activities planned and the extent of new structures and infrastructure would be the same as or less than those of the Proposed Plan. Therefore, implementation of Alternative 3 would result in less than significant impacts and no mitigation is required.

3.11.4 Cumulative Impacts

This section evaluates the potential for the Proposed Plan projects, together with other past, present, and reasonably foreseeable future projects, to make a cumulatively considerable contribution to a significant cumulative impact to public services and safety.

- **PSS-1: Require the addition, expansion, modification, or relocation of an existing public facility to maintain acceptable service ratios, response times, or other performance objectives, the construction or operation of which could cause significant environmental impacts.**

During the time frame for the Proposed Plan, past, present and potentially foreseeable future projects throughout the Port anticipate a growing work force with more ground and vessel transportation, which could affect the demand for public service personnel, equipment, and facilities to adequately serve Port operations. The existing public service facilities and personnel serving the POLB adequately support current and anticipated future construction needs that are required of a functioning and operational Port. Public services available at the Port are continually being evaluated and support the ever changing needs of a functioning and operational Port. The Proposed Plan would not require the development of new facilities or expansion of existing facilities. Therefore, the Proposed Plan would not make a considerable contribution to significant cumulative impacts on public services.

- **PSS-2: Result in substantial adverse physical impacts on existing school or park facilities, or create a need for new or physically altered school or park facilities, the construction or operation of which could cause significant environmental impacts, to maintain acceptable service ratios or other performance objectives.**

Past, present, and reasonably foreseeable projects at the POLB include maintenance and operation of existing visitor-serving commercial facilities and recreational facilities. Construction and operation of the Proposed Plan projects would occur within the IP zone, which is characterized predominantly by maritime industry and marine resources. Proposed Plan projects would not impact any parks or schools since there are no schools within the Harbor District and the only park within the Harbor District is the Harry Bridges Memorial Park located on Pier H within Queensway Bay Planned Development District (PD-21). No construction or operations associated with the Proposed Plan would occur within PD-21. Therefore, construction and operations would not result in substantial adverse physical impacts on existing school or park facilities or create a need for new or physically altered school or park facilities, construction of which could cause significant environment impacts.

Therefore, the Proposed Plan would not make a considerable contribution to significant cumulative impacts on school or park facilities.

3.11.5 Mitigation Monitoring Program

As no mitigation measures are required to address impacts on public services and safety, no mitigation monitoring program is required.

3.12 RECREATION

This section describes the potential impacts on recreation that could result from implementation of the Proposed Plan and its alternatives.

3.12.1 Environmental Setting

3.12.1.1 Area of Influence

The recreational resources analysis includes local and regional recreational facilities and services within and adjacent to the Harbor District.

3.12.1.2 Regional Setting

Parks and Recreational Facilities

The City offers recreation program services throughout 170 parks with 26 community centers, 2 historic sites, 2 major tennis centers, a municipal golf system, the Long Beach Animal Care Services Bureau, a marina system, and 6 miles of beaches (City of Long Beach 2019h). The City maintains several park facilities within 0.25 mile of the Harbor District. Harry Bridges Memorial Park is the only park located within the Harbor District. The Harry Bridges Memorial Park and other parks located partially or wholly within 0.25 mile of the Harbor District (shown in Figure 3.12-1) include:

- *Harry Bridges Memorial Park* is located on the Pier H waterfront facing downtown at Queens Highway and Harbor Scenic Drive. The site was part of the parkland mitigation for the development of the Aquarium of the Pacific and Rainbow Harbor for the replacement of recreational open space in Shoreline Park funded under the Land and Conservation Act. The park is included in the lease for the Queen Mary site, which the Queen Mary operator uses for outdoor special events.
- *Cesar E. Chavez Park* is located on 32.9 acres at 401 Golden Avenue in the City of Long Beach. Amenities include a basketball court, community center, two playgrounds, weight room, restrooms, picnic areas, and a large meadow. In partnership with the Long Beach Unified School District, one block of the park is used as a play area for Cesar Chavez School.
- *Drake Park* is located on 6.6 acres at 951 Maine Avenue in Long Beach within 0.25 mile of the Harbor District boundary. Park amenities include a basketball court, tennis court, volleyball court, community center, picnic area, playground, soccer field, and softball field. The historic Bembridge House, owned by the Long Beach Heritage Coalition, is located adjacent to the park's northeast edge (City of Long Beach 2019g).
- *Golden Shore Marine Biological Reserve Park* is located on 9.1 acres south of Shoreline Drive in the City of Long Beach. The park is a sanctuary for birds and aquatic life and includes 6.4 acres of intertidal and subtidal wetland habitat created as mitigation for the impact on the saltwater lagoon that was converted to Rainbow Harbor recreational boating area.
- *Shoreline Aquatic Park* is located on Aquarium Way between the Long Beach Arena and downtown Shoreline Marina in the City of Long Beach. The 12.3-acre park is a wide open green area used for picnics and special events.

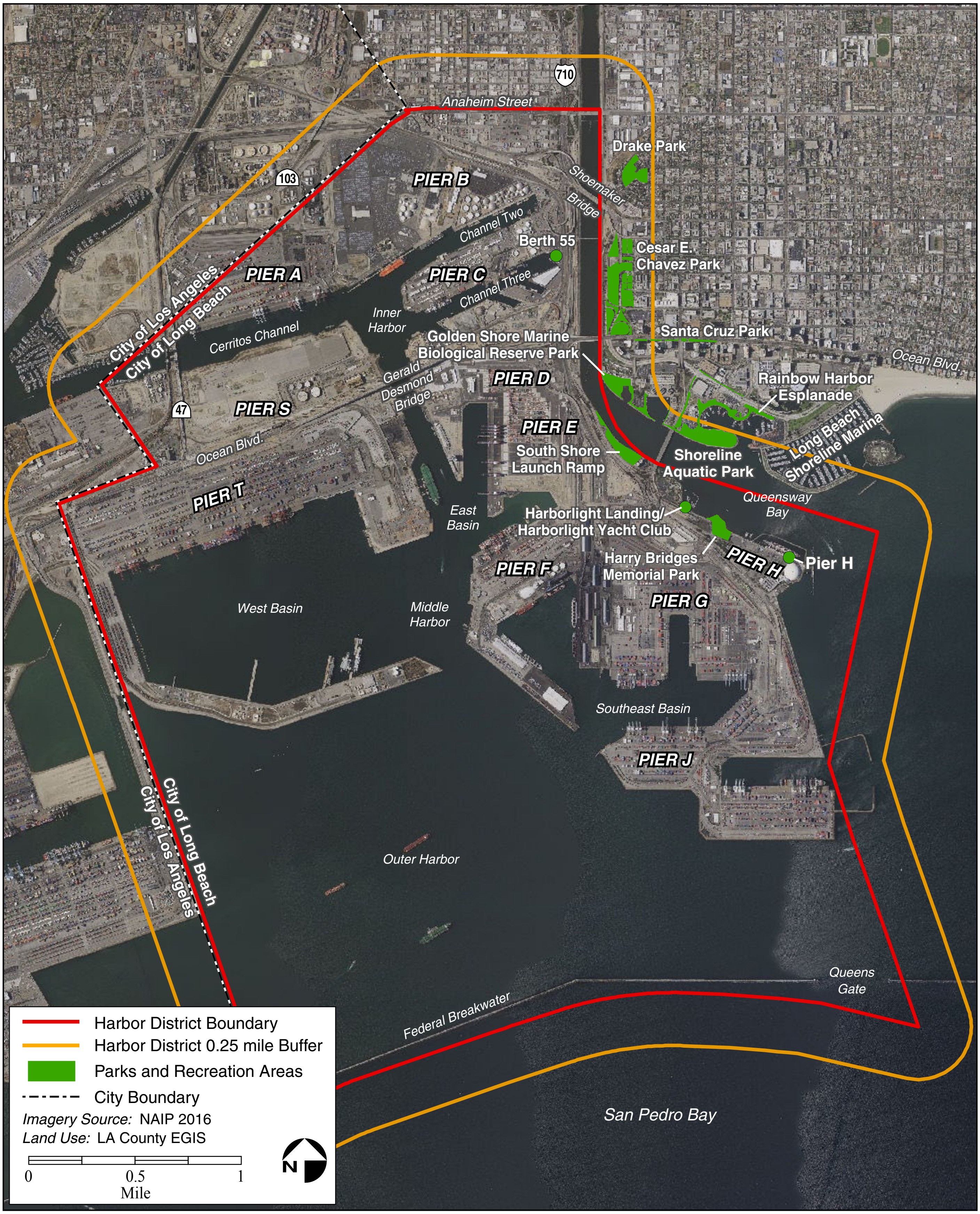

Figure 3.12-1. Park Facilities near the Harbor District

- *Santa Cruz Park* is located on Ocean Boulevard between Cedar Avenue and Golden Avenue. The 1.9-acre park includes green space and park benches.

Community and Educational Facilities

Two community facilities are located within the Harbor District:

- *International Seafarers Center of Long Beach/Los Angeles* is located at 120 Pico Avenue and provides facilities and services for merchant seamen calling at the Port of Long Beach and Port of Los Angeles. Services include temporary housing, ministry, communication services, and transportation (International Seafarers Center of Port of Long Beach and Los Angeles 2018).

- *Long Beach Multi-Service Center* is located at 1301 West 12th Street and "houses 12 public and private partner organizations working together to promote self-sufficiency and rebuild the lives of individuals and families experiencing homelessness" (City of Long Beach 2019c). The services provided include outreach, intake and assessment, case management, and referrals to shelters and other social service programs (City of Long Beach 2019f).

There are no educational facilities within the Harbor District. However, there are two public schools within 0.25 mile of the Harbor District (Figure 3.12-2):

- *Edison Elementary School* is located at 625 Maine Avenue and is a part of the Long Beach Unified School District. The total enrollment during the 2016–2017 school year was 660 students (California Department of Education 2018a).

- *Cesar Chavez Elementary School* is located at 730 West 3rd Street and is a part of the Long Beach Unified School District. The total enrollment during the 2016–2017 school year was 451 students (California Department of Education 2018b).

Water-Related Recreational Facilities and Activities

Numerous marina and aquatic recreational facilities are located within and adjacent to the Harbor District (Figure 3.12-1). These do not, however, include live-aboard services. Marina and water-related recreational facilities located within and adjacent to the Harbor District include:

- *Berth 55* is located at 555 Pico Avenue within the Harbor District and provides charter transportation/excursions including sport fishing, recreational diving, and private yacht charter. Dining is also provided at the Berth 55 Fish Market and Seafood Deli/Queens Wharf Bar and Banquet Facility.

- *Harborlight Landing/Harborlight Yacht Club* is a privately owned landing located within the Harbor District and adjacent to the Hotel Maya at 700 Queens Way Drive. The landing provides 31 guest moorings and side-ties as well as water taxi service to Shoreline Village and downtown Long Beach (The Log 2018).

- *Long Beach Shoreline Marina* is located at 450 East Shoreline Drive between the Queen Mary and the Long Beach Convention Center in the City of Long Beach. The marina is operated by the City and includes 1,624 slips for recreational boaters, parking, showers and restrooms, pump out stations, and fuel dock service (City of Long Beach 2018).

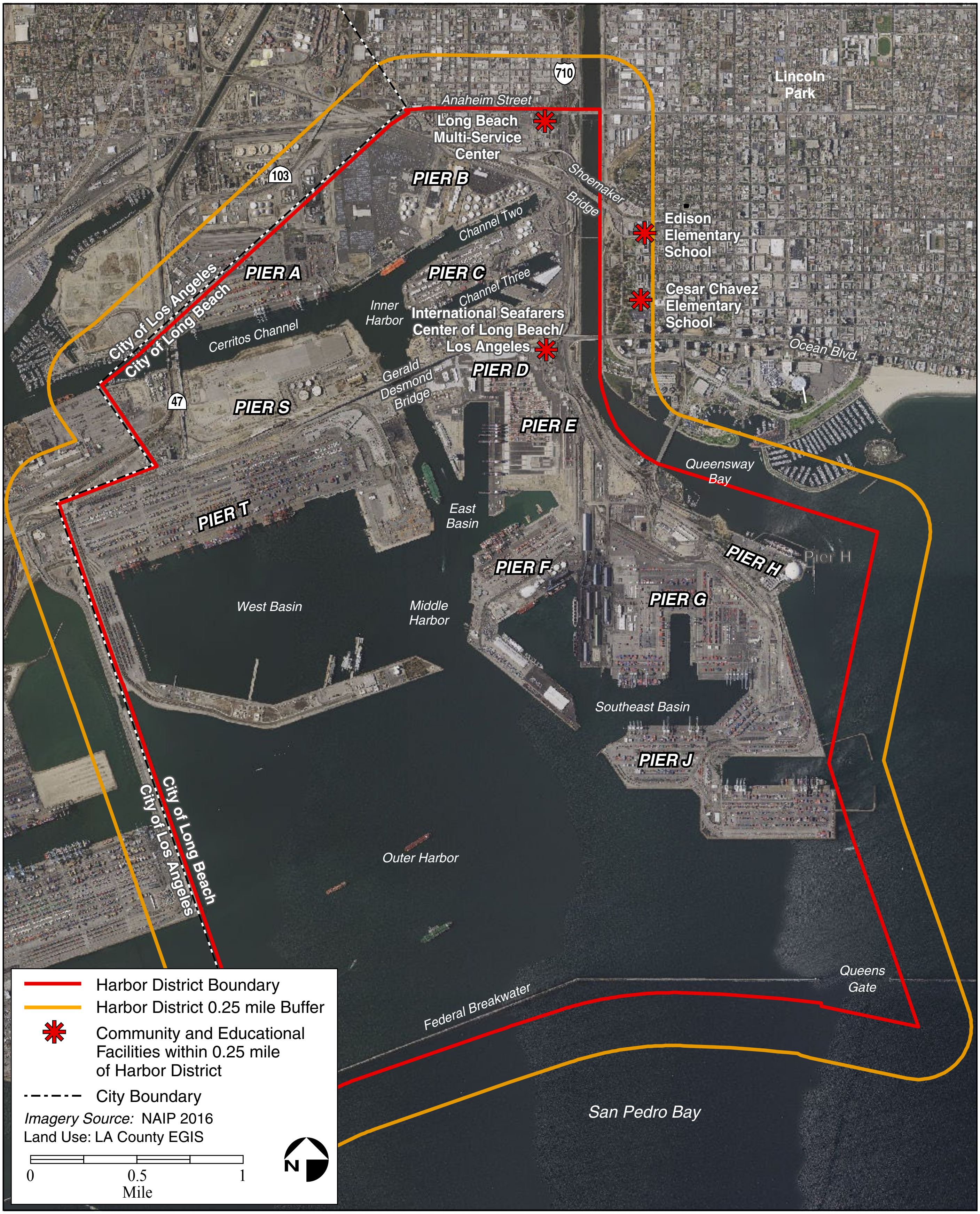

Figure 3.12-2. Community and Educational Facilities near the Harbor District

- *Pier H* is located in the eastern portion of the Port adjacent to Queensway Bay. Pier H provides visitor-serving commercial and recreational uses including the Queen Mary, Carnival Cruise Terminal, hotels, restaurants, helicopter tours, water taxis, and local boat cruises.
- *Rainbow Harbor Esplanade* is located on Pine Avenue and South Shoreline Drive. The esplanade is a 7.2-acre area with open space and bridges for walking.
- *Queensway Bay* provides a public launch ramp, sightseeing, charter transportation and excursions, cruise line terminals, and Aqua Bus/Aqua Link stations.
- *South Shore Launch Ramp* is located at 590 Queensway Drive near the Queensway Bridge. The facility is operated by the City and provides multiple boat launch lanes, public restrooms, short-term dock space for boarding and disembarking passengers, and complementary washdown services (City of Long Beach 2018).

3.12.2 Regulatory Setting

The only regulations that apply to recreation are state and local regulations. There are no applicable federal regulations.

3.12.2.1 State Regulations

California Coastal Act

The CCA identifies a number of policies pertaining to recreation. However, Section 30220, which states that coastal areas suited for water-oriented recreational activities shall be protected if such uses cannot be readily provided at inland water areas, is the only policy applicable to the Proposed Plan.

3.12.2.2 Local Regulations

City of Long Beach General Plan – Open Space and Recreation Element

The City has an open space standard of a minimum of 8 acres per 1,000 residents (City of Long Beach 2002). The City currently falls below this standard with an average of 5.8 acres of open space per 1,000 residents and the open space is inequitably distributed across the City (City of Long Beach 2008).

3.12.3 Impacts and Mitigation Measures

3.12.3.1 Significance Criteria

Criteria for determining the significance of impacts on recreation are based on the 2019 CEQA Guidelines, Appendix G (Environmental Checklist), and have been modified as necessary to reflect Port operations within a highly urbanized, industrial complex. Impacts during construction or operation would be considered significant if the Proposed Plan would:

- **REC-1:** Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated; and/or
- **REC-2:** Require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment.

3.12.3.2 Assessment Methodology

The type and quantity of nearby parks and other recreational facilities were evaluated to determine if the needs of the Proposed Plan could be adequately served by existing resources, or if availability would be adversely impacted by the Proposed Plan. The LBFD was contacted to obtain information regarding their existing and projected service capacity while government websites were used to obtain information regarding other services capacity.

3.12.3.3 Proposed Plan

Impact REC-1: Construction and operations would not increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.

Impact Determination

Construction

The Harbor District includes only one park (Harry Bridges Memorial Park on Pier H) and limited recreational facilities at Berth 55. The construction footprints of the Proposed Plan projects, which are mostly located within the Port's industrial zone (IP), would not abut or overlap with these facilities. Additionally, construction of the projects would not interfere with access to the visitor-serving area on Pier H, including the Harry Bridges Memorial Park. As discussed in Section 3.10 (Population and Housing), based on past, present, and potential trends in the construction industry throughout the region, the existing population in the region would be able to support any additional jobs associated with construction of the Proposed Plan projects. Therefore, the Proposed Plan would not result in an in-migration of workers that would place additional demands on existing recreational facilities or create demand from new or existing visitors that would increase the use of existing neighborhood and regional parks or other recreational facilities, of which could result in substantial physical deterioration of the facility or accelerate deterioration. Thus, construction activities associated with the Proposed Plan projects would not result in deterioration of recreational facilities.

Implementation of the OHSPER project would not require construction as the facility is already operable in its present configuration. Therefore, this project would not have an impact on recreational facilities.

Operations

Operation of the Ocean Boulevard Bicycle Gap Closure would provide a Class I bike path (approximately 0.5 mile) connecting the eastern terminus of the Mark Bixby Bicycle Path on the new Gerald Desmond Bridge to the City of Long Beach's bicycle network east of Los Angeles River. The approximate project limit is between Pico Avenue and Golden Shore along Ocean Boulevard across the Los Angeles River. The project would provide an additional area for recreational opportunities.

A change in population density would create a change in park demand. Since operation of the Proposed Plan projects would not be anticipated to result in a change to population growth or density (see Section 3.10, Population and Housing), there would not be an increased demand for, interference with the public use of, or substantial physical deterioration of existing neighborhood and regional parks or other recreational facilities anticipated.

The OHSPER site is located in the Outer Harbor portion of the Port. Operation of the site would not restrict public access to recreational areas that would place additional use on existing recreational facilities or interfere with recreational boating or fishing activities. Therefore, operation of the OHSPER site would not cause or accelerate deterioration of recreational facilities.

As Proposed Plan project construction and operations and land use changes would not increase the use of existing neighborhood and regional parks or other recreational facilities, impacts would be less than significant. No mitigation is required.

Impact REC-2: Construction and operations would not require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment.

Impact Determination

Construction

Construction activities associated with Proposed Plan projects would not result in substantial in-migration or relocation of construction employees since these positions would likely be filled by the local labor force. Therefore, construction activities associated with Proposed Plan projects would not result in population growth that would increase the use of or demand for existing neighborhood and regional recreational facilities. Vessel traffic associated with construction activities would not interfere with or restrict recreational waterway users. Additionally, land-based construction activities are not adjacent to any designated recreational areas and, thus, would not restrict access to or cause excess demand on surrounding public recreational areas beyond current capacity that would require additional recreational development. Thus, construction activities associated with the Proposed Plan projects would not require construction or expansion of recreational facilities.

Implementation of the OHSPER project would not require any construction activities. Therefore, this project would not result in a requirement to construct or expand recreational facilities.

Operations

Operation of the Ocean Boulevard Bicycle Gap Closure would provide a Class I bike path that represents an additional recreational resource for the public. A change in population density would create a change in park demand and result in the need to construct or expand recreational facilities to maintain a certain level of acre to population ratio. Operations of the Proposed Plan projects would not be anticipated to result in a change to population growth or density (see Section 3.10, Population and Housing). Therefore, operation of the Proposed Plan projects would not increase demand or interfere with public use of existing neighborhood and regional parks or other recreational facilities. Therefore, operation of the Proposed Plan projects would not require construction or expansion of recreational facilities that might have an adverse physical effect on the environment.

Operation of the OHSPER project would not restrict public access to recreational areas, existing recreational facilities, or parks within the area because the project site is located entirely offshore. The nearest residential development from the site is located 2 miles northeast from the offshore project site. There would not be substantial changes to existing operations that would result in an in-migration of people that would require construction or expansion of recreational facilities.

As Proposed Plan project construction and operations and land use changes would not require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment, impacts would be less than significant. No mitigation is required.

3.12.3.4 Alternative 1 (No Plan Alternative)

Alternative 1 (No Plan Alternative) considers what would reasonably occur if the Port did not update the PMP to include updates to the planning districts and allowable land and water use designations within the Harbor District. Alternative 1 includes projects that are: 1) consistent with the 1990 PMP as amended, 2) may or may not have been evaluated in a final CEQA document, and/or 3) could be implemented without approval of the Proposed Plan. Alternative 1 includes the following projects: Administrative Building Site Support Yard (Expansion), Fourth Track at Ocean Boulevard, Ocean Boulevard Bicycle Gap Closure, Pier B Street Support Yard, Pier D Street Realignment, Pier S Mixed Use Development, and Pier S Shoreline Enhancement. This alternative also includes the Pier T Echo Support Yard project, which would construct a 17-acre support yard (chassis, empties, or peel-off) that would serve the Pier T container terminal. In addition, use of the WASSS would continue as currently permitted (i.e., placement and reuse of clean sediments).

<u>Impact Determination</u>

Potential impacts on recreational resources under Alternative 1 would be similar to impacts under the Proposed Plan, but would be less because there would be less development. Under this alternative, project construction and operations would not result in population growth or visitor usage for recreational facilities that would create a demand for construction or expansion of recreational facilities, or that could result in adverse physical effects on the environment. Construction and operation of projects within the IP zone are not adjacent to any designated recreational areas and, thus, would not restrict public access to, increase demand for use of, or cause accelerated deterioration to recreational areas, facilities, or parks within or outside of the Harbor District. Therefore, implementation of Alternative 1 would result in less than significant impacts and no mitigation is required.

3.12.3.5 Alternative 2 (No Terminal Development)

Alternative 2 (No Terminal Development) is similar to the Proposed Plan and would include updates to the planning districts and allowable land and water use designations in the Harbor District. However, Alternative 2 would not include terminal development projects at Pier T, Pier W, or Pier J. Alternative 2 would include the following projects: Administrative Building Site Support Yard (Expansion), Protective Boat Basin (Berth F202), OHSPER, Fourth Track at Ocean Boulevard, Ocean Boulevard Bicycle Gap Closure, Pier B Street Support Yard, Pier D Street Realignment, Pier T Echo Support Yard, Pier S Mixed Use Development, and Pier S Shoreline Enhancement.

<u>Impact Determination</u>

Potential impacts on recreational resources under Alternative 2 would be similar to impacts under the Proposed Plan, but would be less because there would be less development. Under this alternative, project construction and operations and land use changes would not result in population growth or visitor usage for recreational facilities that would create a demand for construction or expansion of recreational facilities, or that could result in adverse physical effects on the environment. Construction and operation of projects within the IP zone are not adjacent to any designated recreational areas and, thus, would not restrict public access to, increase demand for use of, or cause accelerated deterioration to recreational areas, facilities, or parks within or outside of the Harbor District. Therefore, Alternative 2 would result in less than significant impacts, and mitigations measures are not required.

3.12.3.6 Alternative 3 (Reduced Terminal Development)

Alternative 3 (Reduced Terminal Development) is similar to the Proposed Plan and would include updates to the planning districts and allowable land and water use designations in the Harbor District. Under Alternative 3, development of the Pier J terminal would be reduced compared to the Pier J Terminal Redevelopment under the Proposed Plan. The Pier J Reduced Development would include dredging and filling the 22-acre triangle, cutting a 9-acre notch, extending the north wharf to the east, and relocating the existing rail line and yard to Pier J South. No development of a new Pier W terminal would occur. Alternative 3 would include the following projects: Administrative Building Site Support Yard (Expansion), Protective Boat Basin (Berth F202), OHSPER, Fourth Track at Ocean Boulevard, Ocean Boulevard Bicycle Gap Closure, Pier B Street Support Yard, Pier D Street Realignment, Pier S Mixed Use Development, Pier S Shoreline Enhancement, Pier T Improvements, and Pier J Reduced Development.

<u>Impact Determination</u>

Potential impacts on recreational resources under Alternative 3 would be similar to impacts under the Proposed Plan, but would be less because there would be less development. Under this alternative, project construction and operations and land use changes would not result in population growth or visitor usage for recreational facilities that would create a demand for construction or expansion of recreational facilities, or that could result in adverse physical effects on the environment. Construction and operation of projects within the IP zone are not adjacent to any designated recreational areas and, thus, would not restrict public access to, increase demand for, or cause accelerated deterioration of recreational areas, facilities, or parks within or outside of the Harbor District. Therefore, Alternative 3 would result in less than significant impacts, and mitigations measures are not required.

3.12.4 Cumulative Impacts

This section evaluates the potential for the Proposed Plan projects, together with other past, present, and reasonably foreseeable future projects, to make a cumulatively considerable contribution to a significant cumulative impact to recreational resources. The region of influence for cumulative impacts on recreational resources is the same as the analysis presented in Section 3.12.1.1 (Area of Influence), which includes local and regional recreational facilities and services within and adjacent to the Harbor District. The significance criteria used for the cumulative analysis are the same as those used for the Proposed Plan in Section 3.12.3.1 (Significance Criteria).

- **REC-1: Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.**

Construction and operation of new residential projects within the City (i.e., Shoreline Gateway, Golden Shore Master Plan, and other residential projects listed in Table 2.1-1) would contribute to population growth and density in the area and could result in additional demands and uses of existing neighborhood and regional parks or other recreational facilities from encroachment or an increase in the number of potential users. Collectively and over time, these residential projects could have a significant cumulative impact on the use of existing recreational parks or other recreational facilities, which may already be overused since the City currently falls below a minimum standard of 8 acres of open space per 1,000 residents and the open space is inequitably distributed across the City.

The Proposed Plan projects are mainly industrial projects that would not result in construction and operation of existing residential projects or result in substantial direct or indirect changes in population growth or density that would contribute to increased demand on recreational facilities.

The Port is an important economic contributor to the area and would continue to be under the Proposed Plan. Economic growth and a strong economy resulting from multiple past, present, and reasonably foreseeable developments in the City would have an impact on population growth and the need for residential construction, resulting in additional demands on existing neighborhood and regional parks or other recreational facilities. The potential direct and indirect impacts of Port operations are known by local planners and used to determine projections for future land use management. As part of the CCA and the City of Long Beach Charter, the City would continue to promote and accommodate public areas and facilities for recreational activities that could offset usage of existing recreational facilities. Since the Proposed Plan would result in less than significant impacts to recreational facilities, the Proposed Plan would not contribute a cumulative impact to recreational resources. Therefore, construction and operation of the Proposed Plan projects with other past, present, and reasonably foreseeable future projects would not make a cumulatively considerable contribution to a significant cumulative impact to recreational resources that would increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facilities would occur or be accelerated.

- **REC-2: Require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment.**

Cumulative projects associated with expansion or intensification of existing industrial or transportation uses would not induce population growth that could result in cumulatively considerable demands for recreation that would require construction or expansion of recreational facilities. Additional recreational opportunities at the Port could create more users and competing uses of the facilities. Long-range planning goals outlined in the Proposed Plan, BMPs, and compliance with the CCA, the MTSA, and California Government Code would ensure controlled access and compatibility of future land uses and multiple users. Therefore, construction and operation of the Proposed Plan projects with other past, present, and reasonably foreseeable future projects would not make a cumulatively considerable contribution to a significant cumulative impact to recreational resources that would require further construction or expansion of recreational facilities that might have an adverse physical effect on the environment.

3.12.5 Mitigation Monitoring Program

As no mitigation measures are required to address impacts on recreation, no mitigation monitoring program is required.

3.13 GROUND TRANSPORTATION

This section describes the potential impacts on ground transportation that could result from implementation of the Proposed Plan and its alternatives.

3.13.1 Environmental Setting

The environmental setting for ground transportation is described in terms of the area of influence, transportation setting, and regulatory setting.

3.13.1.1 Area of Influence

The area of influence for ground transportation is based on the potential for the Proposed Plan or its alternatives to significantly affect roadway traffic, at-grade railroad crossings, local bicycle routes, pedestrian access, and/or transit routes.

Roadway Traffic

The roadway traffic area of influence includes streets, intersections, and roadway segments that is generally bounded by Sepulveda Boulevard on the north, Magnolia Avenue on the east, Ocean Boulevard/Harbor Plaza on the south, and SR-47/Alameda Street on the west. Within this area, 32 signalized intersections and 8 bi-directional freeway segments were selected for analysis. Seven of the intersections are located in the City of Los Angeles and three are in the City of Carson. The remaining intersections are within the City of Long Beach. The roadway segments selected are Los Angeles County Congestion Management Program (CMP) freeway monitoring locations located on I-110, Route 710, I-405, SR-91, and I-605. Analyzed locations are depicted in Figure 3.13-1 and listed by jurisdiction in Table 3.13-1. CMP freeway monitoring locations are depicted in Figure 3.13-2 and listed in Table 3.13-2.

TABLE 3.13-1. STUDY INTERSECTIONS

No.	Name	City
1	Alameda Street & Sepulveda Boulevard Ramp	Carson
2	Sepulveda Boulevard & Alameda Street Ramp	Carson
3	Sepulveda Boulevard & Intermodal Way	Carson
4	Sepulveda Boulevard & ICTF Driveway	Los Angeles
5	Sepulveda Boulevard & Middle Road	Los Angeles
6	Willow Street/Sepulveda Boulevard & Terminal Island Freeway	Long Beach
7	Pacific Coast Highway & Santa Fe Avenue	Long Beach
8	O Street & Alameda Street	Los Angeles
9	O Street & Pacific Coast Highway	Los Angeles
10	Anaheim Street & Santa Fe Avenue	Long Beach
11	Anaheim Street & Harbor Avenue	Long Beach
12	Anaheim Street & 9th Street/East I Street	Long Beach
13	Anaheim Street & Henry Ford Avenue	Los Angeles
14	Pico Avenue & Pier B Street	Long Beach
15	Henry Ford Avenue & Pier A Way/Terminal Island Freeway Ramps	Long Beach
16	Pico Avenue & Pier C Street	Long Beach
17	Pico Avenue & Pier D Street	Long Beach
18	Pico Avenue & Westbound Ocean Boulevard Ramp(s)	Long Beach
19	Pico Avenue & Pier E Street/Eastbound Ocean Boulevard Ramps	Long Beach
20	Pier S Avenue & New Dock Street	Long Beach
21	Terminal Island Freeway & Ocean Boulevard Westbound	Long Beach

TABLE 3.13-1. STUDY INTERSECTIONS		
No.	**Name**	**City**
22	Terminal Island Freeway & Ocean Boulevard Eastbound	Long Beach
23	Pier S Avenue & Ocean Boulevard Westbound	Long Beach
24	Pier S Avenue & Ocean Boulevard Eastbound	Long Beach
25	Harbor Plaza & Pico Avenue/Pier G	Long Beach
26	Navy Way & Seaside Avenue	Los Angeles
27	Harbor Plaza & Queensway Drive	Long Beach
28	Harbor Plaza & Harbor Scenic Drive	Long Beach
29	Navy Way & Reeves Avenue	Los Angeles
30	Long Beach Boulevard & Pacific Coast Highway	Long Beach
31	Long Beach Boulevard & Anaheim Street	Long Beach
32	Long Beach Boulevard & Ocean Boulevard	Long Beach
Key: ICTF = Intermodal Container Transfer Facility		

TABLE 3.13-2. CMP FREEWAY MONITORING LOCATIONS		
No.	**Name**	**CMP STN #**
1	I-110 south of C Street	1045
2	I-710 south of Sepulveda Boulevard (north of Pacific Coast Highway)	1078
3	I-710 north of I-405	1079
4	I-405 at Santa Fe Avenue (west of I-710)	1066
5	I-405 north of SR-22	1065
6	SR-91 east of Alameda Street/Santa Fe Avenue	1033
7	SR-91 east of Cherry Avenue	1034
8	I-605 north of SR-91 (south of Alondra Boulevard)	1074
Key: CMP = Los Angeles County Congestion Management Program; I = Interstate; SR = State Route; STN # = Station Number		

The specific intersections and roadway segments were selected based on knowledge of the Harbor District, anticipated assignment of the traffic, and locations where there is potential for traffic impacts to occur in reference to regional guidelines. Traffic impacts could occur from: 1) project-generated traffic; 2) ambient growth associated with minor development projects within the plan area of influence and regional growth outside of the plan area; and 3) increase in traffic volumes from specific development projects within the plan area identified as related projects. A computer-based travel demand model run was conducted to confirm that all potential intersections and segments that could show impacts were included in the traffic analysis.

Rail

The Proposed Plan would result in improvements, expansion, and construction of new rail facilities that would support on-dock rail operations and enable more cargo to move in and out of the Port by rail. Rail improvements are anticipated both inside and outside the marine terminals within the Port.

Bicycle Paths and Pedestrian Access

The area of influence for bicycle paths and pedestrian access is based on existing and proposed routes. The area includes those bicycle paths and pedestrian access routes that are generally bounded by Sepulveda Boulevard on the north, Magnolia Avenue on the east, Harbor Scenic Drive terminus on the south, and SR-47/Alameda Street on the west.

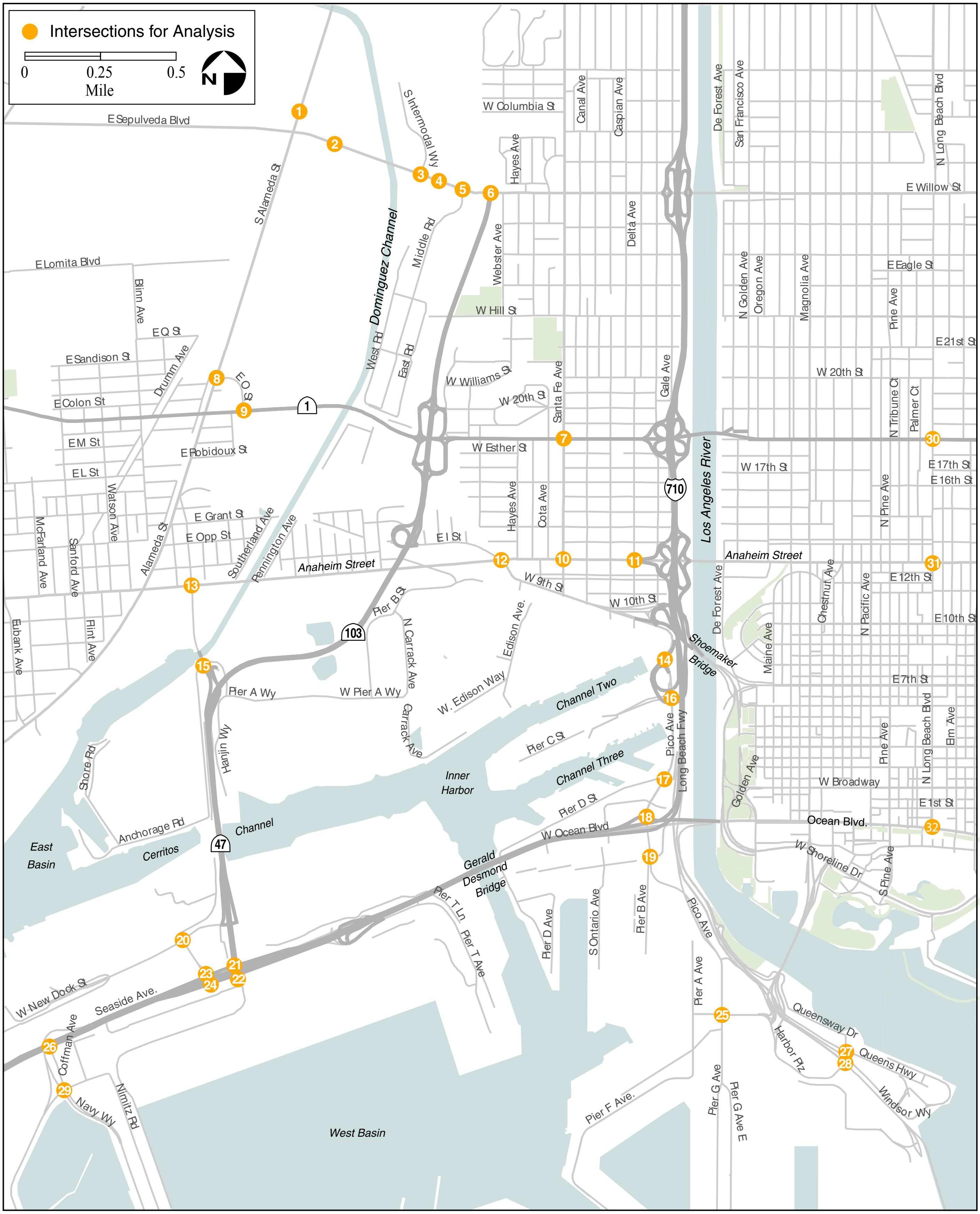

Figure 3.13-1. Study Intersections

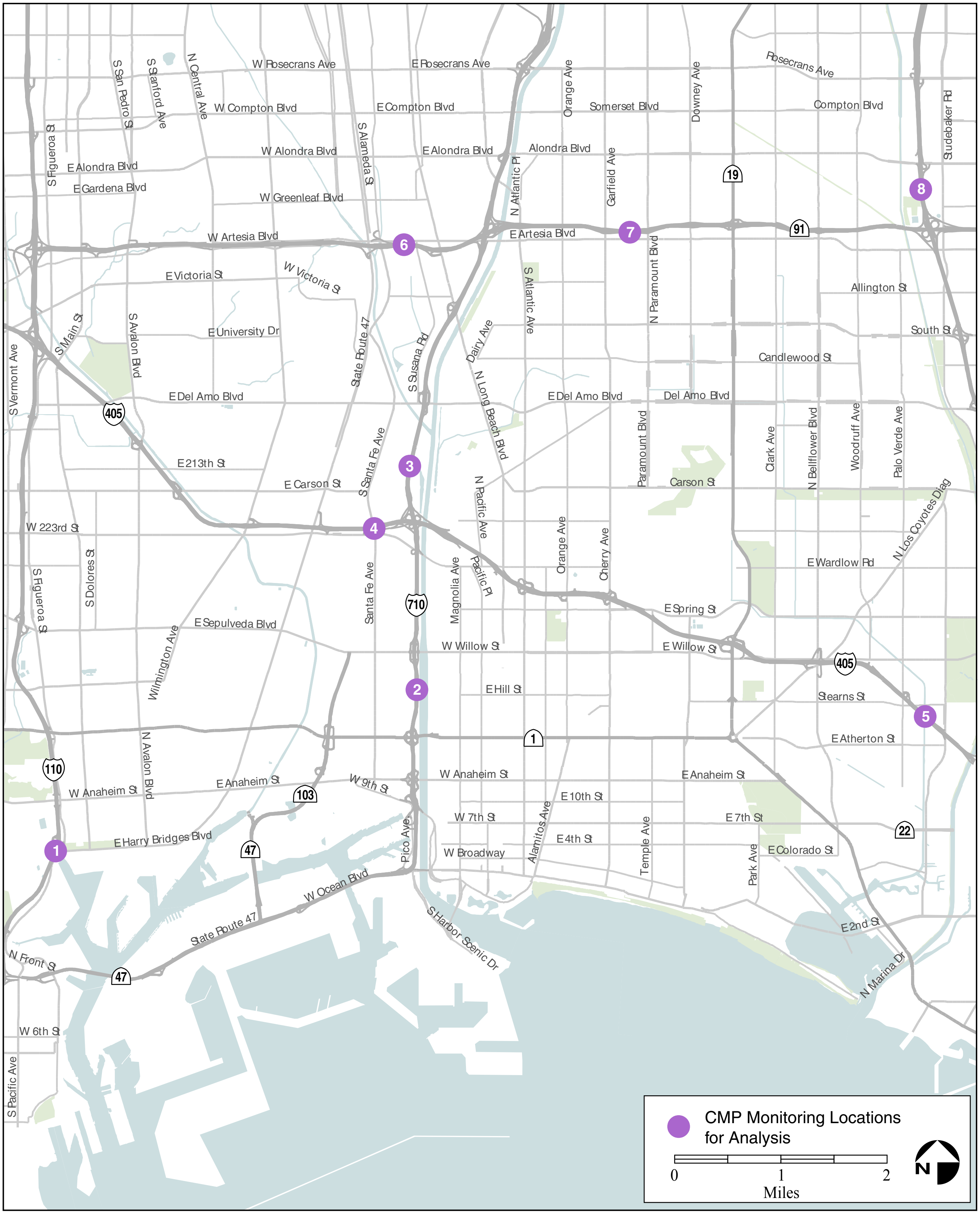

Figure 3.13-2. Study CMP Freeway Monitoring Locations

Transit Routes

Transit routes include public mass transit and municipal bus lines operated by the Los Angeles County Metropolitan Transportation Authority (Metro) and the Cities of Long Beach and Los Angeles. The area includes routes that are bounded by the Pacific Coast Highway on the north, Magnolia Avenue on the east, Pico Avenue/Ocean Boulevard on the south, and SR-47/Alameda Street to the west.

3.13.1.2 Setting

A discussion of the transportation setting reflects the physical environment as it pertains to:

- Regional and Local Vehicular Access;
- Baseline Rail Facilities;
- Baseline Roadway Traffic Conditions;
- Baseline Bicycle and Pedestrian Facilities; and
- Baseline Transit Services.

Regional and Local Vehicular Access

Vehicular access to the Port is provided by a network of freeway and arterial facilities. These freeways include I-110, I-710, and SR-103/SR-47. The arterial street network includes Ocean Boulevard, Magnolia Avenue, Henry Ford Avenue, Alameda Street, Anaheim Street, Pacific Coast Highway, Pico Avenue, Harbor Scenic Drive, and many smaller local streets.

The I-110 Freeway runs north/south along the western side of the San Pedro Bay Port Complex. This route connects the Harbor District to downtown Los Angeles. The I-710 Freeway runs north/south along the eastern edge of the Harbor District. This route also connects the Harbor District to downtown Los Angeles and major intermodal railyards in East Los Angeles.

SR-47 merges with SR-103 (also called the Terminal Island Freeway) at Henry Ford Avenue. SR-47/SR-103 extend from Terminal Island across the Commodore Schuyler Heim Bridge to the north and terminate at Sepulveda Boulevard/Willow Street near a major intermodal yard.

Key streets providing access to the Port are Ocean Boulevard, Alameda Street, Anaheim Street, Harbor Scenic Drive, and Pico Avenue. Access to Terminal Island is facilitated by three bridges: Commodore Schuyler Heim, Gerald Desmond, and Vincent Thomas.

Rail Facilities

<u>Port Vicinity Rail</u>

Rail access between the Port to the rest of the country is via the Alameda Corridor, which begins just north of the San Pedro Bay Ports, parallels Alameda Street and terminates in downtown Los Angeles railyards where several UPRR and BNSF rail lines converge (see Figure 3.13-3). Just west of the Dominguez Channel, the Alameda Corridor forms a “wye” (a track arrangement in the shape of a “Y” with three switches and three legs for reversing the direction of a train). One branch of the Alameda Corridor continues south toward Pier S and Pier T on Terminal Island and into the Port of Los Angeles. A second branch turns to the southeast to enter the POLB as the POLB lead track. The POLB lead track continues southeastward to enter the Pier B Railyard, Mead Yard, and Pier A Yard. The lead track goes through the Pier B Railyard, continues southward, and connects to Piers D, E, F, G, and J, as shown on Figure 3.13-3.

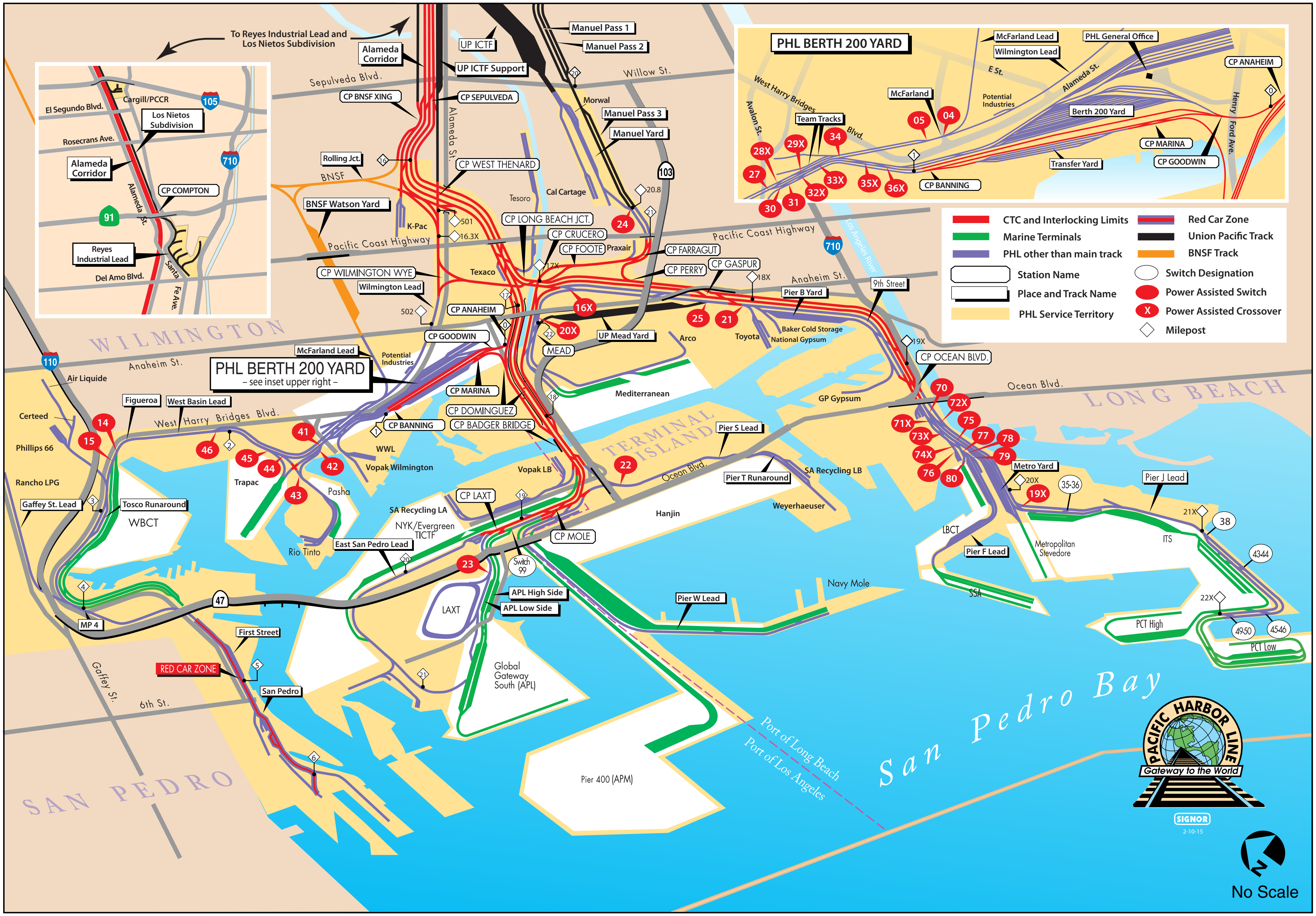

Figure 3.13-3. San Pedro Bay Ports Pacific Harbor Line Rail Network

Alameda Corridor

The Alameda Corridor is a dedicated mainline cargo expressway serving the San Pedro Bay Port Complex. The Alameda Corridor runs primarily along and adjacent to Alameda Street and consists of three grade-separated tracks. The Alameda Corridor Transportation Authority operates this freight corridor used by BNSF and UPRR. Completed in 2002, the Alameda Corridor has an estimated daily capacity of 150 trains. In 2018, traffic on the Alameda Corridor averaged 38 trains per day (ACTA 2019).

Badger Bridge

The Badger Bridge is a double-tracked railroad lift bridge over the Back Channel that connects rail facilities on Terminal Island to the greater San Pedro Bay Ports rail network. At present, the Badger Bridge lifts an average of 11 times per day to allow the passage of Coast Guard patrols and other small watercraft to pass. The process for lifting and lowering the Badger Bridge averages more than 11 minutes. The Badger Bridge is controlled by the Pacific Harbor Line dispatcher. The dispatcher is responsible for all control points within the Harbor District. The dispatcher must carefully monitor the lifting of the bridge, passage of watercraft, and lowering of the bridge. During this process, the dispatcher is prohibited from dispatching all other train moves. For this reason, each time the Badger Bridge is lifted, all traffic waiting at other control points is delayed until the dispatcher has lowered the Badger Bridge. A proposal to lock the Badger Bridge down is currently under consideration. Locking down the Bridge would eliminate a current rail bottleneck and improve overall rail efficiencies in the Harbor District. In addition to locking down the Bridge, there have also been discussions about adding a third track to the Badger Bridge; however, there is no plan to add an additional track to the Bridge at this time.

As identified in the 2006 San Pedro Bay Ports Rail Study Update, the Badger Bridge will be a constraint should there be any new intermodal facility development on Terminal Island. In Alternative 3 (Reduced Terminal Development) and the Proposed Plan, intermodal capacity is added on Terminal Island. The model shows the Badger Bridge cannot accommodate the future demand unless the Bridge capacity is increased.

Regional Rail Network

The Class I railroads leave the downtown yards to travel on their own main lines within Southern California to points outside the region (Figure 3.13-4). UPRR operates on its Alhambra Subdivision (from Los Angeles to Colton), Los Angeles Subdivision (from Los Angeles to Riverside), Yuma Subdivision (from Colton to Indio), and Mojave Subdivision (from West Colton to Silverwood). BNSF operates on its San Bernardino Subdivision (from Los Angeles to San Bernardino) and Cajon Subdivision (from San Bernardino to Barstow).

East of Hobart Yard in downtown Los Angeles, the BNSF San Bernardino Subdivision generally follows I-5 and then SR-91 to the south and east, through southern Los Angeles County, northern Orange County, and into the City of Riverside. From there, the BNSF San Bernardino Subdivision continues north through the Colton crossing to San Bernardino.

North of San Bernardino, the BNSF Cajon Subdivision roughly follows the I-15 corridor toward Barstow. Through a trackage rights agreement, UPRR also operates on the BNSF Cajon line as far north as Daggett. The UPRR Mojave Subdivision (also known as the Colton-Palmdale cutoff) runs north from West Colton and then turns west near Hesperia to join the Saugus line in Palmdale.

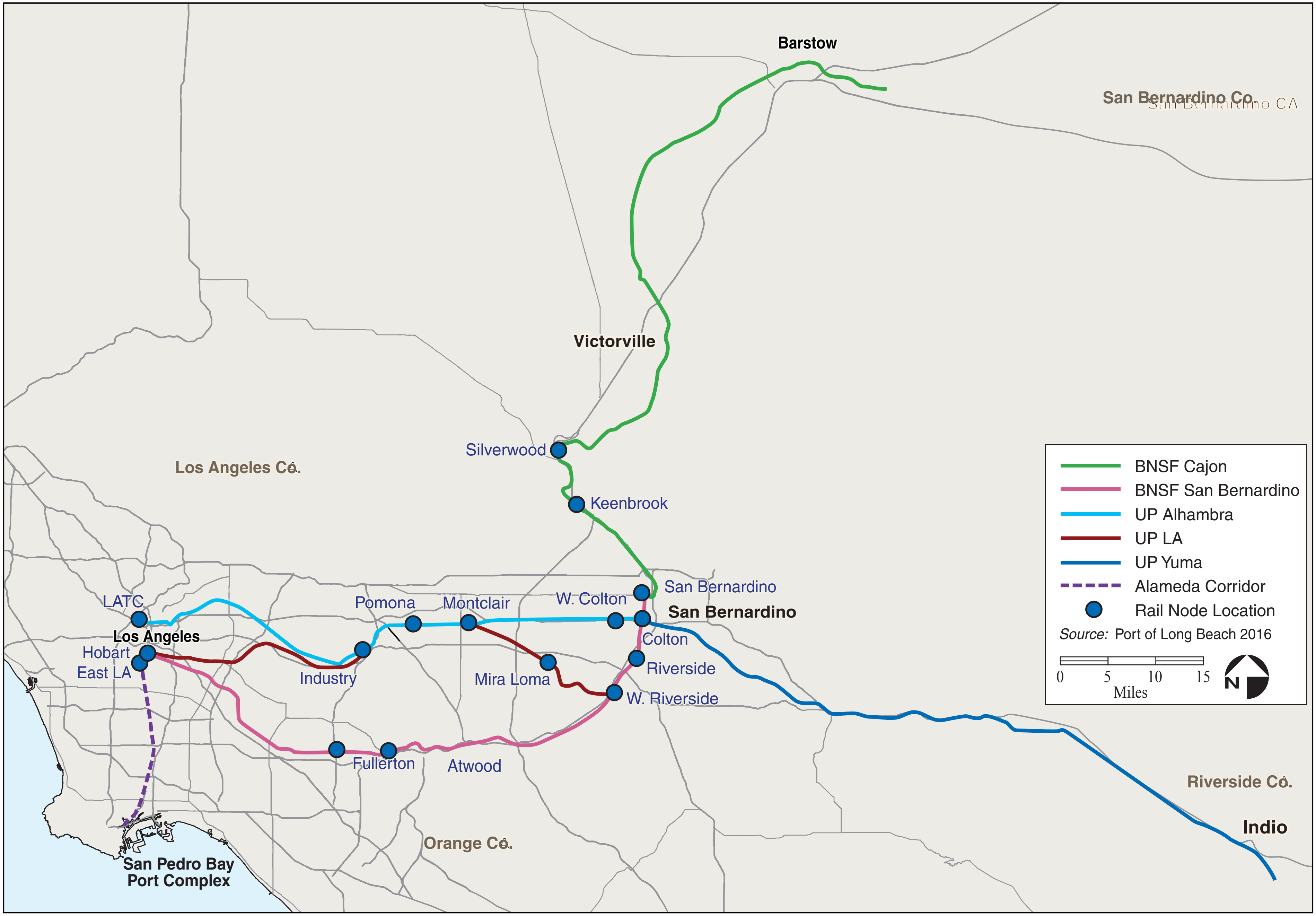

Figure 3.13-4. Regional Class I Railroad Network

The UPRR lines follow multiple routes, but all of UPRR's intermodal freight traffic from the San Pedro Bay Port Complex follows the SR-60 and I-10 corridors on the UPRR Alhambra and the UPRR Los Angeles Subdivisions. East of the Colton crossing, the UPRR Yuma Subdivision roughly follows the I-10 corridor to Indio and beyond.

Baseline Roadway Traffic Conditions

The baseline year for the traffic analysis has been established as 2018. The area of influence is currently affected by construction activity and associated traffic detours related to two major projects, the Gerald Desmond Bridge Replacement and Middle Harbor Redevelopment Program. These activities have temporarily changed local traffic patterns; therefore, adjustments to baseline traffic patterns (trip distribution) were made to reflect post-construction traffic conditions.

The CEQA traffic impact analysis in this PEIR compares conditions in 2018 (the CEQA Baseline) to projected impacts from the Proposed Plan and alternatives through the year 2040 (i.e., the Proposed Plan planning horizon). In 2018, various projects included in the PEIR baseline analysis had been analyzed under CEQA and permitted, and construction was completed or nearly complete. These projects (i.e., Middle Harbor Redevelopment Program, Gerald Desmond Bridge Replacement project, Schuyler Heim Bridge Replacement, Pier J North Wharf Rail Crane Girder Upgrades, Administrative Building Site Support Yard [existing temporary use], and Pier B Street Support Yard [existing temporary use]) are included in the baseline analysis, as they accurately reflect "existing conditions" at the Port for the purposes of this analysis. Traffic counts collected in 2018 on detour routes have been reassigned in the travel demand model to reflect this assumption. Specifically, Pico Avenue, Harbor Plaza, and the SR-47/Ocean Boulevard volumes were reassigned to the Gerald Desmond Bridge and new Pier T access to reflect conditions indicative of post-construction steady-state traffic.

Intersection turning movement counts were collected in March 2018 on a typical weekday covering the three analysis peak periods: AM (6:00–9:00 a.m.), mid-day (2:00–4:00 p.m.), and PM (4:00–7:00 p.m.). Traffic counts from the Caltrans (Caltrans 2018) for the CMP freeway monitoring location were collected and analyzed.

The study area intersections were selected to understand how traffic conditions within and near the Harbor District could be affected. In addition to traffic counts, travel lane configurations and signal phasing at each study location were verified in the field.

For traffic analysis and planning purposes, the ability to handle traffic at an intersection or along a segment of roadway is typically estimated based on the ratio of the volume of traffic to the carrying capacity of the facility being analyzed. Capacities of the intersections and roadways are measured in terms of the number of vehicles per hour per travel lane that can be handled, based on known engineering considerations and documented experience for roadways of similar types. The ratio derived between traffic volume and roadway/intersection capacity yields a volume-to-capacity (V/C) ratio, which has a corresponding level of service (LOS) descriptor.

LOS values are expressed as gradations of V/C ratios. LOS A reflects minimum delay at an intersection or free-flow conditions on a roadway segment. LOS F reflects a long delay at an intersection or "stop-and-go" conditions on a roadway segment. In most urbanized jurisdictions, LOS D is generally considered acceptable (see Table 3.13-3).

The Intersection Capacity Utilization (ICU) methodology, which reports the LOS based on V/C ratios, was used to analyze traffic operating conditions for signalized intersections in the City of Long Beach and the City of Carson. Locations in the City of Los Angeles were analyzed using its prescribed Critical Movement Analysis (CMA) methodology, as contained in Transportation Research Board Circular 212 – *Interim Materials on Highway Capacity* (TRB 1980). Although the

ICU and CMA methodologies have some differences, LOS values resulting from the two methods are comparable.

For roadway segment analyses, LOS was determined by calculating the V/C ratio. This is a commonly accepted method used for local roadways and for freeways. Roadway traffic volume data were taken from baseline traffic counts or future traffic forecasts.

Table 3.13-3 shows the LOS criteria that were applied to the study intersections. Table 3.13-4 shows the LOS criteria for highway segments.

TABLE 3.13-3. LEVEL OF SERVICE DEFINITONS FOR SIGNALIZED INTERSECTIONS

LOS	Intersections V/C Ratio	Definition
A	0.000 – 0.600	Intersection operates with low control delay due to traffic signal. Traffic flow through the intersection (progression) is extremely favorable, and most vehicles arrive during the green phase. Many vehicles do not stop at all.
B	0.601 – 0.700	Intersection generally operates with good progression. More vehicles stop than with LOS A, causing higher levels of delay.
C	0.701 – 0.800	Intersection operates with fair progression. Individual cycle failures may begin to appear at this level. Cycle failure occurs when a given green phase does not serve queued vehicles and overflow occurs. The number of vehicles stopping increases, though many still pass through the intersection without stopping.
D	0.801 – 0.900	The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, longer cycle lengths, and high V/C ratios. Many vehicles stop and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.
E	0.901 – 1.000	Intersection operates with poor progression. More vehicles stop than with LOS D. Individual cycle failures are frequent.
F	> 1.000	Intersection operates with long delay, stops, and frequent individual cycle failures. Most drivers consider this level unacceptable.

Sources: (TRB 1980, 2010)
Key: > = greater than; LOS = level of service; V/C = volume-to-capacity

TABLE 3.13-4. LEVEL OF SERVICE DEFINITIONS FOR HIGHWAY SEGMENTS

LOS	V/C Ratio	Definition
A	0.00 – 0.35	Highest quality of service. Free traffic flow, low volumes and densities. Little or no restriction on maneuverability or speed.
B	0.36 – 0.54	Stable traffic flow, speed becoming slightly restricted. Low restriction on maneuverability.
C	0.55 – 0.77	Stable traffic flow, but less freedom to select speed, change lanes, or pass. Density increasing.
D	0.78 – 0.93	Approaching unstable flow. Speeds tolerable but subject to sudden and considerable variation. Less maneuverability and driver comfort.
E	0.94 – 1.00	Unstable traffic flow with rapidly fluctuating speeds and flow rates. Short headways, low maneuverability, and low driver comfort.
F	> 1.000	Forced traffic flow.

Source: (Metro 2010)
Key: > = greater than; LOS = level of service; V/C = volume-to-capacity

Table 3.13-5 summarizes the existing LOS at intersections and Table 3.13-6 summarizes the existing LOS on analyzed highway segments. All but one of the 32 intersections analyzed operated at LOS C or better during one or more of the analyzed peak hours in 2018. Only the Pico Avenue westbound on-ramp at Ocean Boulevard operated at LOS F, LOS D and LOS E during the AM, mid-day and PM peak hours, respectively. All 16 of the directional freeway segments listed in Table 3.13-6 are operating at LOS D or better.

TABLE 3.13-5. SUMMARY OF INTERSECTION LEVEL OF SERVICE

Existing Baseline Conditions

No.	Intersection	Jurisdiction	Peak Hour	Existing	
				V/C	LOS
1	Alameda Street & Sepulveda Boulevard Ramp	City of Carson	AM MID PM	0.436 0.377 0.521	A A A
2	Alameda Street Ramp & Sepulveda Boulevard	City of Carson	AM MID PM	0.713 0.515 0.648	C A B
3	Intermodal Way & Sepulveda Boulevard	City of Carson	AM MID PM	0.399 0.339 0.490	A A A
4	ICTF Driveway & Sepulveda Boulevard	City of Los Angeles	AM MID PM	0.361 0.267 0.416	A A A
5	Middle Road & Sepulveda Boulevard	City of Los Angeles	AM MID PM	0.293 0.308 0.459	A A A
6	Terminal Island Freeway & Willow Street/Sepulveda Boulevard	City of Long Beach	AM MID PM	0.443 0.458 0.589	A A A
7	Santa Fe Avenue & Pacific Coast Highway	City of Long Beach	AM MID PM	0.710 0.624 0.738	C B C
8	Alameda Street & O Street	City of Los Angeles	AM MID PM	0.317 0.364 0.425	A A A
9	O Street & Pacific Coast Highway	City of Los Angeles	AM MID PM	0.536 0.418 0.580	A A A
10	Santa Fe Avenue & Anaheim Street	City of Long Beach	AM MID PM	0.519 0.484 0.575	A A A
11	Harbor Avenue & Anaheim Street	City of Long Beach	AM MID PM	0.418 0.454 0.538	A A A
12	9th Street/East I Street & Anaheim Street	City of Long Beach	AM MID PM	0.638 0.472 0.600	B A A
13	Henry Ford Avenue & Anaheim Street	City of Los Angeles	AM MID PM	0.487 0.451 0.655	A A B
14	Pico Avenue & Pier B Street	City of Long Beach	AM MID PM	0.327 0.390 0.417	A A A
15	Henry Ford Avenue/Terminal Island Ramps & Pier A Way	City of Long Beach	AM MID PM	0.254 0.372 0.424	A A A

TABLE 3.13-5. SUMMARY OF INTERSECTION LEVEL OF SERVICE

Existing Baseline Conditions

No.	Intersection	Jurisdiction	Peak Hour	Existing V/C	Existing LOS
16	Pico Avenue & Pier C Street	City of Long Beach	AM MID PM	0.178 0.295 0.287	A A A
17	Pico Avenue & Pier D Street	City of Long Beach	AM MID PM	0.235 0.363 0.241	A A A
18.1	Pico Avenue & Westbound Ocean Boulevard On-Ramp	City of Long Beach	AM MID PM	0.272 0.492 0.308	A A A
18.2	Pico Avenue & Westbound Ocean Boulevard Off-Ramp	City of Long Beach	AM MID PM	0.172 0.206 0.207	A A A
19	Pico Avenue & Pier E Street/Eastbound Ocean Boulevard Ramp	City of Long Beach	AM MID PM	0.378 0.340 0.314	A A A
20	Pier S Avenue & New Dock Street	City of Long Beach	AM MID PM	0.339 0.328 0.328	A A A
21	Terminal Island Freeway & SR-47 Westbound	City of Long Beach	AM MID PM	0.420 0.469 0.469	A A A
22	Terminal Island Freeway & SR-47 Eastbound	City of Long Beach	AM MID PM	0.362 0.387 0.434	A A A
23	Pier S Avenue & SR-47 Westbound	City of Long Beach	AM MID PM	0.346 0.336 0.361	A A A
24	Pier S Avenue & SR-47 Eastbound	City of Long Beach	AM MID PM	0.340 0.369 0.300	A A A
25	Pico Avenue/Pier G Avenue & Harbor Plaza	City of Long Beach	AM MID PM	0.519 0.592 0.592	A A A
26	Navy Way & Seaside Freeway	City of Los Angeles	AM MID PM	0.436 0.340 0.554	A A A
27	Harbor Plaza & Queensway Drive	City of Long Beach	AM MID PM	0.275 0.387 0.390	A A A
28	Harbor Plaza & Harbor Scenic Drive	City of Long Beach	AM MID PM	0.449 0.442 0.434	A A A
29	Navy Way & Reeves Avenue	City of Los Angeles	AM MID PM	0.064 0.104 0.117	A A A
30	Long Beach Boulevard & Pacific Coast Highway	City of Long Beach	AM MID PM	0.694 0.640 0.770	B B C

TABLE 3.13-5. SUMMARY OF INTERSECTION LEVEL OF SERVICE

Existing Baseline Conditions

No.	Intersection	Jurisdiction	Peak Hour	Existing	
				V/C	LOS
31	Long Beach Boulevard & Anaheim Street	City of Long Beach	AM MID PM	0.567 0.565 0.685	A A B
32	Long Beach Boulevard & Ocean Boulevard	City of Long Beach	AM MID PM	0.566 0.392 0.571	A A A

Key: AM = morning (7:00 to 8:00 a.m.); ICTF = Intermodal Container Transfer Facility; LOS = level of service; MID = mid-day (2:00 to 3:00 p.m.); PM = afternoon (4:00 to 5:00 p.m.); SR = State Route; V/C = volume-to-capacity

TABLE 3.13-6. SUMMARY OF FREEWAY LEVEL OF SERVICE

Existing Baseline Conditions

No.	Location	Direction	No. of Lanes	Lane Capacity (vehicle/ hour)	Peak Hour	PeMS Volumes	Existing Baseline	
							V/C	LOS
1A	I-110 South of C Street	Northbound	4	2000	AM MID PM	3,900 3,070 3,190	0.488 0.384 0.399	B B B
1B	I-110 South of C Street	Southbound	4	2000	AM MID PM	2,050 1,460 1,620	0.256 0.183 0.203	A A A
2A	I-710 South of Sepulveda Boulevard (North of Pacific Coast Highway)	Northbound	3	2000	AM MID PM	4,490 4,260 4,210	0.748 0.710 0.702	C C C
2B	I-710 South of Sepulveda Boulevard (North of Pacific Coast Highway)	Southbound	3	2000	AM MID PM	5,050 3,930 3,950	0.842 0.655 0.658	D C C
3A	I-710 North of I-405	Northbound	4	2000	AM MID PM	3,450 3,680 4,000	0.431 0.460 0.500	B B B
3B	I-710 North of I-405	Southbound	4	2000	AM MID PM	4,020 3,680 3,920	0.503 0.460 0.490	B B B
4A	I-405 at Santa Fe Avenue (West of I-710)	Westbound	4	2000	AM MID PM	6,250 6,120 6,320	0.781 0.765 0.790	D C D
4B	I-405 at Santa Fe Avenue (West of I-710)	Eastbound	4	2000	AM MID PM	5,780 5,730 5,510	0.723 0.716 0.689	C C C
5A	I-405 North of SR-22	Westbound	4	2000	AM MID PM	5,850 7,280 7,410	0.731 0.910 0.926	C D D
5B	I-405 North of SR-22	Eastbound	4	2000	AM MID PM	6,290 7,100 7,010	0.786 0.888 0.876	D D D

TABLE 3.13-6. SUMMARY OF FREEWAY LEVEL OF SERVICE

No.	Location	Direction	No. of Lanes	Lane Capacity (vehicle/ hour)	Peak Hour	PeMS Volumes	Existing Baseline V/C	Existing Baseline LOS
Existing Baseline Conditions								
6A	SR-91 East of Alameda Street/Santa Fe Avenue	Westbound	6	2000	AM MID PM	6,820 4,830 5,010	0.568 0.403 0.418	C B B
6B	SR-91 East of Alameda Street/Santa Fe Avenue	Eastbound	6	2000	AM MID PM	5,930 6,340 5,770	0.494 0.528 0.481	B B B
7A	SR-91 East of Cherry Avenue	Westbound	5	2000	AM MID PM	6,610 7,660 8,100	0.661 0.766 0.810	C C D
7B	SR-91 East of Cherry Avenue	Eastbound	5	2000	AM MID PM	5,680 5,790 5,940	0.568 0.579 0.594	C C C
8A	I-605 North of SR-91 (South of Alondra Boulevard)	Northbound	6	2000	AM MID PM	8,660 8,490 8,050	0.722 0.708 0.671	C C C
8B	I-605 North of SR-91 (South of Alondra Boulevard)	Southbound	6	2000	AM MID PM	7,660 7,320 7,950	0.638 0.610 0.663	C C C

Key: AM = morning (7:00 to 8:00 a.m.); I = Interstate; LOS = level of service; MID = mid-day (2:00 to 3:00 p.m.); PeMS = performance management system; PM = afternoon (4:00 to 5:00 p.m.); SR = State Route; V/C = volume-to-capacity

Baseline Bicycle and Pedestrian Facilities

Bicycle facilities are provided in the Harbor District on Anaheim Street and the Queens Way Bridge. Two new bike paths are under construction: 1) the Mark Bixby Memorial Bicycle and Pedestrian Path on Ocean Boulevard (from SR-47 to Pico Avenue as part of the Gerald Desmond Bridge Replacement project) and 2) Pier J Bicycle Path connecting Queens Way Bridge to the southern terminus of Pier J. A bicycle path connecting the Mark Bixby Memorial Bicycle and Pedestrian Path to Golden Shore Drive in downtown Long Beach is under development as well. Anaheim Street and many of the surrounding streets have sidewalks in the City of Long Beach and City of Los Angeles. In other areas, the streets have gravel or dirt shoulders and do not have concrete sidewalks.

The nearest bike lane to the POLB in the City of Los Angeles (Wilmington community) runs along Anaheim Street from Western Avenue to North Henry Ford Avenue (SR-47) and is part of the City of Los Angeles backbone bikeway network. This Anaheim Street bike lane continues from Henry Ford Avenue to 9th Street/I Street (City of Los Angeles 2011).

The nearest bike path to the POLB in the City of Long Beach runs along the eastern side of the Los Angeles River. The Mark Bixby Memorial Bicycle Pedestrian Path, a Class I bikeway (bike path), will be included as part of the new Gerald Desmond Bridge connecting from SR-47 to Pico Avenue. The network of existing and planned bicycle lanes and routes in the vicinity of the Harbor District is depicted in Figure 3.13-5.

Baseline Transit Services

Long Beach Transit, Los Angeles Department of Transportation and Metro provide transit service to the Harbor District and described below and illustrated in Figure 3.13-6.

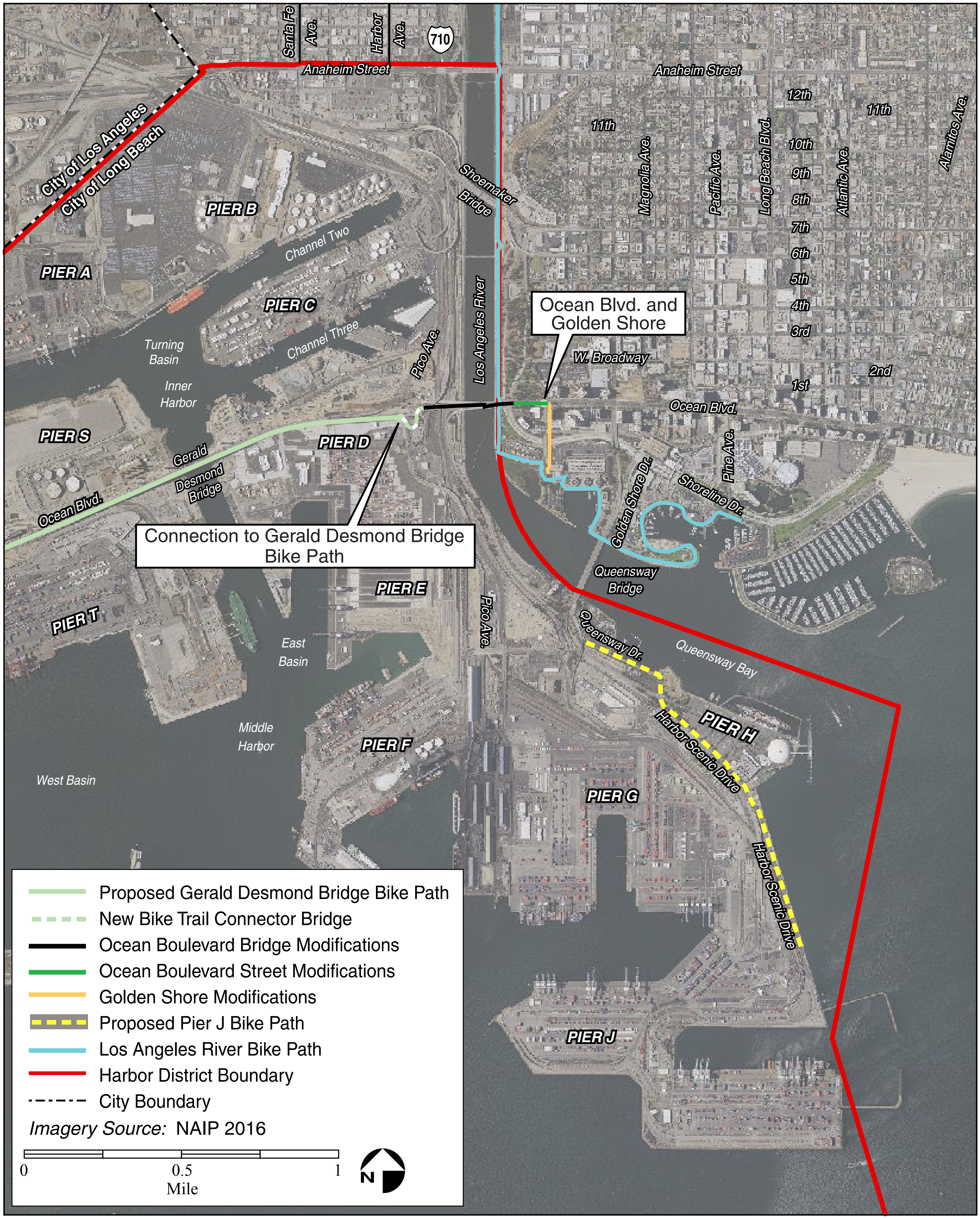

Figure 3.13-5. Bicycle and Pedestrian Facilities

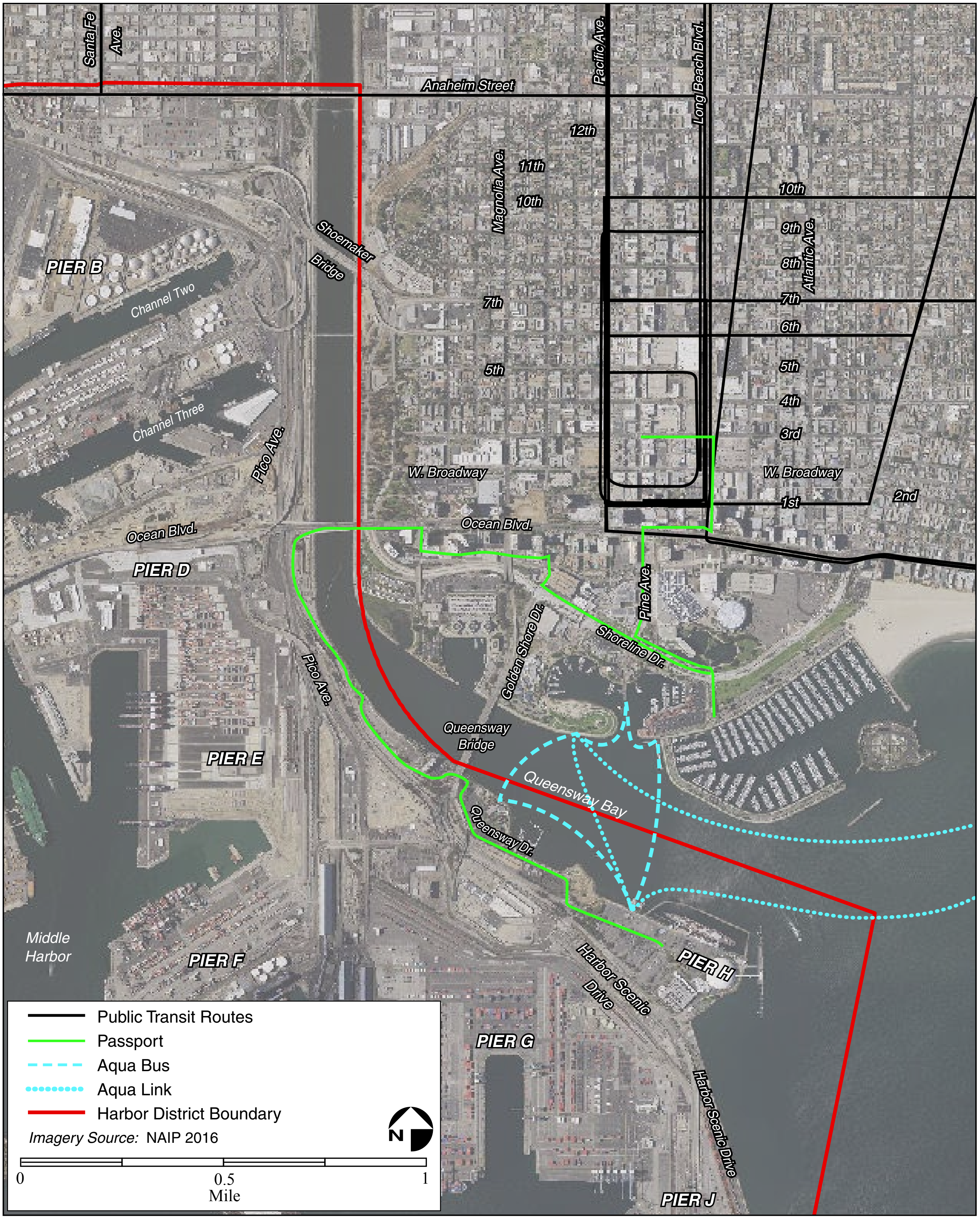

Figure 3.13-6. Plan Transit Facilities/Routes within/near the Harbor District

Existing Local Transit Routes

Routes 45/46 run along Anaheim Street between east Long Beach (Recreation Park at Pacific Coast Highway) and Santa Fe Avenue. The portion of Routes 45/46 east of Magnolia Avenue is outside of the Proposed Plan's area of influence.

Routes 191/192 operate between the downtown Civic Center and Del Amo/South Street, respectively. No other regular Long Beach Transit routes serve the area. Freeway transit service is limited due to low usage associated with the irregular marine terminal work schedules.

The Passport (Long Beach Transit Route 37) operates between Pine Avenue at 3rd Street and the Queen Mary via Harbor Scenic Drive.

In addition to Long Beach Transit, Los Angeles Department of Transportation Express Route 142 operates on Ocean Boulevard and Metro Route 232 operates on Anaheim Street, providing connections between Long Beach and Los Angeles.

3.13.2 Regulatory Setting

The Proposed Plan's area of influence includes four jurisdictions: Cities of Long Beach, Los Angeles, and Carson, and Caltrans. Development is subject to policies and guidance of these jurisdictions, in addition to the following policies and guidance.

3.13.2.1 Federal Regulations

Southern California Association of Governments Regional Transportation Plan

Federal law requires the SCAG region to prepare and update an RTP every 4 years. This is required for regions that do not meet emissions standards for identified criteria pollutants. Pursuant to SB 375, the SCAG adopted the 2016 to 2040 RTP/SCS. The 2016 plan is an update of the 2012–2035 RTP/SCS. The primary goal of the 2016 RTP/SCS is to increase mobility for the region's residents and visitors. Although SB 375 focuses on light-duty vehicle emissions, the 2016 RTP/SCS includes regional strategies directed at Goods Movement. The 2016 RTP/SCS Goods Movement Appendix identifies strategies for regional highway improvements, regional rail improvements (i.e., on-dock and near-dock rail), and San Pedro Bay Ports access projects. The 2020 Update is currently in progress.

3.13.2.2 State Regulations

Senate Bill 743

On September 27, 2013, Governor Brown signed SB 743, which mandated a change in the way that transportation impacts of projects are evaluated under CEQA. The legislation requires the OPR to amend the CEQA guidelines to use VMT as a criterion for determining significant transportation impacts rather than LOS. Instead of promoting mitigation that involves increasing capacity (i.e., the width of a roadway or size of an intersection), which may increase auto use and emissions, and discourage alternative forms of transportation, the new VMT criterion would support reduction of GHG emissions, creation of multimodal networks, and promotion of a mix of land uses. Section 15064.3 in the current (2018) CEQA Guidelines states: "For the purposes of this section, 'vehicle miles traveled' refers to the amount and distance of automobile travel attributable to the project."[11]

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[11] California Code of Regulations, Title 14, Division 6, Chapter 3, Sections 15000–15387, January 1, 2019. Available online at http://ccr.oal.ca.gov (refer to: Section 15064.3 and Appendix G, XVII TRANSPORTATION).

OPR published a preliminary evaluation of possible metrics to replace LOS in transportation analyses in December 2013 and, following substantial public input, released the final guidelines in December 2018. While the new rules are now in effect, local agencies have until July 1, 2020, to develop and adopt new analytical procedures and threshold criteria. The City of Long Beach has not yet adopted significance thresholds. The projected daily automobile VMT for this project within the Southern California Air Basin is provided below in Table 3.13-7. As required, the VMT associated with auto trips is provided for informational purposes only. Given that the methodology and significance criteria pursuant to VMT impact analysis have not been established, the impact analysis is based on the current LOS impact analysis. It is anticipated that future projects will be required to prepare a new traffic impact analysis based on forthcoming VMT established guidelines for the City.

TABLE 3.13-7. VMT PROJECTIONS FOR PORT OF LONG BEACH PROPOSED PLAN AND ALTERNATIVES

Scenario	Type	Daily VMT
Existing with Modified Network	Auto	363,492
Alternative 1 Alternative 2	Auto	457,889
Alternative 3	Auto	477,461
Proposed Plan	Auto	501,661
Cumulative + Proposed Plan	Auto	1,083,438
Key: VMT = vehicle miles traveled		

California State Freight Mobility Plan (2014)

The California Freight Mobility Plan of 2014 (CFMP) is a statewide, long-range plan for California's freight transportation system developed by the California State Transportation Agency and Caltrans in collaboration with partner agencies and the freight industry. The CFMP complies with federal Fixing America's Surface Transportation Act requirements and provides a detailed overview of the state's freight system assets, commodity flows by mode, anticipated growth in goods movement, and needed improvements. The 2019 CFMP Update is anticipated to be published in late 2019.

California Sustainable Freight Action Plan

The CSFAP (July 2016) is an ambitious statewide effort to improve freight efficiency and transition the freight transport system to zero-emission technologies, while continuing to support California's economy. To ensure progress toward a sustainable freight system, the participating departments are also ordered to initiate work on corridor-level freight pilot projects within the state's primary trade corridors that integrate advanced technologies, alternative fuels, freight and fuel infrastructure, and local economic development opportunities.

3.13.2.3 Local Regulations

Los Angeles County Congestion Management Program

The CMP for Los Angeles County was adopted by Metro in 1992 and is updated biannually. The CMP defines a backbone highway system that includes all state highways and other major arterial routes as determined by the cities in conjunction with Metro. The highway system includes 164 arterial intersections and 81 freeway segments that are periodically monitored for service levels. In response to the mandates of SB 743, Metro, like other agencies, is currently developing new ways to measure transportation system performance. The analysis included in this PEIR is based on the agency's current procedures.

City of Long Beach General Plan

The City of Long Beach General Plan sets forth the goals, policies, and directions the City will take in managing its future. The General Plan is the citizens' "blueprint" for development, the guide to achieving the vision of the community. California law requires each local government to adopt a local General Plan, which must contain at least seven elements: Land Use, Circulation, Housing, Conservation, Noise, Open Space and Safety.

Mobility Element of the City of Long Beach General Plan

The Mobility Element is a policy document that provides the framework for future transportation construction and management programs addressing specifically the movement of goods by cargo ships, port facilities, rail, trucks, and airplanes. The Mobility Element identifies traffic, mobility of people, movement of goods, and management of resources in the City. The plan also identifies transportation goals and objectives, assesses future needs, evaluates alternative solutions, establishes policies for future improvements, and outlines actions to be implemented. The Mobility Element describes the general location and extent of existing and proposed major thoroughfares, transportation routes, terminals, ports, and other local public utilities and facilities.

The Mobility Element notes that currently, the POLB rail infrastructure is deemed insufficient to accommodate projected container volumes. The Mobility Element provides goals, policies, and strategies for the City's approach to moving freight by rail. This plan supports the need for rail improvements, as follows:

- "Port Traffic Improvements: Innovative improvements to the Port of Long Beach, including on-dock rail facilities, will substantially reduce the number of truck trips to and from the Port, thereby enhancing safety and increasing the capacity and travel flow along the I-710 and other freeways." (Page 16.)
- "Each train loaded on-dock at the Port of Long Beach eliminates up to 750 truck trips from local freeways. One container ship entering the Port generates as much as five trains' worth of intermodal cargo. By using on-dock rail, the Port can potentially eliminate 3,750 truck trips for every vessel call." (Page 105.)
- "Along with people, this Mobility Element strives to improve the local and regional mobility of goods by implementing a three-pronged approach:
    - Coordinate with local and regional transportation agencies.
    - Improve citywide freight-related infrastructure, especially on-dock rail facilities.
    - Reduce the effects of delivery trucks in neighborhoods." (Page 105)

Long Beach Sustainable City Action Plan

The Sustainable City Action Plan includes initiatives, goals, and actions that will move Long Beach toward becoming a sustainable city. The goal of the plan is to reduce future Port-related emissions of DPM, NO_x, and SO_x from OGV, CHE, and heavy-duty vehicles source categories by developing actions and implementing mitigation measures/incentive programs necessary to reduce air emissions from trucks, locomotives, harbor craft, ocean-going vessels, and CHE.

3.13.3 Impacts and Mitigation Measures

This section evaluates impacts on local roadway traffic, bicycle paths, pedestrian access, and transit routes.

3.13.3.1 Significance Criteria

Criteria for determining the significance of impacts on transportation are based on the City's traffic impact analysis guidelines, at the time of this document's preparation. The 2019 CEQA Guidelines, Appendix G (Environmental Checklist), requires a VMT analysis be included after July 1, 2020. As of the time of this document, the City of Long Beach has not yet developed and adopted VMT thresholds. VMT is disclosed, but since an analysis methodology and thresholds have not yet been established, the transportation impact analysis is based on the existing City of Long Beach significance criteria (LOS) shown in Table 3.13-8. For future projects, a VMT analysis will be conducted when the methodology and thresholds have been adopted by the City.

TABLE 3.13-8. TRAFFIC IMPACT THRESHOLDS OF SIGNIFICANCE

City of Long Beach, Port of Long Beach, and City of Carson (Signalized Intersections)	
LOS without the Proposed Plan	**LOS or Change in V/C with the Proposed Plan**
A, B, C, or D	To E or F, and 0.02 or greater
E, F	0.02 or greater
City of Los Angeles and Port of Los Angeles (Signalized Intersections)	
Final LOS (with Project)	**Proposed Plan-Related Increase in V/C**
C	> 0.040
D	> 0.020
E or F	> 0.010
Roadways (All Jurisdictions) **Los Angeles County Metropolitan Transportation Authority Congestion Management Plan**	
Cause an increase of 0.02 or more in the V/C ratio with a resulting LOS of E or F at either a Metro CMP freeway monitoring station or a non-CMP roadway segment analyzed in the traffic study area.	
Final LOS (with Project)	**Proposed Plan-Related Increase in V/C**
E or F	> 0.02
Key: > = greater than; Metro = Los Angeles County Metropolitan Transportation Authority; CMP = Congestion Management Plan; LOS = level of service; V/C = volume-to-capacity	

Impacts during construction or operation would be considered significant if the Proposed Plan would:

- **TRANS-1:** Increase an intersection's V/C ratio in accordance with the guidelines, which show traffic impact thresholds of significance for intersections (signalized and unsignalized) of the affected jurisdictions in the area of influence for the proposed project.
- **TRANS-2:** Cause an increase of 0.02 or more in the V/C ratio with a resulting LOS E or F at an analyzed freeway segment.
- **TRANS-3:** Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.
- **TRANS-4:** Result in inadequate emergency access.

3.13.3.2 Assessment Methodology

Analysis Year

For purposes of the analysis, impacts were measured as the difference between baseline traffic conditions in 2018 (defined as the "CEQA Baseline") and the effects of the Proposed Plan and alternatives as if they were in place in 2018 (referred to as the "Baseline Plus Project" condition).The SCAG RTP (2016 to 2040 RTP) horizon year is 2040. Therefore, for consistency with the SCAG Horizon Year, 2040 was used as the horizon year for the cumulative analysis. The actual difference in traffic with and without the Proposed Plan would be the difference between the Cumulative Alternative 1 (No Plan Alternative) versus the Cumulative Proposed Plan.

Intersections and Freeway Segments

Similar to the baseline traffic condition analysis, traffic LOS values for signalized intersections were determined by using V/C ratios. Locations within the City of Long Beach and City of Carson used the ICU methodology, and CMA methodology was used within the City of Los Angeles. Intersection LOS worksheets are provided in Appendix D (Traffic Data).

Under the CMP, traffic impact analysis is required at a CMP arterial monitoring intersection where a proposed project would add 50 or more AM or PM weekday peak-hour vehicle trips. The nearest CMP arterial monitoring intersections to the Harbor District are Pacific Coast Highway & Santa Fe Avenue (Study Intersection 7) and Pacific Coast Highway (O Street) & Alameda Street (Study Intersection 8).

Metro also requires a traffic impact analysis for mainline freeway monitoring locations where a project would add 150 or more AM or PM weekday peak-hour trips in either direction. The nearest CMP freeway monitoring stations to the Harbor District are I-710 at Willow Street and I-110 south of C Street. To provide a conservative assessment, six additional freeway monitoring stations were also analyzed.

Three potential sources of trips could contribute to traffic impacts resulting from the Proposed Plan. First, construction of Proposed Plan projects would produce temporary worker trips and truck trips associated with moving materials. Second, operations of new facilities would produce new truck trips. Third, operations require on-site workers that would generate daily auto commute trips to and from the facilities.

The analysis also calculated potential cumulative impacts of the Proposed Plan, the sources of which included: 1) anticipated related projects, and 2) the background growth in traffic for the long-range 2016 SCAG RTP Horizon Year (Year 2040).

Cumulative analysis was conducted by comparing "Year 2040 without Proposed Plan" traffic conditions to "Year 2040 with Proposed Plan" traffic conditions. If a cumulative impact is found, then the analysis evaluates whether the Proposed Plan's contribution to that impact is cumulatively considerable. The future background traffic under this scenario included cumulative/related projects in addition to projected future regional growth. Significant impacts were determined using the significance criteria described in Section 3.13.3.1 (Significance Criteria). As mentioned earlier, if not locked down the Badger Bridge would constrain the future cargo growth for both ports. Therefore, the cumulative analysis assumes improvements in order to accommodate the future growth, including: 1) permanently locking the bridge down, and 2) adding a third track.

Modeling and Model Inputs

The intersection and freeway segment analyses used the Port Transportation Analysis Model (PortTAM) to forecast traffic volumes for the Proposed Plan and alternatives. The PortTAM model is based on the SCAG Regional Travel Demand Forecasting Model. For this project, the 2016 SCAG RTP Horizon Year (Year 2040) was used.

The use of the SCAG model to account for regional and subregional traffic growth beyond the general proximity of the Proposed Plan area of influence is an accepted practice. The SCAG model is used for the region's federally required RTP, as well as the SIP and the SCAQMD AQMP for the SCAB. In addition to land use changes through 2040, the cumulative analysis includes the following rail and highway infrastructure improvements: 1) completion of the Pier B On-Dock Rail Support Facility, 2) construction of the BNSF's Southern California Intermodal Gateway intermodal railyard, 3) improvements to the existing UPRR ICTF intermodal railyard, and 4) Alternative 5C improvements to I-710 Freeway between Anaheim Street and SR-60.

Vehicular Trip Generation

Proposed Plan-related trip generation includes trips that would be generated by the Proposed Plan projects. Traffic growth related to the Proposed Plan was developed using the "QuickTrip" truck generation model. QuickTrip is a spreadsheet-based truck trip generation model that was developed for the Ports of Long Beach/Los Angeles Transportation Study (POLA and POLB 2001). QuickTrip estimates terminal truck flows by hour of the day based on TEU container throughput and terminal operating parameters. For this analysis, the inputs to the QuickTrip model were updated to reflect current operating parameters (marine terminal gate counts by truck type and on-dock train volumes at the terminals). These data (TEU per container ratio, monthly TEU throughput, mode split, hours of operation, dual move percentage, worker shift splits, and peaking factors) were input into QuickTrip for each terminal. The QuickTrip model produces the hourly truck trips for each hour of the day (an average day within a peak month) by type of vehicle - bobtail, chassis, and empty and loaded container.

The Proposed Plan trip generation was determined by using the Proposed Plan cargo projections for container terminals measured in TEU, which is an input to QuickTrip. QuickTrip is a spreadsheet tool that estimates the truck trip estimates based on the Ports' Cargo Forecast. The QuickTrip outputs and specific trip generation from non-container terminals equal the total trip generation. The projected Proposed Plan daily trip generation is shown in Table 3.13-9.

To more accurately estimate the performance of a roadway carrying a mixed traffic stream of automobiles and trucks, adjustments were applied to trucks to account for their sizes and their acceleration and braking characteristics per the PortTAM passenger car equivalents methodologies. Each truck trip generated by the Proposed Plan was converted to passenger car equivalents by applying these factors: 2.0 for tractor-trailer combinations (chassis, container, and non-container trucks), 1.1 for bobtails, and 1.0 for personal autos.

For each of the analysis years, a terminal's operating parameters, which influence the amount of truck traffic generated by the terminal, were estimated taking into account:

- Increased activity;
- Expanded terminal operating hours (more second shift and nighttime shift activity);
- Increased on-dock rail use; and
- Increased dual transactions[12] within the terminal.

[12] Dual transactions: one inbound and outbound gate move (aka, one gate transaction) that results in one container being dropped off and another container being picked up.

TABLE 3.13-9. PROJECTED DAILY TRIP GENERATION FOR PROPOSED PLAN AND ALTERNATIVES

Vehicle Type	Existing Baseline (2017)					No Project (Alternative 1)					Proposed Plan				
	AM Period	PM Period	MD Period	NT Period	Daily	AM Period	PM Period	MD Period	NT Period	Daily	AM Period	PM Period	MD Period	NT Period	Daily
POLB [Port Bobtail]	540	1,294	2,564	2,332	6,730	1,303	3,015	6,142	5,162	15,622	1,680	3,583	7,261	5,911	18,435
POLB [Port Chassis]	187	377	744	670	1,978	431	860	1,726	1,502	4,519	543	1,011	2,059	1,792	5,405
POLB [Port Container]	969	2,391	4,773	4,584	12,717	2,270	5,508	11,371	10,224	29,373	2,938	6,591	13,498	11,687	34,714
POLB [Port Non-Container]	1,899	1,900	6,133	1,372	11,304	1,899	1,900	6,133	1,372	11,304	1,899	1,900	6,133	1,372	11,304
POLB [All Trucks]	**3,595**	**5,962**	**14,215**	**8,956**	**32,728**	**5,903**	**11,283**	**25,371**	**18,261**	**60,818**	**7,061**	**13,086**	**28,951**	**20,760**	**69,858**
POLB [Port Autos]	**6,722**	**8,817**	**12,483**	**3,883**	**31,905**	**9,183**	**12,560**	**15,460**	**5,121**	**42,324**	**10,240**	**14,000**	**16,680**	**5,675**	**46,595**
POLB Total Vehicle	**10,317**	**14,779**	**26,698**	**12,839**	**64,633**	**15,086**	**23,843**	**40,831**	**23,382**	**103,142**	**17,301**	**27,086**	**45,631**	**26,435**	**116,453**

Vehicle Type	Alternative 2					Alternative 3					Cumulative Proposed Plan				
	AM Period	PM Period	MD Period	NT Period	Daily	AM Period	PM Period	MD Period	NT Period	Daily	AM Period	PM Period	MD Period	NT Period	Daily
POLB [Port Bobtail]	1,303	3,015	6,142	5,162	15,622	1,405	3,290	6,541	5,453	16,688	2,619	2,674	6,468	4,269	16,030
POLB [Port Chassis]	431	861	1,726	1,502	4,519	465	932	1,855	1,637	4,889	648	601	1,605	1,107	3,961
POLB [Port Container]	2,270	5,508	11,371	10,225	29,373	2,463	6,056	12,177	10,814	31,509	4,638	4,876	11,841	8,094	29,449
POLB [Port Non-Container]	1,899	1,900	6,133	1,372	11,304	1,899	1,900	6,133	1,372	11,304	2,652	3,048	6,168	997	12,865
POLB [All Trucks]	**5,903**	**11,283**	**25,371**	**18,260**	**60,818**	**6,232**	**12,177**	**26,706**	**19,275**	**64,390**	**10,558**	**11,199**	**26,082**	**14,466**	**62,305**
POLB [Port Autos]	**9,183**	**12,560**	**15,460**	**5,121**	**42,324**	**9,612**	**13,250**	**16,005**	**5,364**	**44,231**	**11,023**	**11,052**	**15,365**	**5,365**	**42,805**
POLB Total Vehicle	**15,086**	**23,843**	**40,831**	**23,381**	**103,142**	**15,844**	**25,427**	**42,711**	**24,640**	**108,621**	**21,581**	**22,251**	**41,447**	**19,831**	**105,110**

Source: San Pedro Bay Port Transportation Analysis Model (PortTAM)
Key: AM = morning (6:00 to 9:00 a.m.); MD = mid-day (9:00 a.m. to 3:00 p.m.); PM = evening (3:00 to 7:00 p.m.); NT = Nighttime (7:00 p.m. to 6:00 a.m.)
POLB = Port of Long Beach
Note: Total truck volumes have been converted to Passenger Car Equivalents: 2.0 vehicles per tractor-trailer combination (chassis, container, and non-container trucks), 1.1 per bobtail, and 1.0 per passenger car.

This approach is based on the expectation that terminal operators will adjust their operations in response to future increases in cargo volume and other factors. For example, terminals have increased night-shift and gate activity during off-peak hours in reaction to the *PierPass* program (a program that has induced a shift in truck activity to off-peak hours in the last decade).

Future traffic in the San Pedro Bay Port Complex was estimated based on the cargo throughput and mode split projections, and then it was assigned to the roadway system using trip generation methodologies contained in the PortTAM. Truck trip distribution patterns were developed based on origin-destination surveys conducted in Year 2010. Employee trip distribution patterns were developed based on dock workers zip code data in accordance with the PortTAM model methodology (refer to Appendix D, Traffic Data).

Railroad Crossing Impact Analysis

In determining a proposed project's area of impact, CEQA Guidelines state that an EIR must include a description of the physical environmental conditions from both a local and regional perspective near the project site. Consequently, the analysis of potential impacts from Port projects is appropriately limited to at-grade crossings immediately adjacent to the ports and between the ports and the downtown Los Angeles train yards, a location 20 miles away to which most trains leaving the Port travel. This area includes the Alameda Corridor; however, there are no at-grade crossings along the corridor. Regional at-grade crossings east of Alameda Corridor were excluded, as they are not within the Harbor District vicinity.

The following at-grade railroad crossings within the POLB were evaluated for further analysis:

New Dock Street - East of Pier S Avenue

The rail line that crosses New Dock Street east of Pier S Avenue is described as a spur, or wye, and is primarily used for switching. The New Dock Street crossing has low train volumes (four to six trains per day) that typically arrive and depart at night. Future train volumes are not projected to increase at this crossing. Therefore, the Proposed Plan and its alternatives are not expected to have a significant effect on rail services nor on vehicular delays at the at-grade railroad crossings within the Harbor District.

Pier B Street/Edison Avenue, Pier B Street/Baker Lead, and Pier B Street/Anaheim Way

As part of the On-Dock Rail Support Facility Project, Pier B Street would be realigned southward from Anaheim Way east to near Edison Avenue. As part of the roadway work, the existing at-grade rail crossings at Pier B Street/Baker Lead, Pier B Street/Edison Avenue, and Anaheim Way would be modified and upgraded. As such, these low volume crossings are not expected to result in significant impacts on traffic operations (i.e., delays and queuing) in the existing as well as the future traffic conditions.

Pier B Street/9th Street

In 2019, Port of Long Beach proposed and implemented operational closure of the at-grade crossing at the Pier B Street/Pico Avenue & 9th Street. As part of the Pier B On-Dock Rail Support Facility project, the crossing will be permanently closed in the coming years.

Pico Avenue/West Pier D Street

In 2015, the Port decommissioned the at-grade rail spur crossing Pico Avenue north of Pier D Street to provide access during the construction of Gerald Desmond Bridge Replacement Project. Subsequently, the Port decommissioned the track permanently.

Based on the above considerations, further analysis of at-grade crossings at these low volume rail-spurs within the Harbor District is not required.

3.13.3.3 Proposed Plan

Impact TRANS-1: Construction and operations would increase an intersection's V/C ratio in accordance with the guidelines, which show traffic impact thresholds of significance for intersections (signalized and unsignalized) of the affected jurisdictions in the area of influence.

Impact Determination

Construction

The Proposed Plan includes several projects (Administrative Building Site Support Yard [Expansion], Protective Boat Basin [Berth F202], Fourth Track at Ocean Boulevard, Ocean Boulevard Bicycle Gap Closure, Pier D Street Realignment, Pier J Terminal Redevelopment, Pier S Mixed Use Development, Pier S Shoreline Enhancement, Pier T Improvements, and Pier W Terminal Development) and land use changes that may result in construction-related trip generation associated with worker trips and truck trips for hauling materials to and from the construction sites.

The total number of construction-related trips would vary during the construction activities related to the individual Proposed Plan projects. Construction activities associated with the Proposed Plan projects would generate a temporary increase in traffic associated with construction workers and trucks moving construction materials and earth in and out of the Port. It is anticipated that the majority of construction materials (i.e., aggregate, concrete, asphalt, sand, and slurry) would be provided by local suppliers and stored at the contractors' existing facilities. The majority of construction materials would be imported during off-peak traffic hours (the main exception being cement trucks, which have a limited window for delivery times). Construction haul routes would likely be via the I-710 (to Harbor Scenic Drive, Pico Avenue, or Navy Way) or via I-110 across the Vincent Thomas Bridge, as well as the arterial streets connecting these corridors with individual project sites.

Workers would be required to arrive at the construction site prior to the AM peak period and depart prior to the PM peak period. Therefore, significant traffic impacts from construction workers' vehicles would not occur during the peak commute periods.

A traffic management plan (TMP) containing traffic control measures conforming to the requirements and guidance of the City and other responsible agencies would be required at the time construction permits are obtained. At a minimum, the TMP for each project would: identify allowable work hours; define construction haul routes; provide for employee parking, material staging, and maintenance of traffic (vehicular and bicycle) during construction; provide for pedestrian activities adjacent to work sites and notification plans for the public and surrounding properties/businesses; and coordinate with emergency service and transit providers. The TMPs would be submitted to the Port for approval before beginning any construction work. Construction-period traffic impacts would be considered less than significant.

Implementation of the OHSPER project would not require construction as the facility is already operable in its present configuration. Therefore, the OHSPER project would not result in increases in traffic.

Operations

Table 3.13-10 summarizes the work shift hours at the San Pedro Bay Port Complex, as a whole, that was assumed in this analysis. Employee trip rates for the alternatives were based on the PortTAM model.

TABLE 3.13-10. SAN PEDRO BAY PORTS WORK SHIFTS

Year	Percentage of Throughput in Each Shift		
	Day (8:00 a.m. to 6:00 p.m.)	Second (6:00 p.m. to 3:00 a.m.)	Nighttime (3:00 a.m. to 8:00 a.m.)
Baseline (2018)	56	43	2
2040	60	20	20

Table 3.13-11 summarizes the existing baseline plus the Proposed Plan projects intersection operating conditions at each intersection using 2040 project trips compared to the CEQA Baseline (2018). Operating conditions at two intersections—Henry Ford Avenue & Anaheim Street and Harbor Plaza & Pier G Avenue—are projected to exceed the thresholds and represent significant impacts.

At the Henry Ford Avenue & Anaheim Street intersection, the level of service would change from LOS B to LOS C in the PM period and the V/C ratio would increase by 0.141, which would exceed the City of Los Angeles' threshold of 0.04. At the Harbor Plaza & Pier G Avenue intersection, operations would decline from LOS A to LOS F in the mid-day peak period due to heavy westbound truck movements.

Operation of the OHSPER project would not result in increases in traffic.

Mitigation Measures

The following measures would be implemented as applicable to minimize impacts associated with traffic at intersections within the Harbor District. The timeframe for implementation of improvements will be determined during the project development process.

TRANS-1: Traffic Improvements in Accordance with CEQA Guidelines. If a project-level traffic analysis shows a significant impact, traffic improvements in accordance with CEQA Guidelines will be required and implemented to minimize impacts. Types of improvements may include, but are not limited to, the following: additional lanes, signalization, signal phasing and timing improvements, restriping, and other measures in accordance with relevant policies and procedures. The specific improvements to be implemented shall be based on operational and technical feasibility, on a project-by-project basis.

Significance of Impact after Mitigation

Since this document presents a program-level analysis, future project-specific analyses will evaluate the significance of impacts at the affected locations. If and/or when deemed necessary, measures identified under **Mitigation Measure TRANS-1** would be required and implemented to reduce project impacts to a less than significant level. With implementation of the proposed mitigation measure(s), the traffic impacts at the affected locations would likely be less than significant. However, since it is uncertain how individual projects would implement the proposed mitigation measure(s) in the future, the traffic impacts associated with operation of the Proposed Plan would be significant and unavoidable.

Impact TRANS-2: Construction and operations would not cause an increase of 0.02 or more in the V/C ratio with a resulting LOS E or F at a study area CMP freeway segment.

<u>Impact Determination</u>

Construction

The CMP impact methodology described in Section 3.13.3.2 (Assessment Methodology) includes a minimum threshold for CMP impact analysis of 150 or more one-way peak hour trips at a mainline freeway monitoring station or 50 or more peak hour trips at a CMP arterial monitoring intersection. With implementation of TMPs during construction of each of the Proposed Plan projects, the amount of construction-related one-way peak hour trips would be less than the minimum threshold. In addition, construction-related trips would be, by their nature, of limited duration. Based on these considerations, construction-related impacts would be less than significant.

Implementation of the OHSPER project would not require construction as the facility is already operable in its present configuration. Therefore, the OHSPER project would not result in increases in traffic.

Operations

As shown in the Table 3.13-11, impacts are projected to occur at two intersections: Henry Ford Avenue & Anaheim Street and Harbor Plaza & Pier G Avenue.

Table 3.13-12 summarizes the baseline plus the Proposed Plan projects roadway segment operating conditions using 2040 project trips compared to the CEQA Baseline (2018). As shown in Table 3.13-12, traffic associated with the Proposed Plan projects would not cause LOS to fall below D on any freeway segment. Operation of the Proposed Plan projects would result in less than significant impacts on the study area bi-directional freeway segments.

Operation of the OHSPER project would not result in increases in traffic.

As Proposed Plan project construction and operations and land use changes would not cause an increase in the V/C ratio with a resulting LOS E or F at a study area CMP freeway segment, impacts would be less than significant. Therefore, no mitigation is required.

TABLE 3.13-11. SUMMARY OF INTERSECTION LEVEL OF SERVICE – EXISTING PLUS PROJECT CONDITIONS - PROPOSED PLAN

No.	Intersection	Jurisdiction	Peak Hour	Existing Baseline		Existing Plus Project		Change in V/C	Significant Impact (Yes/No)
				V/C	LOS	V/C	LOS		
1	Alameda Street & Sepulveda Boulevard Ramp	City of Carson	AM	0.436	A	0.490	A	0.054	No
			MID	0.377	A	0.505	A	0.128	No
			PM	0.521	A	0.561	A	0.040	No
2	Alameda Street Ramp & Sepulveda Boulevard	City of Carson	AM	0.713	C	0.767	C	0.054	No
			MID	0.515	A	0.579	A	0.064	No
			PM	0.648	B	0.696	B	0.048	No
3	Intermodal Way & Sepulveda Boulevard	City of Carson	AM	0.399	A	0.431	A	0.032	No
			MID	0.339	A	0.368	A	0.029	No
			PM	0.490	A	0.500	A	0.010	No
4	ICTF Driveway & Sepulveda Boulevard	City of Los Angeles	AM	0.361	A	0.413	A	0.052	No
			MID	0.267	A	0.344	A	0.076	No
			PM	0.416	A	0.475	A	0.059	No
5	Middle Road & Sepulveda Boulevard	City of Los Angeles	AM	0.293	A	0.335	A	0.042	No
			MID	0.308	A	0.353	A	0.044	No
			PM	0.459	A	0.574	A	0.114	No
6	Terminal Island Freeway & Willow Street/Sepulveda Boulevard	City of Long Beach	AM	0.443	A	0.485	A	0.042	No
			MID	0.458	A	0.537	A	0.079	No
			PM	0.589	A	0.627	B	0.038	No
7	Santa Fe Avenue & Pacific Coast Highway	City of Long Beach	AM	0.710	C	0.750	C	0.040	No
			MID	0.624	B	0.694	B	0.070	No
			PM	0.738	C	0.857	D	0.119	No
8	Alameda Street & O Street	City of Los Angeles	AM	0.317	A	0.393	A	0.076	No
			MID	0.364	A	0.440	A	0.076	No
			PM	0.425	A	0.496	A	0.072	No
9	O Street & Pacific Coast Highway	City of Los Angeles	AM	0.536	A	0.567	A	0.031	No
			MID	0.418	A	0.471	A	0.053	No
			PM	0.580	A	0.619	B	0.039	No
10	Santa Fe Avenue & Anaheim Street	City of Long Beach	AM	0.519	A	0.559	A	0.040	No
			MID	0.484	A	0.547	A	0.063	No
			PM	0.575	A	0.682	B	0.107	No

TABLE 3.13-11. SUMMARY OF INTERSECTION LEVEL OF SERVICE – EXISTING PLUS PROJECT CONDITIONS - PROPOSED PLAN									
No.	**Intersection**	**Jurisdiction**	**Peak Hour**	**Existing Baseline**		**Existing Plus Project**		**Change in V/C**	**Significant Impact (Yes/No)**
				V/C	**LOS**	**V/C**	**LOS**		
11	Harbor Avenue & Anaheim Street	City of Long Beach	AM	0.418	A	0.431	A	0.013	No
			MID	0.454	A	0.534	A	0.080	No
			PM	0.538	A	0.565	A	0.027	No
12	9th Street/East I Street & Anaheim Street	City of Long Beach	AM	0.638	B	0.662	B	0.024	No
			MID	0.472	A	0.604	B	0.132	No
			PM	0.600	A	0.717	C	0.117	No
13	Henry Ford Avenue & Anaheim Street	City of Los Angeles	AM	0.487	A	0.621	B	0.135	No
			MID	0.451	A	0.695	B	0.244	No
			PM	0.655	B	0.840	D	0.185	**Yes**
14	Pico Avenue & Pier B Street	City of Long Beach	AM	0.327	A	0.554	A	0.227	No
			MID	0.390	A	0.643	B	0.253	No
			PM	0.417	A	0.582	A	0.165	No
15	Henry Ford Avenue/Terminal Island Ramps & Pier A Way	City of Long Beach	AM	0.254	A	0.380	A	0.126	No
			MID	0.372	A	0.562	A	0.190	No
			PM	0.424	A	0.766	C	0.342	No
16	Pico Avenue & Pier C Street	City of Long Beach	AM	0.178	A	0.303	A	0.125	No
			MID	0.295	A	0.579	A	0.284	No
			PM	0.287	A	0.507	A	0.220	No
17	Pico Avenue & Pier D Street	City of Long Beach	AM	0.235	A	0.315	A	0.080	No
			MID	0.363	A	0.502	A	0.139	No
			PM	0.241	A	0.370	A	0.129	No
18.1	Pico Avenue & Westbound Ocean Boulevard On-Ramp	City of Long Beach	AM	0.272	A	0.369	A	0.097	No
			MID	0.492	A	0.675	B	0.183	No
			PM	0.308	A	0.453	A	0.145	No
18.2	Pico Avenue & Westbound Ocean Boulevard Off-Ramp	City of Long Beach	AM	0.172	A	0.309	A	0.137	No
			MID	0.206	A	0.581	A	0.375	No
			PM	0.207	A	0.438	A	0.231	No
19	Pico Avenue & Pier E Street/Eastbound Ocean Boulevard Ramp	City of Long Beach	AM	0.378	A	0.492	A	0.114	No
			MID	0.340	A	0.778	C	0.438	No
			PM	0.314	A	0.588	A	0.274	No

TABLE 3.13-11. SUMMARY OF INTERSECTION LEVEL OF SERVICE – EXISTING PLUS PROJECT CONDITIONS - PROPOSED PLAN									
No.	**Intersection**	**Jurisdiction**	**Peak Hour**	**Existing Baseline**		**Existing Plus Project**		**Change in V/C**	**Significant Impact (Yes/No)**
				V/C	**LOS**	**V/C**	**LOS**		
20	Pier S Avenue & New Dock Street	City of Long Beach	AM	0.339	A	0.434	A	0.095	No
			MID	0.328	A	0.449	A	0.121	No
			PM	0.328	A	0.431	A	0.103	No
21	Terminal Island Freeway & SR-47 Westbound	City of Long Beach	AM	0.420	A	0.494	A	0.074	No
			MID	0.469	A	0.579	A	0.110	No
			PM	0.469	A	0.582	A	0.113	No
22	Terminal Island Freeway & SR-47 Eastbound	City of Long Beach	AM	0.362	A	0.511	A	0.149	No
			MID	0.387	A	0.543	A	0.156	No
			PM	0.434	A	0.560	A	0.126	No
23	Pier S Avenue & SR-47 Westbound	City of Long Beach	AM	0.346	A	0.438	A	0.092	No
			MID	0.336	A	0.462	A	0.126	No
			PM	0.361	A	0.454	A	0.093	No
24	Pier S Avenue & SR-47 Eastbound	City of Long Beach	AM	0.340	A	0.443	A	0.103	No
			MID	0.369	A	0.466	A	0.097	No
			PM	0.300	A	0.462	A	0.162	No
25	Pico Avenue/Pier G Avenue & Harbor Plaza	City of Long Beach	AM	0.519	A	0.661	B	0.142	No
			MID	0.592	A	1.122	F	0.530	**Yes**
			PM	0.592	A	0.955	E	0.363	**Yes**
26	Navy Way & Seaside Freeway	City of Los Angeles	AM	0.436	A	0.600	A	0.164	No
			MID	0.340	A	0.499	A	0.159	No
			PM	0.554	A	0.685	B	0.131	No
27	Harbor Plaza & Queensway Drive	City of Long Beach	AM	0.275	A	0.410	A	0.135	No
			MID	0.387	A	0.534	A	0.147	No
			PM	0.390	A	0.586	A	0.196	No
28	Harbor Plaza & Harbor Scenic Drive	City of Long Beach	AM	0.449	A	0.635	B	0.186	No
			MID	0.442	A	0.840	D	0.398	No
			PM	0.434	A	0.711	C	0.277	No

TABLE 3.13-11. SUMMARY OF INTERSECTION LEVEL OF SERVICE – EXISTING PLUS PROJECT CONDITIONS - PROPOSED PLAN

No.	Intersection	Jurisdiction	Peak Hour	Existing Baseline		Existing Plus Project		Change in V/C	Significant Impact (Yes/No)
				V/C	LOS	V/C	LOS		
29	Navy Way & Reeves Avenue	City of Los Angeles	AM	0.064	A	0.294	A	0.230	No
			MID	0.104	A	0.364	A	0.260	No
			PM	0.117	A	0.328	A	0.210	No
30	Long Beach Boulevard & Pacific Coast Highway	City of Long Beach	AM	0.694	B	0.713	C	0.019	No
			MID	0.640	B	0.689	B	0.049	No
			PM	0.770	C	0.806	D	0.036	No
31	Long Beach Boulevard & Anaheim Street	City of Long Beach	AM	0.567	A	0.593	A	0.026	No
			MID	0.565	A	0.610	B	0.045	No
			PM	0.685	B	0.735	C	0.050	No
32	Long Beach Boulevard & Ocean Boulevard	City of Long Beach	AM	0.566	A	0.585	A	0.019	No
			MID	0.392	A	0.401	A	0.009	No
			PM	0.571	A	0.577	A	0.006	No

Key: AM = morning (7:00 to 8:00 a.m.); ICTF = Intermodal Container Transfer Facility; LOS = level of service; MID = mid-day (2:00 to 3:00 p.m.); PM = afternoon (4:00 to 5:00 p.m.); SR = State Route; V/C = volume-to-capacity

TABLE 3.13-12. SUMMARY OF FREEWAY LEVEL OF SERVICE – EXISTING PLUS PROJECT - PROPOSED PLAN

No.	Location	Direction	No. of Lanes	Lane Capacity	Peak Hour	PeMS Volumes	Project Volumes	Existing Plus Project Volumes	Existing Baseline		Existing Plus Project		Change in V/C	Significant Impact (Yes/No)
									V/C	LOS	V/C	LOS		
1A	I-110 South of C Street	Northbound	4	2000	AM	3,900	210	4,110	0.488	B	0.514	B	0.026	No
					MID	3,070	190	3,260	0.384	B	0.408	B	0.024	No
					PM	3,190	270	3,460	0.399	B	0.433	B	0.034	No
1B	I-110 South of C Street	Southbound	4	2000	AM	2,050	260	2,310	0.256	A	0.289	A	0.033	No
					MID	1,460	290	1,750	0.183	A	0.219	A	0.036	No
					PM	1,620	250	1,870	0.203	A	0.234	A	0.031	No

TABLE 3.13-12. SUMMARY OF FREEWAY LEVEL OF SERVICE – EXISTING PLUS PROJECT - PROPOSED PLAN

No.	Location	Direction	No. of Lanes	Lane Capacity	Peak Hour	PeMS Volumes	Project Volumes	Existing Plus Project Volumes	Existing Baseline		Existing Plus Project		Change in V/C	Significant Impact (Yes/No)
									V/C	LOS	V/C	LOS		
2A	I-110 South of Sepulveda Boulevard (North of Pacific Coast Highway)	Northbound	3	2000	AM	4,490	180	4,670	0.748	C	0.778	D	0.030	No
					MID	4,260	520	4,780	0.710	C	0.797	D	0.087	No
					PM	4,210	240	4,450	0.702	C	0.742	C	0.040	No
2B	I-110 South of Sepulveda Boulevard (North of Pacific Coast Highway)	Southbound	3	2000	AM	5,050	280	5,330	0.842	D	0.888	D	0.046	No
					MID	3,930	390	4,320	0.655	C	0.720	C	0.065	No
					PM	3,950	230	4,180	0.658	C	0.697	C	0.039	No
3A	I-710 North of I-405	Northbound	4	2000	AM	3,450	80	3,530	0.431	B	0.441	B	0.010	No
					MID	3,680	210	3,890	0.460	B	0.486	B	0.026	No
					PM	4,000	110	4,110	0.500	B	0.514	B	0.014	No
3B	I-710 North of I-405	Southbound	4	2000	AM	4,020	20	4,040	0.503	B	0.505	B	0.002	No
					MID	3,680	240	3,920	0.460	B	0.490	B	0.030	No
					PM	3,920	100	4,020	0.490	B	0.503	B	0.013	No
4A	I-405 at Santa Fe Avenue (West of I-710)	Westbound	4	2000	AM	6,250	120	6,370	0.781	D	0.796	D	0.015	No
					MID	6,120	60	6,180	0.765	C	0.773	D	0.008	No
					PM	6,320	0	6,320	0.790	D	0.790	D	0.000	No
4B	I-405 at Santa Fe Avenue (West of I-710)	Eastbound	4	2000	AM	5,780	0	5,780	0.723	C	0.723	C	0.000	No
					MID	5,730	110	5,840	0.716	C	0.730	C	0.014	No
					PM	5,510	100	5,610	0.689	C	0.701	C	0.012	No
5A	I-405 North of SR-22	Westbound	4	2000	AM	5,850	40	5,890	0.731	C	0.736	C	0.005	No
					MID	7,280	70	7,350	0.910	D	0.919	D	0.009	No
					PM	7,410	20	7,430	0.926	D	0.929	D	0.003	No

TABLE 3.13-12. SUMMARY OF FREEWAY LEVEL OF SERVICE – EXISTING PLUS PROJECT - PROPOSED PLAN

No.	Location	Direction	No. of Lanes	Lane Capacity	Peak Hour	PeMS Volumes	Project Volumes	Existing Plus Project Volumes	Existing Baseline		Existing Plus Project		Change in V/C	Significant Impact (Yes/No)
									V/C	LOS	V/C	LOS		
5B	I-405 North of SR-22	Eastbound	4	2000	AM	6,290	10	6,300	0.786	D	0.788	D	0.002	No
					MID	7,100	100	7,200	0.888	D	0.900	D	0.012	No
					PM	7,010	20	7,030	0.876	D	0.879	D	0.003	No
6A	SR-91 East of Alameda Street/Santa Fe Avenue	Westbound	6	2000	AM	6,820	60	6,880	0.568	C	0.573	C	0.005	No
					MID	4,830	30	4,860	0.403	B	0.405	B	0.002	No
					PM	5,010	70	5,080	0.418	B	0.423	B	0.005	No
6B	SR-91 East of Alameda Street/Santa Fe Avenue	Eastbound	6	2000	AM	5,930	100	6,030	0.494	B	0.503	B	0.009	No
					MID	6,340	140	6,480	0.528	B	0.540	B	0.012	No
					PM	5,770	60	5,830	0.481	B	0.486	B	0.005	No
7A	SR-91 East of Cherry Avenue	Westbound	5	2000	AM	6,610	20	6,630	0.661	C	0.663	C	0.002	No
					MID	7,660	80	7,740	0.766	C	0.774	D	0.008	No
					PM	8,100	60	8,160	0.810	D	0.816	D	0.006	No
7B	SR-91 East of Cherry Avenue	Eastbound	5	2000	AM	5,680	0	5,680	0.568	C	0.568	C	0.000	No
					MID	5,790	90	5,880	0.579	C	0.588	C	0.009	No
					PM	5,940	70	6,010	0.594	C	0.601	C	0.007	No
8A	I-605 North of SR-91 (South of Alondra Boulevard)	Northbound	6	2000	AM	8,660	60	8,720	0.722	C	0.727	C	0.005	No
					MID	8,490	0	8,490	0.708	C	0.708	C	0.000	No
					PM	8,050	100	8,150	0.671	C	0.679	C	0.008	No
8B	I-605 North of SR-91 (South of Alondra Boulevard)	Southbound	6	2000	AM	7,660	20	7,680	0.638	C	0.640	C	0.002	No
					MID	7,320	30	7,350	0.610	C	0.613	C	0.003	No
					PM	7,950	10	7,960	0.663	C	0.663	C	0.000	No

Key: AM = morning (7:00 to 8:00 a.m.); I = Interstate; LOS = level of service; MID = mid-day (2:00 to 3:00 p.m.); PeMS = performance management system; PM = afternoon (4:00 to 5:00 p.m.); SR = State Route; V/C = volume-to-capacity

Impact TRANS-3: Construction and operations would not conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

Impact Determination

Construction

Construction activities would not be expected to affect public transit, bicycle, or pedestrian facilities because these facilities do not operate within the areas where the Proposed Plan projects would be constructed. Transit, bicycle, and pedestrian routes are designated on Ocean Boulevard, Anaheim Street, and Queensway Drive. Additional traffic due to construction activities would not cause delays to bus operations or impact bicycle or pedestrian access. Furthermore, the use of public transit by construction workers would be negligible due to the variability of work shifts and the need to carry tools and equipment to and from the work sites. Therefore, the Proposed Plan projects would not cause an increase in demand for transit services.

Implementation of the OHSPER project would not require construction as the site is already operable in its present configuration. Therefore, the OHSPER project would not result in increases in traffic.

Operations

Transit, bicycle, and pedestrian routes are designated on Ocean Boulevard, Anaheim Street, and Queensway Drive. Operation of the Proposed Plan projects would not affect public transit, bicycle, or pedestrian facilities because they do not use the same transportation networks. Additional traffic due to operational activities would not cause delays to bus operations or impact bicycle or pedestrian access. Furthermore, the use of public transit by workers would be negligible due to the variability of work shifts and locations of employment within the Harbor District. Therefore, the Proposed Plan project operations would not cause an increase in demand for transit services, and impacts would be less than significant.

Operation of the OHSPER project would not result in increases in traffic.

As construction and operations would not conflict with adopted policies for public or decrease transit and pedestrian facilities, impacts would be less than significant. No mitigation is required.

Impact TRANS-4: Construction and operations would not result in inadequate emergency access.

Impact Determination

The Proposed Plan projects and land use changes would not result in closures to roadways or significant construction-related detours on primary facilities. Construction haul routes would be planned, reviewed, and designated in accordance with the City’s requirements to ensure adequate emergency access is maintained. Operation of the Proposed Plan projects would not result in inadequate emergency access because they would not result in closures to roadways or significant detours on primary facilities. Accordingly, construction and operations would not result in inadequate emergency access.

Implementation of the OHSPER project would not require construction as the facility is already operable in its present configuration. Operation of the OHSPER project would not result in increases in traffic.

As construction and operations would not result in inadequate emergency access, impacts would be less than significant. No mitigation is required.

3.13.3.4 Alternative 1 (No Plan Alternative)

Alternative 1 (No Plan Alternative) considers what would reasonably occur if the Port did not update the PMP to include updates to the planning districts and allowable land and water use designations within the Harbor District. Alternative 1 includes projects that are 1) consistent with the 1990 PMP as amended, 2) may or may not have been evaluated in a final CEQA document, and/or 3) could be implemented without approval of the Proposed Plan. Alternative 1 includes the following projects: Administrative Building Site Support Yard (Expansion), Fourth Track at Ocean Boulevard, Ocean Boulevard Bicycle Gap Closure, Pier B Street Support Yard, Pier D Street Realignment, Pier S Mixed Use Development, and Pier S Shoreline Enhancement. This alternative also includes the Pier T Echo Support Yard project, which would construct a 17-acre support yard (chassis, empties, or peel-off) that would serve the Pier T container terminal. In addition, use of the WASSS would continue as currently permitted (i.e., placement and reuse of clean sediments).

Impact Determination

Alternative 1 would result in the same intersection impact at Henry Ford Avenue & Anaheim Street as under the Proposed Plan (Table 3.13-13 and Table 3.13-14). However, this intersection exceeds the percentage change threshold, but continues to operate at LOS C, which is an acceptable level of service. Under this alternative, there would not be an impact at Harbor Plaza & Pier G Avenue, whereas this intersection would experience mid-day and PM peak hour impacts under the Proposed Plan.

Mitigation Measure TRANS-1 would apply to this impact. However, the Port does not have the authority to unilaterally implement any mitigation measures at this location. In addition, there are no planned projects or improvements for these locations that would reduce the impact to less than significant and the necessary improvements to mitigate the impact are not feasible at this time. For these reasons, the impact at Henry Ford Avenue & Anaheim Street would remain significant and unavoidable.

3.13.3.5 Alternative 2 (No Terminal Development)

Alternative 2 (No Terminal Development) is similar to the Proposed Plan and would include updates to the planning districts and allowable land and water use designations in the Harbor District. However, Alternative 2 would not include terminal development projects at Pier T, Pier W, or Pier J. Alternative 2 would include the following projects: Administrative Building Site Support Yard (Expansion), Protective Boat Basin (Berth F202), OHSPER, Fourth Track at Ocean Boulevard, Ocean Boulevard Bicycle Gap Closure, Pier B Street Support Yard, Pier D Street Realignment, Pier T Echo Support Yard, Pier S Mixed Use Development, and Pier S Shoreline Enhancement.

Impact Determination

Alternative 2 would result in the same intersection impact at Henry Ford Avenue & Anaheim Street as the Proposed Plan (Table 3.13-15 and Table 3.13-16). However, this intersection exceeds the percentage change threshold but continues to operate at LOS C, which is an acceptable level of service. Under Alternative 2, no impact at Harbor Plaza & Pier G Avenue would occur. This intersection would experience mid-day and PM peak hour impacts under the Proposed Plan.

Mitigation Measure TRANS-1 would apply to this impact. However, the Port does not have the authority to unilaterally implement any mitigation measures at this location. In addition, there are no planned projects or improvements for these locations that would reduce the impact to less than significant and the necessary improvements to mitigate the impact are not feasible at this time. For these reasons, the impact would remain significant and unavoidable.

3.13.3.6 Alternative 3 (Reduced Terminal Development)

Alternative 3 (Reduced Terminal Development) is similar to the Proposed Plan and would include updates to the planning districts and allowable land and water use designations in the Harbor District. Under Alternative 3, development of the Pier J terminal would be reduced compared to the Pier J Terminal Redevelopment under the Proposed Plan. The Pier J Reduced Development would include dredging and filling the 22-acre triangle, cutting a 9-acre notch, extending the north wharf to the east, and relocating the existing rail line and yard to Pier J South. No development of a new Pier W terminal would occur. Alternative 3 would include the following projects: Administrative Building Site Support Yard (Expansion), Protective Boat Basin (Berth F202), OHSPER, Fourth Track at Ocean Boulevard, Ocean Boulevard Bicycle Gap Closure, Pier B Street Support Yard, Pier D Street Realignment, Pier S Mixed Use Development, Pier S Shoreline Enhancement, Pier T Improvements, and Pier J Reduced Development.

Impact Determination

Alternative 3 would result in the same intersection impacts at Harbor Plaza & Pier G Avenue and Henry Ford Avenue & Anaheim Street as the Proposed Plan (Table 3.13-17 and Table 3.13-18). However, the latter intersection exceeds the percentage change threshold but continues to operate at LOS D, which is an acceptable level of service.

Similar to the Proposed Plan, **Mitigation Measure TRANS-1** would apply to these impacts. However, the Port does not have the authority to unilaterally implement **Mitigation Measure TRANS-1** at the intersection of Henry Ford Avenue & Anaheim Street. In addition, there are no planned projects or improvements for this location that would reduce the impact to less than significant and the necessary improvements to mitigate the impact are not feasible at this time. For these reasons, the impact at Henry Ford Avenue & Anaheim Street would remain significant and unavoidable.

Mitigation Measure TRANS-1 would mitigate the impact at Harbor Plaza & Pier G Avenue to less than significant.

TABLE 3.13-13. SUMMARY OF INTERSECTION LEVEL OF SERVICE – EXISTING PLUS PROJECT CONDITIONS - ALTERNATIVE 1

No.	Intersection	Jurisdiction	Peak Hour	Existing Baseline		Existing Plus Project		Change in V/C	Significant Impact (Yes/No)
				V/C	LOS	V/C	LOS		
1	Alameda Street & Sepulveda Boulevard Ramp	City of Carson	AM	0.436	A	0.482	A	0.046	No
			MID	0.377	A	0.486	A	0.109	No
			PM	0.521	A	0.559	A	0.038	No
2	Alameda Street Ramp & Sepulveda Boulevard	City of Carson	AM	0.713	C	0.751	C	0.038	No
			MID	0.515	A	0.560	A	0.045	No
			PM	0.648	B	0.676	B	0.028	No
3	Intermodal Way & Sepulveda Boulevard	City of Carson	AM	0.399	A	0.431	A	0.032	No
			MID	0.339	A	0.359	A	0.020	No
			PM	0.490	A	0.494	A	0.004	No
4	ICTF Driveway & Sepulveda Boulevard	City of Los Angeles	AM	0.361	A	0.413	A	0.052	No
			MID	0.267	A	0.333	A	0.065	No
			PM	0.416	A	0.471	A	0.055	No
5	Middle Road & Sepulveda Boulevard	City of Los Angeles	AM	0.293	A	0.321	A	0.028	No
			MID	0.308	A	0.339	A	0.030	No
			PM	0.459	A	0.546	A	0.086	No
6	Terminal Island Freeway & Willow Street/Sepulveda Boulevard	City of Long Beach	AM	0.443	A	0.469	A	0.026	No
			MID	0.458	A	0.519	A	0.061	No
			PM	0.589	A	0.614	B	0.025	No
7	Santa Fe Avenue & Pacific Coast Highway	City of Long Beach	AM	0.710	C	0.735	C	0.025	No
			MID	0.624	B	0.685	B	0.061	No
			PM	0.738	C	0.810	D	0.072	No
8	Alameda Street & O Street	City of Los Angeles	AM	0.317	A	0.379	A	0.062	No
			MID	0.364	A	0.426	A	0.062	No
			PM	0.425	A	0.487	A	0.062	No
9	O Street & Pacific Coast Highway	City of Los Angeles	AM	0.536	A	0.560	A	0.024	No
			MID	0.418	A	0.456	A	0.039	No
			PM	0.580	A	0.610	B	0.030	No
10	Santa Fe Avenue & Anaheim Street	City of Long Beach	AM	0.519	A	0.553	A	0.034	No
			MID	0.484	A	0.540	A	0.056	No
			PM	0.575	A	0.645	B	0.070	No
11	Harbor Avenue & Anaheim Street	City of Long Beach	AM	0.418	A	0.431	A	0.013	No
			MID	0.454	A	0.478	A	0.024	No
			PM	0.538	A	0.554	A	0.016	No

TABLE 3.13-13. SUMMARY OF INTERSECTION LEVEL OF SERVICE – EXISTING PLUS PROJECT CONDITIONS - ALTERNATIVE 1

No.	Intersection	Jurisdiction	Peak Hour	Existing Baseline		Existing Plus Project		Change in V/C	Significant Impact (Yes/No)
				V/C	LOS	V/C	LOS		
12	9th Street/East I Street & Anaheim Street	City of Long Beach	AM	0.638	B	0.650	B	0.012	No
			MID	0.472	A	0.553	A	0.081	No
			PM	0.600	A	0.702	C	0.102	No
13	Henry Ford Avenue & Anaheim Street	City of Los Angeles	AM	0.487	A	0.560	A	0.073	No
			MID	0.451	A	0.609	B	0.158	No
			PM	0.655	B	0.800	C	0.145	**Yes**
14	Pico Avenue & Pier B Street	City of Long Beach	AM	0.327	A	0.554	A	0.227	No
			MID	0.390	A	0.620	B	0.230	No
			PM	0.417	A	0.538	A	0.121	No
15	Henry Ford Avenue/Terminal Island Ramps & Pier A Way	City of Long Beach	AM	0.254	A	0.335	A	0.081	No
			MID	0.372	A	0.538	A	0.166	No
			PM	0.424	A	0.712	C	0.288	No
16	Pico Avenue & Pier C Street	City of Long Beach	AM	0.178	A	0.303	A	0.125	No
			MID	0.295	A	0.547	A	0.252	No
			PM	0.287	A	0.485	A	0.198	No
17	Pico Avenue & Pier D Street	City of Long Beach	AM	0.235	A	0.315	A	0.080	No
			MID	0.363	A	0.474	A	0.111	No
			PM	0.241	A	0.332	A	0.091	No
18.1	Pico Avenue & Westbound Ocean Boulevard On-Ramp	City of Long Beach	AM	0.272	A	0.363	A	0.091	No
			MID	0.492	A	0.650	B	0.158	No
			PM	0.308	A	0.428	A	0.120	No
18.2	Pico Avenue & Westbound Ocean Boulevard Off-Ramp	City of Long Beach	AM	0.172	A	0.306	A	0.134	No
			MID	0.206	A	0.540	A	0.334	No
			PM	0.207	A	0.375	A	0.168	No
19	Pico Avenue & Pier E Street/Eastbound Ocean Boulevard Ramp	City of Long Beach	AM	0.378	A	0.485	A	0.107	No
			MID	0.340	A	0.694	B	0.354	No
			PM	0.314	A	0.544	A	0.230	No
20	Pier S Avenue & New Dock Street	City of Long Beach	AM	0.339	A	0.434	A	0.095	No
			MID	0.328	A	0.442	A	0.114	No
			PM	0.328	A	0.431	A	0.103	No
21	Terminal Island Freeway & SR-47 Westbound	City of Long Beach	AM	0.420	A	0.469	A	0.049	No
			MID	0.469	A	0.557	A	0.088	No
			PM	0.469	A	0.534	A	0.065	No

TABLE 3.13-13. SUMMARY OF INTERSECTION LEVEL OF SERVICE – EXISTING PLUS PROJECT CONDITIONS - ALTERNATIVE 1

No.	Intersection	Jurisdiction	Peak Hour	Existing Baseline		Existing Plus Project		Change in V/C	Significant Impact (Yes/No)
				V/C	LOS	V/C	LOS		
22	Terminal Island Freeway & SR-47 Eastbound	City of Long Beach	AM MID PM	0.362 0.387 0.434	A A A	0.478 0.494 0.524	A A A	0.116 0.107 0.090	No No No
23	Pier S Avenue & SR-47 Westbound	City of Long Beach	AM MID PM	0.346 0.336 0.361	A A A	0.435 0.462 0.434	A A A	0.089 0.126 0.073	No No No
24	Pier S Avenue & SR-47 Eastbound	City of Long Beach	AM MID PM	0.340 0.369 0.300	A A A	0.411 0.444 0.418	A A A	0.071 0.075 0.118	No No No
25	Pico Avenue/Pier G Avenue & Harbor Plaza	City of Long Beach	AM MID PM	0.519 0.592 0.592	A A A	0.655 0.963 0.892	B E D	0.136 0.371 0.300	No **Yes** No
26	Navy Way & Seaside Freeway	City of Los Angeles	AM MID PM	0.436 0.340 0.554	A A A	0.464 0.356 0.573	A A A	0.027 0.016 0.019	No No No
27	Harbor Plaza & Queensway Drive	City of Long Beach	AM MID PM	0.275 0.387 0.390	A A A	0.363 0.534 0.531	A A A	0.088 0.147 0.141	No No No
28	Harbor Plaza & Harbor Scenic Drive	City of Long Beach	AM MID PM	0.449 0.442 0.434	A A A	0.558 0.675 0.627	A B B	0.109 0.233 0.193	No No No
29	Navy Way & Reeves Avenue	City of Los Angeles	AM MID PM	0.064 0.104 0.117	A A A	0.072 0.129 0.128	A A A	0.008 0.025 0.011	No No No
30	Long Beach Boulevard & Pacific Coast Highway	City of Long Beach	AM MID PM	0.694 0.640 0.770	B B C	0.710 0.680 0.795	C B C	0.016 0.040 0.025	No No No
31	Long Beach Boulevard & Anaheim Street	City of Long Beach	AM MID PM	0.567 0.565 0.685	A A B	0.584 0.595 0.727	A A C	0.017 0.030 0.042	No No No
32	Long Beach Boulevard & Ocean Boulevard	City of Long Beach	AM MID PM	0.566 0.392 0.571	A A A	0.574 0.399 0.577	A A A	0.008 0.007 0.006	No No No

Key: AM = morning (7:00 to 8:00 a.m.); ICTF = Intermodal Container Transfer Facility; LOS = level of service; MID = mid-day (2:00 to 3:00 p.m.); PM = afternoon (4:00 to 5:00 p.m.); SR = State Route; V/C = volume-to-capacity

TABLE 3.13-14. SUMMARY OF FREEWAY LEVEL OF SERVICE – EXISTING PLUS PROJECT - ALTERNATIVE 1														
No.	Location	Direction	No. of Lanes	Lane Capacity	Peak Hour	PeMS Volumes	Project Volumes	Existing Plus Project Volumes	Existing Baseline		Existing Plus Project		Change in V/C	Significant Impact (Yes/No)
									V/C	LOS	V/C	LOS		
1A	I-110 South of C Street	Northbound	4	2000	AM MID PM	3,900 3,070 3,190	130 90 100	4,030 3,160 3,290	0.488 0.384 0.399	B B B	0.504 0.395 0.411	B B B	0.016 0.011 0.012	No No No
1B	I-110 South of C Street	Southbound	4	2000	AM MID PM	2,050 1,460 1,620	160 170 180	2,210 1,630 1,800	0.256 0.183 0.203	A A A	0.276 0.204 0.225	A A A	0.020 0.021 0.022	No No No
2A	I-110 South of Sepulveda Boulevard (North of Pacific Coast Highway)	Northbound	3	2000	AM MID PM	4,490 4,260 4,210	100 410 190	4,590 4,670 4,400	0.748 0.710 0.702	C C C	0.765 0.778 0.733	C D C	0.017 0.068 0.031	No No No
2B	I-110 South of Sepulveda Boulevard (North of Pacific Coast Highway)	Southbound	3	2000	AM MID PM	5,050 3,930 3,950	200 320 180	5,250 4,250 4,130	0.842 0.655 0.658	D C C	0.875 0.708 0.688	D C C	0.033 0.053 0.030	No No No
3A	I-710 North of I-405	Northbound	4	2000	AM MID PM	3,450 3,680 4,000	70 190 60	3,520 3,870 4,060	0.431 0.460 0.500	B B B	0.440 0.484 0.508	B B B	0.009 0.024 0.008	No No No
3B	I-710 North of I-405	Southbound	4	2000	AM MID PM	4,020 3,680 3,920	10 200 60	4,030 3,880 3,980	0.503 0.460 0.490	B B B	0.504 0.485 0.498	B B B	0.001 0.025 0.008	No No No
4A	I-405 at Santa Fe Avenue (West of I-710)	Westbound	4	2000	AM MID PM	6,250 6,120 6,320	110 40 0	6,360 6,160 6,320	0.781 0.765 0.790	D C D	0.795 0.770 0.790	D C D	0.014 0.005 0.000	No No No
4B	I-405 at Santa Fe Avenue (West of I-710)	Eastbound	4	2000	AM MID PM	5,780 5,730 5,510	0 70 30	5,780 5,800 5,540	0.723 0.716 0.689	C C C	0.723 0.725 0.693	C C C	0.000 0.009 0.004	No No No

TABLE 3.13-14. SUMMARY OF FREEWAY LEVEL OF SERVICE – EXISTING PLUS PROJECT - ALTERNATIVE 1

No.	Location	Direction	No. of Lanes	Lane Capacity	Peak Hour	PeMS Volumes	Project Volumes	Existing Plus Project Volumes	Existing Baseline		Existing Plus Project		Change in V/C	Significant Impact (Yes/No)
									V/C	LOS	V/C	LOS		
5A	I-405 North of SR-22	Westbound	4	2000	AM	5,850	40	5,890	0.731	C	0.736	C	0.005	No
					MID	7,280	30	7,310	0.910	D	0.914	D	0.004	No
					PM	7,410	20	7,430	0.926	D	0.929	D	0.003	No
5B	I-405 North of SR-22	Eastbound	4	2000	AM	6,290	10	6,300	0.786	D	0.788	D	0.002	No
					MID	7,100	50	7,150	0.888	D	0.894	D	0.006	No
					PM	7,010	20	7,030	0.876	D	0.879	D	0.003	No
6A	SR-91 East of Alameda Street/Santa Fe Avenue	Westbound	6	2000	AM	6,820	60	6,880	0.568	C	0.573	C	0.005	No
					MID	4,830	30	4,860	0.403	B	0.405	B	0.002	No
					PM	5,010	70	5,080	0.418	B	0.423	B	0.005	No
6B	SR-91 East of Alameda Street/Santa Fe Avenue	Eastbound	6	2000	AM	5,930	70	6,000	0.494	B	0.500	B	0.006	No
					MID	6,340	110	6,450	0.528	B	0.538	B	0.010	No
					PM	5,770	40	5,810	0.481	B	0.484	B	0.003	No
7A	SR-91 East of Cherry Avenue	Westbound	5	2000	AM	6,610	10	6,620	0.661	C	0.662	C	0.001	No
					MID	7,660	40	7,700	0.766	C	0.770	C	0.004	No
					PM	8,100	60	8,160	0.810	D	0.816	D	0.006	No
7B	SR-91 East of Cherry Avenue	Eastbound	5	2000	AM	5,680	0	5,680	0.568	C	0.568	C	0.000	No
					MID	5,790	80	5,870	0.579	C	0.587	C	0.008	No
					PM	5,940	60	6,000	0.594	C	0.600	C	0.006	No
8A	I-605 North of SR-91 (South of Alondra Boulevard)	Northbound	6	2000	AM	8,660	40	8,700	0.722	C	0.725	C	0.003	No
					MID	8,490	0	8,490	0.708	C	0.708	C	0.000	No
					PM	8,050	100	8,150	0.671	C	0.679	C	0.008	No
8B	I-605 North of SR-91 (South of Alondra Boulevard)	Southbound	6	2000	AM	7,660	0	7,660	0.638	C	0.638	C	0.000	No
					MID	7,320	20	7,340	0.610	C	0.612	C	0.002	No
					PM	7,950	0	7,950	0.663	C	0.663	C	0.000	No

Key: AM = morning (7:00 to 8:00 a.m.); I = Interstate; LOS = level of service; MID = mid-day (2:00 to 3:00 p.m.); PeMS = performance management system; PM = afternoon (4:00 to 5:00 p.m.); SR = State Route; V/C = volume-to-capacity

TABLE 3.13-15. SUMMARY OF INTERSECTION LEVEL OF SERVICE – EXISTING PLUS PROJECT CONDITIONS - ALTERNATIVE 2

No.	Intersection	Jurisdiction	Peak Hour	Existing Baseline		Existing Plus Project		Change in V/C	Significant Impact (Yes/No)
				V/C	LOS	V/C	LOS		
1	Alameda Street & Sepulveda Boulevard Ramp	City of Carson	AM	0.436	A	0.482	A	0.046	No
			MID	0.377	A	0.486	A	0.109	No
			PM	0.521	A	0.559	A	0.038	No
2	Alameda Street Ramp & Sepulveda Boulevard	City of Carson	AM	0.713	C	0.751	C	0.038	No
			MID	0.515	A	0.560	A	0.045	No
			PM	0.648	B	0.676	B	0.028	No
3	Intermodal Way & Sepulveda Boulevard	City of Carson	AM	0.399	A	0.431	A	0.032	No
			MID	0.339	A	0.359	A	0.020	No
			PM	0.490	A	0.494	A	0.004	No
4	ICTF Driveway & Sepulveda Boulevard	City of Los Angeles	AM	0.361	A	0.413	A	0.052	No
			MID	0.267	A	0.333	A	0.065	No
			PM	0.416	A	0.471	A	0.055	No
5	Middle Road & Sepulveda Boulevard	City of Los Angeles	AM	0.293	A	0.321	A	0.028	No
			MID	0.308	A	0.339	A	0.030	No
			PM	0.459	A	0.546	A	0.086	No
6	Terminal Island Freeway & Willow Street/Sepulveda Boulevard	City of Long Beach	AM	0.443	A	0.469	A	0.026	No
			MID	0.458	A	0.519	A	0.061	No
			PM	0.589	A	0.614	B	0.025	No
7	Santa Fe Avenue & Pacific Coast Highway	City of Long Beach	AM	0.710	C	0.735	C	0.025	No
			MID	0.624	B	0.685	B	0.061	No
			PM	0.738	C	0.810	D	0.072	No
8	Alameda Street & O Street	City of Los Angeles	AM	0.317	A	0.379	A	0.062	No
			MID	0.364	A	0.426	A	0.062	No
			PM	0.425	A	0.487	A	0.062	No
9	O Street & Pacific Coast Highway	City of Los Angeles	AM	0.536	A	0.560	A	0.024	No
			MID	0.418	A	0.456	A	0.039	No
			PM	0.580	A	0.610	B	0.030	No
10	Santa Fe Avenue & Anaheim Street	City of Long Beach	AM	0.519	A	0.553	A	0.034	No
			MID	0.484	A	0.540	A	0.056	No
			PM	0.575	A	0.645	B	0.070	No
11	Harbor Avenue & Anaheim Street	City of Long Beach	AM	0.418	A	0.431	A	0.013	No
			MID	0.454	A	0.478	A	0.024	No
			PM	0.538	A	0.554	A	0.016	No

TABLE 3.13-15. SUMMARY OF INTERSECTION LEVEL OF SERVICE – EXISTING PLUS PROJECT CONDITIONS - ALTERNATIVE 2

No.	Intersection	Jurisdiction	Peak Hour	Existing Baseline		Existing Plus Project		Change in V/C	Significant Impact (Yes/No)
				V/C	LOS	V/C	LOS		
12	9th Street/East I Street & Anaheim Street	City of Long Beach	AM	0.638	B	0.650	B	0.012	No
			MID	0.472	A	0.553	A	0.081	No
			PM	0.600	A	0.702	C	0.102	No
13	Henry Ford Avenue & Anaheim Street	City of Los Angeles	AM	0.487	A	0.560	A	0.073	No
			MID	0.451	A	0.609	B	0.158	No
			PM	0.655	B	0.800	C	0.145	**Yes**
14	Pico Avenue & Pier B Street	City of Long Beach	AM	0.327	A	0.554	A	0.227	No
			MID	0.390	A	0.620	B	0.230	No
			PM	0.417	A	0.538	A	0.121	No
15	Henry Ford Avenue/Terminal Island Ramps & Pier A Way	City of Long Beach	AM	0.254	A	0.335	A	0.081	No
			MID	0.372	A	0.538	A	0.166	No
			PM	0.424	A	0.712	C	0.288	No
16	Pico Avenue & Pier C Street	City of Long Beach	AM	0.178	A	0.303	A	0.125	No
			MID	0.295	A	0.547	A	0.252	No
			PM	0.287	A	0.485	A	0.198	No
17	Pico Avenue & Pier D Street	City of Long Beach	AM	0.235	A	0.315	A	0.080	No
			MID	0.363	A	0.474	A	0.111	No
			PM	0.241	A	0.332	A	0.091	No
18.1	Pico Avenue & Westbound Ocean Boulevard On-Ramp	City of Long Beach	AM	0.272	A	0.363	A	0.091	No
			MID	0.492	A	0.650	B	0.158	No
			PM	0.308	A	0.428	A	0.120	No
18.2	Pico Avenue & Westbound Ocean Boulevard Off-Ramp	City of Long Beach	AM	0.172	A	0.306	A	0.134	No
			MID	0.206	A	0.540	A	0.334	No
			PM	0.207	A	0.375	A	0.168	No
19	Pico Avenue & Pier E Street/Eastbound Ocean Boulevard Ramp	City of Long Beach	AM	0.378	A	0.485	A	0.107	No
			MID	0.340	A	0.694	B	0.354	No
			PM	0.314	A	0.544	A	0.230	No
20	Pier S Avenue & New Dock Street	City of Long Beach	AM	0.339	A	0.434	A	0.095	No
			MID	0.328	A	0.442	A	0.114	No
			PM	0.328	A	0.431	A	0.103	No
21	Terminal Island Freeway & SR-47 Westbound	City of Long Beach	AM	0.420	A	0.469	A	0.049	No
			MID	0.469	A	0.557	A	0.088	No
			PM	0.469	A	0.534	A	0.065	No

TABLE 3.13-15. SUMMARY OF INTERSECTION LEVEL OF SERVICE – EXISTING PLUS PROJECT CONDITIONS - ALTERNATIVE 2

No.	Intersection	Jurisdiction	Peak Hour	Existing Baseline		Existing Plus Project		Change in V/C	Significant Impact (Yes/No)
				V/C	LOS	V/C	LOS		
22	Terminal Island Freeway & SR-47 Eastbound	City of Long Beach	AM	0.362	A	0.478	A	0.116	No
			MID	0.387	A	0.494	A	0.107	No
			PM	0.434	A	0.524	A	0.090	No
23	Pier S Avenue & SR-47 Westbound	City of Long Beach	AM	0.346	A	0.435	A	0.089	No
			MID	0.336	A	0.462	A	0.126	No
			PM	0.361	A	0.434	A	0.073	No
24	Pier S Avenue & SR-47 Eastbound	City of Long Beach	AM	0.340	A	0.411	A	0.071	No
			MID	0.369	A	0.444	A	0.075	No
			PM	0.300	A	0.418	A	0.118	No
25	Pico Avenue/Pier G Avenue & Harbor Plaza	City of Long Beach	AM	0.519	A	0.655	B	0.136	No
			MID	0.592	A	0.963	E	0.371	**Yes**
			PM	0.592	A	0.892	D	0.300	No
26	Navy Way & Seaside Freeway	City of Los Angeles	AM	0.436	A	0.464	A	0.027	No
			MID	0.340	A	0.356	A	0.016	No
			PM	0.554	A	0.573	A	0.019	No
27	Harbor Plaza & Queensway Drive	City of Long Beach	AM	0.275	A	0.363	A	0.088	No
			MID	0.387	A	0.534	A	0.147	No
			PM	0.390	A	0.531	A	0.141	No
28	Harbor Plaza & Harbor Scenic Drive	City of Long Beach	AM	0.449	A	0.558	A	0.109	No
			MID	0.442	A	0.675	B	0.233	No
			PM	0.434	A	0.627	B	0.193	No
29	Navy Way & Reeves Avenue	City of Los Angeles	AM	0.064	A	0.072	A	0.008	No
			MID	0.104	A	0.129	A	0.025	No
			PM	0.117	A	0.128	A	0.011	No
30	Long Beach Boulevard & Pacific Coast Highway	City of Long Beach	AM	0.694	B	0.710	C	0.016	No
			MID	0.640	B	0.680	B	0.040	No
			PM	0.770	C	0.795	C	0.025	No
31	Long Beach Boulevard & Anaheim Street	City of Long Beach	AM	0.567	A	0.584	A	0.017	No
			MID	0.565	A	0.595	A	0.030	No
			PM	0.685	B	0.727	C	0.042	No
32	Long Beach Boulevard & Ocean Boulevard	City of Long Beach	AM	0.566	A	0.574	A	0.008	No
			MID	0.392	A	0.399	A	0.007	No
			PM	0.571	A	0.577	A	0.006	No

Key: AM = morning (7:00 to 8:00 a.m.); ICTF = Intermodal Container Transfer Facility; LOS = level of service; MID = mid-day (2:00 to 3:00 p.m.); PM = afternoon (4:00 to 5:00 p.m.); SR = State Route; V/C = volume-to-capacity

TABLE 3.13-16. SUMMARY OF FREEWAY LEVEL OF SERVICE – EXISTING PLUS PROJECT - ALTERNATIVE 2

No.	Intersection	Direction	No. of Lanes	Lane Capacity	Peak Hour	PeMS Volumes	Project Volumes	Existing Plus Project Volumes	Existing Baseline		Existing Plus Project		Change in V/C	Significant Impact (Yes/No)
									V/C	LOS	V/C	LOS		
1A	I-110 South of C Street	Northbound	4	2000	AM MID PM	3,900 3,070 3,190	130 90 100	4,030 3,160 3,290	0.488 0.384 0.399	B B B	0.504 0.395 0.411	B B B	0.016 0.011 0.012	No No No
1B	I-110 South of C Street	Southbound	4	2000	AM MID PM	2,050 1,460 1,620	160 170 180	2,210 1,630 1,800	0.256 0.183 0.203	A A A	0.276 0.204 0.225	A A A	0.020 0.021 0.022	No No No
2A	I-110 South of Sepulveda Boulevard (North of Pacific Coast Highway)	Northbound	3	2000	AM MID PM	4,490 4,260 4,210	100 410 190	4,590 4,670 4,400	0.748 0.710 0.702	C C C	0.765 0.778 0.733	C D C	0.017 0.068 0.031	No No No
2B	I-110 South of Sepulveda Boulevard (North of Pacific Coast Highway)	Southbound	3	2000	AM MID PM	5,050 3,930 3,950	200 320 180	5,250 4,250 4,130	0.842 0.655 0.658	D C C	0.875 0.708 0.688	D C C	0.033 0.053 0.030	No No No
3A	I-710 North of I-405	Northbound	4	2000	AM MID PM	3,450 3,680 4,000	70 190 60	3,520 3,870 4,060	0.431 0.460 0.500	B B B	0.440 0.484 0.508	B B B	0.009 0.024 0.008	No No No
3B	I-710 North of I-405	Southbound	4	2000	AM MID PM	4,020 3,680 3,920	10 200 60	4,030 3,880 3,980	0.503 0.460 0.490	B B B	0.504 0.485 0.498	B B B	0.001 0.025 0.008	No No No
4A	I-405 at Santa Fe Avenue (West of I-710)	Westbound	4	2000	AM MID PM	6,250 6,120 6,320	110 40 0	6,360 6,160 6,320	0.781 0.765 0.790	D C D	0.795 0.770 0.790	D C D	0.014 0.005 0.000	No No No

TABLE 3.13-16. SUMMARY OF FREEWAY LEVEL OF SERVICE – EXISTING PLUS PROJECT - ALTERNATIVE 2

No.	Intersection	Direction	No. of Lanes	Lane Capacity	Peak Hour	PeMS Volumes	Project Volumes	Existing Plus Project Volumes	Existing Baseline		Existing Plus Project		Change in V/C	Significant Impact (Yes/No)
									V/C	LOS	V/C	LOS		
4B	I-405 at Santa Fe Avenue (West of I-710)	Eastbound	4	2000	AM	5,780	0	5,780	0.723	C	0.723	C	0.000	No
					MID	5,730	70	5,800	0.716	C	0.725	C	0.009	No
					PM	5,510	30	5,540	0.689	C	0.693	C	0.004	No
5A	I-405 North of SR-22	Westbound	4	2000	AM	5,850	40	5,890	0.731	C	0.736	C	0.005	No
					MID	7,280	30	7,310	0.910	D	0.914	D	0.004	No
					PM	7,410	20	7,430	0.926	D	0.929	D	0.003	No
5B	I-405 North of SR-22	Eastbound	4	2000	AM	6,290	10	6,300	0.786	D	0.788	D	0.002	No
					MID	7,100	50	7,150	0.888	D	0.894	D	0.006	No
					PM	7,010	20	7,030	0.876	D	0.879	D	0.003	No
6A	SR-91 East of Alameda Street/Santa Fe Avenue	Westbound	6	2000	AM	6,820	60	6,880	0.568	C	0.573	C	0.005	No
					MID	4,830	30	4,860	0.403	B	0.405	B	0.002	No
					PM	5,010	70	5,080	0.418	B	0.423	B	0.005	No
6B	SR-91 East of Alameda Street/Santa Fe Avenue	Eastbound	6	2000	AM	5,930	70	6,000	0.494	B	0.500	B	0.006	No
					MID	6,340	110	6,450	0.528	B	0.538	B	0.010	No
					PM	5,770	40	5,810	0.481	B	0.484	B	0.003	No
7A	SR-91 East of Cherry Avenue	Westbound	5	2000	AM	6,610	10	6,620	0.661	C	0.662	C	0.001	No
					MID	7,660	40	7,700	0.766	C	0.770	C	0.004	No
					PM	8,100	60	8,160	0.810	D	0.816	D	0.006	No
7B	SR-91 East of Cherry Avenue	Eastbound	5	2000	AM	5,680	0	5,680	0.568	C	0.568	C	0.000	No
					MID	5,790	80	5,870	0.579	C	0.587	C	0.008	No
					PM	5,940	60	6,000	0.594	C	0.600	C	0.006	No

TABLE 3.13-16. SUMMARY OF FREEWAY LEVEL OF SERVICE – EXISTING PLUS PROJECT - ALTERNATIVE 2

No.	Intersection	Direction	No. of Lanes	Lane Capacity	Peak Hour	PeMS Volumes	Project Volumes	Existing Plus Project Volumes	Existing Baseline		Existing Plus Project		Change in V/C	Significant Impact (Yes/No)
									V/C	LOS	V/C	LOS		
8A	I-605 North of SR-91 (South of Alondra Boulevard)	Northbound	6	2000	AM MID PM	8,660 8,490 8,050	40 0 100	8,700 8,490 8,150	0.722 0.708 0.671	C C C	0.725 0.708 0.679	C C C	0.003 0.000 0.008	No No No
8B	I-605 North of SR-91 (South of Alondra Boulevard)	Southbound	6	2000	AM MID PM	7,660 7,320 7,950	0 20 0	7,660 7,340 7,950	0.638 0.610 0.663	C C C	0.638 0.612 0.663	C C C	0.000 0.002 0.000	No No No

Key: AM = morning (7:00 to 8:00 a.m.); I = Interstate; LOS = level of service; MID = mid-day (2:00 to 3:00 p.m.); PeMS = performance management system; PM = afternoon (4:00 to 5:00 p.m.); SR = State Route; V/C = volume-to-capacity

TABLE 3.13-17. SUMMARY OF INTERSECTION LEVEL OF SERVICE – EXISTING PLUS PROJECT CONDITIONS - ALTERNATIVE 3

No.	Intersection	Jurisdiction	Peak Hour	Existing Baseline		Existing Plus Project		Change in V/C	Significant Impact (Yes/No)
				V/C	LOS	V/C	LOS		
1	Alameda Street & Sepulveda Boulevard Ramp	City of Carson	AM MID PM	0.436 0.377 0.521	A A A	0.484 0.501 0.559	A A A	0.048 0.124 0.038	No No No
2	Alameda Street Ramp & Sepulveda Boulevard	City of Carson	AM MID PM	0.713 0.515 0.648	C A B	0.760 0.566 0.682	C A B	0.047 0.051 0.034	No No No
3	Intermodal Way & Sepulveda Boulevard	City of Carson	AM MID PM	0.399 0.339 0.490	A A A	0.431 0.359 0.500	A A A	0.032 0.020 0.010	No No No
4	ICTF Driveway & Sepulveda Boulevard	City of Los Angeles	AM MID PM	0.361 0.267 0.416	A A A	0.413 0.333 0.475	A A A	0.052 0.065 0.059	No No No
5	Middle Road & Sepulveda Boulevard	City of Los Angeles	AM MID PM	0.293 0.308 0.459	A A A	0.325 0.339 0.567	A A A	0.032 0.030 0.107	No No No

TABLE 3.13-17. SUMMARY OF INTERSECTION LEVEL OF SERVICE – EXISTING PLUS PROJECT CONDITIONS - ALTERNATIVE 3

No.	Intersection	Jurisdiction	Peak Hour	Existing Baseline		Existing Plus Project		Change in V/C	Significant Impact (Yes/No)
				V/C	LOS	V/C	LOS		
6	Terminal Island Freeway & Willow Street/Sepulveda Boulevard	City of Long Beach	AM	0.443	A	0.479	A	0.036	No
			MID	0.458	A	0.523	A	0.065	No
			PM	0.589	A	0.617	B	0.028	No
7	Santa Fe Avenue & Pacific Coast Highway	City of Long Beach	AM	0.710	C	0.750	C	0.040	No
			MID	0.624	B	0.688	B	0.064	No
			PM	0.738	C	0.831	D	0.093	No
8	Alameda Street & O Street	City of Los Angeles	AM	0.317	A	0.384	A	0.067	No
			MID	0.364	A	0.435	A	0.072	No
			PM	0.425	A	0.494	A	0.069	No
9	O Street & Pacific Coast Highway	City of Los Angeles	AM	0.536	A	0.565	A	0.029	No
			MID	0.418	A	0.461	A	0.044	No
			PM	0.580	A	0.617	B	0.037	No
10	Santa Fe Avenue & Anaheim Street	City of Long Beach	AM	0.519	A	0.553	A	0.034	No
			MID	0.484	A	0.540	A	0.056	No
			PM	0.575	A	0.676	B	0.101	No
11	Harbor Avenue & Anaheim Street	City of Long Beach	AM	0.418	A	0.431	A	0.013	No
			MID	0.454	A	0.496	A	0.042	No
			PM	0.538	A	0.560	A	0.022	No
12	9th Street/East I Street & Anaheim Street	City of Long Beach	AM	0.638	B	0.662	B	0.024	No
			MID	0.472	A	0.585	A	0.113	No
			PM	0.600	A	0.708	C	0.108	No
13	Henry Ford Avenue & Anaheim Street	City of Los Angeles	AM	0.487	A	0.576	A	0.089	No
			MID	0.451	A	0.629	B	0.178	No
			PM	0.655	B	0.821	D	0.167	**Yes**
14	Pico Avenue & Pier B Street	City of Long Beach	AM	0.327	A	0.554	A	0.227	No
			MID	0.390	A	0.643	B	0.253	No
			PM	0.417	A	0.575	A	0.158	No
15	Henry Ford Avenue/Terminal Island Ramps & Pier A Way	City of Long Beach	AM	0.254	A	0.347	A	0.093	No
			MID	0.372	A	0.544	A	0.172	No
			PM	0.424	A	0.743	C	0.319	No
16	Pico Avenue & Pier C Street	City of Long Beach	AM	0.178	A	0.303	A	0.125	No
			MID	0.295	A	0.579	A	0.284	No
			PM	0.287	A	0.503	A	0.216	No

TABLE 3.13-17. SUMMARY OF INTERSECTION LEVEL OF SERVICE – EXISTING PLUS PROJECT CONDITIONS - ALTERNATIVE 3

No.	Intersection	Jurisdiction	Peak Hour	Existing Baseline		Existing Plus Project		Change in V/C	Significant Impact (Yes/No)
				V/C	LOS	V/C	LOS		
17	Pico Avenue & Pier D Street	City of Long Beach	AM MID PM	0.235 0.363 0.241	A A A	0.315 0.502 0.364	A A A	0.080 0.139 0.123	No No No
18.1	Pico Avenue & Westbound Ocean Boulevard On-Ramp	City of Long Beach	AM MID PM	0.272 0.492 0.308	A A A	0.369 0.675 0.453	A B A	0.097 0.183 0.145	No No No
18.2	Pico Avenue & Westbound Ocean Boulevard Off-Ramp	City of Long Beach	AM MID PM	0.172 0.206 0.207	A A A	0.309 0.581 0.438	A A A	0.137 0.375 0.231	No No No
19	Pico Avenue & Pier E Street/Eastbound Ocean Boulevard Ramp	City of Long Beach	AM MID PM	0.378 0.340 0.314	A A A	0.492 0.756 0.572	A C A	0.114 0.416 0.258	No No No
20	Pier S Avenue & New Dock Street	City of Long Beach	AM MID PM	0.339 0.328 0.328	A A A	0.434 0.442 0.431	A A A	0.095 0.114 0.103	No No No
21	Terminal Island Freeway & SR-47 Westbound	City of Long Beach	AM MID PM	0.420 0.469 0.469	A A A	0.469 0.557 0.566	A A A	0.049 0.088 0.097	No No No
22	Terminal Island Freeway & SR-47 Eastbound	City of Long Beach	AM MID PM	0.362 0.387 0.434	A A A	0.494 0.510 0.544	A A A	0.132 0.123 0.110	No No No
23	Pier S Avenue & SR-47 Westbound	City of Long Beach	AM MID PM	0.346 0.336 0.361	A A A	0.435 0.462 0.450	A A A	0.089 0.126 0.089	No No No
24	Pier S Avenue & SR-47 Eastbound	City of Long Beach	AM MID PM	0.340 0.369 0.300	A A A	0.418 0.448 0.437	A A A	0.078 0.079 0.137	No No No
25	Pico Avenue/Pier G Avenue & Harbor Plaza	City of Long Beach	AM MID PM	0.519 0.592 0.592	A A A	0.661 1.091 0.936	B F E	0.142 0.499 0.344	No **Yes** **Yes**
26	Navy Way & Seaside Freeway	City of Los Angeles	AM MID PM	0.436 0.340 0.554	A A A	0.468 0.360 0.577	A A A	0.032 0.020 0.023	No No No

TABLE 3.13-17. SUMMARY OF INTERSECTION LEVEL OF SERVICE – EXISTING PLUS PROJECT CONDITIONS - ALTERNATIVE 3

No.	Intersection	Jurisdiction	Peak Hour	Existing Baseline V/C	Existing Baseline LOS	Existing Plus Project V/C	Existing Plus Project LOS	Change in V/C	Significant Impact (Yes/No)
27	Harbor Plaza & Queensway Drive	City of Long Beach	AM MID PM	0.275 0.387 0.390	A A A	0.394 0.534 0.566	A A A	0.119 0.147 0.176	No No No
28	Harbor Plaza & Harbor Scenic Drive	City of Long Beach	AM MID PM	0.449 0.442 0.434	A A A	0.610 0.795 0.686	B C B	0.161 0.353 0.252	No No No
29	Navy Way & Reeves Avenue	City of Los Angeles	AM MID PM	0.064 0.104 0.117	A A A	0.072 0.131 0.131	A A A	0.008 0.028 0.014	No No No
30	Long Beach Boulevard & Pacific Coast Highway	City of Long Beach	AM MID PM	0.694 0.640 0.770	B B C	0.713 0.683 0.806	C B D	0.019 0.043 0.036	No No No
31	Long Beach Boulevard & Anaheim Street	City of Long Beach	AM MID PM	0.567 0.565 0.685	A A B	0.587 0.605 0.730	A B C	0.020 0.040 0.045	No No No
32	Long Beach Boulevard & Ocean Boulevard	City of Long Beach	AM MID PM	0.566 0.392 0.571	A A A	0.582 0.401 0.577	A A A	0.016 0.009 0.006	No No No

Key: AM = morning (7:00 to 8:00 a.m.); ICTF = Intermodal Container Transfer Facility; LOS = level of service; MID = mid-day (2:00 to 3:00 p.m.); PM = afternoon (4:00 to 5:00 p.m.); SR = State Route; V/C = volume-to-capacity

TABLE 3.13-18. SUMMARY OF FREEWAY LEVEL OF SERVICE – EXISTING PLUS PROJECT - ALTERNATIVE 3

No.	Location	Direction	No. of Lanes	Lane Capacity	Peak Hour	PeMS Volumes	Project Volumes	Existing Plus Project Volumes	Existing Baseline V/C	Existing Baseline LOS	Existing Plus Project V/C	Existing Plus Project LOS	Change in V/C	Significant Impact (Yes/No)
1A	I-110 South of C Street	Northbound	4	2000	AM MID PM	3,900 3,070 3,190	150 110 160	4,050 3,180 3,350	0.488 0.384 0.399	B B B	0.506 0.398 0.419	B B B	0.018 0.014 0.020	No No No
1B	I-110 South of C Street	Southbound	4	2000	AM MID PM	2,050 1,460 1,620	190 200 200	2,240 1,660 1,820	0.256 0.183 0.203	A A A	0.280 0.208 0.228	A A A	0.024 0.025 0.025	No No No

TABLE 3.13-18. SUMMARY OF FREEWAY LEVEL OF SERVICE – EXISTING PLUS PROJECT - ALTERNATIVE 3

No.	Location	Direction	No. of Lanes	Lane Capacity	Peak Hour	PeMS Volumes	Project Volumes	Existing Plus Project Volumes	Existing Baseline		Existing Plus Project		Change in V/C	Significant Impact (Yes/No)
									V/C	LOS	V/C	LOS		
2A	I-110 South of Sepulveda Boulevard (North of Pacific Coast Highway)	Northbound	3	2000	AM	4,490	140	4,630	0.748	C	0.772	D	0.024	No
					MID	4,260	460	4,720	0.710	C	0.787	D	0.077	No
					PM	4,210	210	4,420	0.702	C	0.737	C	0.035	No
2B	I-110 South of Sepulveda Boulevard (North of Pacific Coast Highway)	Southbound	3	2000	AM	5,050	230	5,280	0.842	D	0.880	D	0.038	No
					MID	3,930	350	4,280	0.655	C	0.713	C	0.058	No
					PM	3,950	210	4,160	0.658	C	0.693	C	0.035	No
3A	I-710 North of I-405	Northbound	4	2000	AM	3,450	70	3,520	0.431	B	0.440	B	0.009	No
					MID	3,680	210	3,890	0.460	B	0.486	B	0.026	No
					PM	4,000	110	4,110	0.500	B	0.514	B	0.014	No
3B	I-710 North of I-405	Southbound	4	2000	AM	4,020	20	4,040	0.503	B	0.505	B	0.002	No
					MID	3,680	210	3,890	0.460	B	0.486	B	0.026	No
					PM	3,920	80	4,000	0.490	B	0.500	B	0.010	No
4A	I-405 at Santa Fe Avenue (West of I-710)	Westbound	4	2000	AM	6,250	120	6,370	0.781	D	0.796	D	0.015	No
					MID	6,120	60	6,180	0.765	C	0.773	D	0.008	No
					PM	6,320	0	6,320	0.790	D	0.790	D	0.000	No
4B	I-405 at Santa Fe Avenue (West of I-710)	Eastbound	4	2000	AM	5,780	0	5,780	0.723	C	0.723	C	0.000	No
					MID	5,730	110	5,840	0.716	C	0.730	C	0.014	No
					PM	5,510	100	5,610	0.689	C	0.701	C	0.012	No
5A	I-405 North of SR-22	Westbound	4	2000	AM	5,850	40	5,890	0.731	C	0.736	C	0.005	No
					MID	7,280	30	7,310	0.910	D	0.914	D	0.004	No
					PM	7,410	20	7,430	0.926	D	0.929	D	0.003	No

TABLE 3.13-18. SUMMARY OF FREEWAY LEVEL OF SERVICE – EXISTING PLUS PROJECT - ALTERNATIVE 3

No.	Location	Direction	No. of Lanes	Lane Capacity	Peak Hour	PeMS Volumes	Project Volumes	Existing Plus Project Volumes	Existing Baseline		Existing Plus Project		Change in V/C	Significant Impact (Yes/No)
									V/C	LOS	V/C	LOS		
5B	I-405 North of SR-22	Eastbound	4	2000	AM	6,290	10	6,300	0.786	D	0.788	D	0.002	No
					MID	7,100	100	7,200	0.888	D	0.900	D	0.012	No
					PM	7,010	20	7,030	0.876	D	0.879	D	0.003	No
6A	SR-91 East of Alameda Street/Santa Fe Avenue	Westbound	6	2000	AM	6,820	60	6,880	0.568	C	0.573	C	0.005	No
					MID	4,830	30	4,860	0.403	B	0.405	B	0.002	No
					PM	5,010	70	5,080	0.418	B	0.423	B	0.005	No
6B	SR-91 East of Alameda Street/Santa Fe Avenue	Eastbound	6	2000	AM	5,930	100	6,030	0.494	B	0.503	B	0.009	No
					MID	6,340	110	6,450	0.528	B	0.538	B	0.010	No
					PM	5,770	50	5,820	0.481	B	0.485	B	0.004	No
7A	SR-91 East of Cherry Avenue	Westbound	5	2000	AM	6,610	10	6,620	0.661	C	0.662	C	0.001	No
					MID	7,660	80	7,740	0.766	C	0.774	D	0.008	No
					PM	8,100	60	8,160	0.810	D	0.816	D	0.006	No
7B	SR-91 East of Cherry Avenue	Eastbound	5	2000	AM	5,680	0	5,680	0.568	C	0.568	C	0.000	No
					MID	5,790	90	5,880	0.579	C	0.588	C	0.009	No
					PM	5,940	60	6,000	0.594	C	0.600	C	0.006	No
8A	I-605 North of SR-91 (South of Alondra Boulevard)	Northbound	6	2000	AM	8,660	50	8,710	0.722	C	0.726	C	0.004	No
					MID	8,490	0	8,490	0.708	C	0.708	C	0.000	No
					PM	8,050	100	8,150	0.671	C	0.679	C	0.008	No
8B	I-605 North of SR-91 (South of Alondra Boulevard)	Southbound	6	2000	AM	7,660	0	7,660	0.638	C	0.638	C	0.000	No
					MID	7,320	30	7,350	0.610	C	0.613	C	0.003	No
					PM	7,950	10	7,960	0.663	C	0.663	C	0.000	No

Key: AM = morning (7:00 to 8:00 a.m.); I = Interstate; LOS = level of service; MID = mid-day (2:00 to 3:00 p.m.); PeMS = performance management system; PM = afternoon (4:00 to 5:00 p.m.); SR = State Route; V/C = volume-to-capacity

3.13.4 Cumulative Impacts

This section summarizes the potential effects of the Proposed Plan in association with Year 2040 cumulative development.

The Future Year No Project forecast used in this analysis assumes development that is currently allowed by the 1990 PMP as amended and includes traffic from SCAG's RTP projects assumed to be in place in 2040, which included the most current assumptions at the time this analysis was completed on population and traffic growth outside the Harbor District. SCAG model assumptions about growth were replaced, however, in favor of the more-detailed development assumptions contained in the Port's model. The Port's model was also refined to provide a more accurate assignment of special-generator trips in the Port vicinity. These projects were incorporated into the Port's model to assess the cumulative background traffic growth in the study area.

Proposed Plan impacts associated with the cumulative analysis were determined by comparing the Future with Regional Growth *with* Proposed Plan traffic conditions to the Future with Regional Growth *without* Proposed Plan traffic conditions. To the extent this comparison indicated a potentially significant cumulative effect, a second analysis was completed to determine whether the contribution of the Proposed Plan to that impact is cumulatively considerable. The SCAG horizon year of 2040 was used to represent the future condition.

- **TRANS-1: Increase an intersection's V/C ratio in accordance with the guidelines, which show traffic impact thresholds of significance for intersections (signalized and unsignalized) of the affected jurisdictions in the area of influence for the proposed project.**

Construction activities associated with the Proposed Plan projects would generate temporary increases in traffic associated with construction workers and trucks moving construction materials and earth in and out of the Port. These increases would largely occur outside of peak commute periods. TMPs would be prepared to minimize the effect of temporary increases in traffic and construction-related lane closures. Construction-period traffic impacts would be considered less than significant.

However, operation of the Proposed Plan projects would result in potentially significant cumulative impacts at the intersections of Henry Ford Avenue & Anaheim Street and O Street & Pacific Coast Highway located in the City of Los Angeles as shown in Table 3.13-19. These potential impacts could be mitigated with **Mitigation Measure TRANS-1**.

Since this document presents a program-level analysis, determining the extent of improvements needed and the timing to implement those improvements would be evaluated on a project-by-project basis. Hence, future project-specific EIRs will evaluate the significance of impacts at the affected locations and implement measures identified under **Mitigation Measure TRANS-1** to reduce project impacts to a less than significant level, if and when deemed necessary. With implementation of the proposed mitigation measure(s), the traffic impacts could likely be less than significant. However, since it is uncertain how individual projects would implement the proposed mitigation measure(s) in the future, the traffic impacts associated with operation of the Proposed Plan would be significant.

- **TRANS-2: Cause an increase of 0.02 or more in the V/C ratio with a resulting LOS E or F at an analyzed freeway segment.**

With implementation of TMPs during construction of each project included in the Proposed Plan, the amount of construction-related one-way peak hour trips would be less than the minimum threshold. In addition, construction-related trips would be, by their nature, of limited duration. Based on these considerations, construction-related traffic impacts under this threshold would not make a cumulatively considerable contribution to significant cumulative impacts.

Operation of the Proposed Plan projects would result in less than significant impacts on the study area bi-directional freeway segments as shown in Table 3.13-20.

- **TRANS-3: Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.**

Construction and operation of the Proposed Plan and related projects would not be expected to affect public transit, bicycle, or pedestrian facilities because these facilities do not operate within the areas where the Proposed Plan projects would operate. Furthermore, the use of public transit by construction workers would be negligible due to the variability of work shifts and the need to carry tools and equipment to and from the work sites. Therefore, the Proposed Plan projects would not make a cumulatively considerable contribution to significant cumulative impacts

- **TRANS-4: Result in inadequate emergency access.**

Construction and operation of the Proposed Plan and related projects would not result in inadequate emergency access. The Proposed Plan projects would not result in closures to roadways or significant construction-related detours on primary facilities. Construction haul routes would be planned, reviewed, and designated in accordance with the City's requirements to ensure adequate emergency access is maintained. Therefore, the Proposed Plan projects would not make a cumulatively considerable contribution to significant cumulative impacts.

TABLE 3.13-19. SUMMARY OF INTERSECTION LEVEL OF SERVICE – CUMULATIVE PLUS PROJECT CONDITIONS - PROPOSED PLAN

No.	Intersection	Jurisdiction	Peak Hour	Cumulative (Alt 1)		Cumulative Plus Project		Change in V/C	Significant Impact (Yes/No)
				V/C	LOS	V/C	LOS		
1	Alameda Street & Sepulveda Boulevard Ramp	City of Carson	AM	0.457	A	0.459	A	0.002	No
			MID	0.443	A	0.447	A	0.004	No
			PM	0.510	A	0.521	A	0.011	No
2	Alameda Street Ramp & Sepulveda Boulevard	City of Carson	AM	0.828	D	0.860	D	0.032	No
			MID	0.597	A	0.622	B	0.025	No
			PM	0.814	D	0.814	D	0.000	No
3	Intermodal Way & Sepulveda Boulevard	City of Carson	AM	0.459	A	0.475	A	0.016	No
			MID	0.375	A	0.390	A	0.015	No
			PM	0.497	A	0.497	A	0.000	No
4	ICTF Driveway & Sepulveda Boulevard	City of Los Angeles	AM	0.449	A	0.467	A	0.018	No
			MID	0.355	A	0.369	A	0.015	No
			PM	0.456	A	0.456	A	0.000	No
5	Middle Road & Sepulveda Boulevard	City of Los Angeles	AM	0.353	A	0.370	A	0.018	No
			MID	0.265	A	0.282	A	0.018	No
			PM	0.493	A	0.493	A	0.000	No
6	Terminal Island Freeway & Willow Street/ Sepulveda Boulevard	City of Long Beach	AM	0.497	A	0.521	A	0.024	No
			MID	0.429	A	0.439	A	0.010	No
			PM	0.594	A	0.597	A	0.003	No
7	Santa Fe Avenue & Pacific Coast Highway	City of Long Beach	AM	0.954	E	0.954	E	0.000	No
			MID	0.825	D	0.844	D	0.019	No
			PM	0.966	E	0.976	E	0.010	No
8	Alameda Street & O Street	City of Los Angeles	AM	0.445	A	0.452	A	0.007	No
			MID	0.426	A	0.433	A	0.007	No
			PM	0.579	A	0.579	A	0.000	No
9	O Street & Pacific Coast Highway	City of Los Angeles	AM	0.527	A	0.586	A	0.059	No
			MID	0.370	A	0.377	A	0.007	No
			PM	0.674	B	0.718	C	0.044	**Yes**
10	Santa Fe Avenue & Anaheim Street	City of Long Beach	AM	0.717	C	0.717	C	0.000	No
			MID	0.575	A	0.581	A	0.006	No
			PM	0.563	A	0.599	A	0.036	No

TABLE 3.13-19. SUMMARY OF INTERSECTION LEVEL OF SERVICE – CUMULATIVE PLUS PROJECT CONDITIONS - PROPOSED PLAN

No.	Intersection	Jurisdiction	Peak Hour	Cumulative (Alt 1)		Cumulative Plus Project		Change in V/C	Significant Impact (Yes/No)
				V/C	LOS	V/C	LOS		
11	Harbor Avenue & Anaheim Street	City of Long Beach	AM	0.655	B	0.655	B	0.000	No
			MID	0.617	B	0.617	B	0.000	No
			PM	0.579	A	0.590	A	0.011	No
12	9th Street/East I Street & Anaheim Street	City of Long Beach	AM	0.644	B	0.644	B	0.000	No
			MID	0.528	A	0.534	A	0.006	No
			PM	0.503	A	0.512	A	0.009	No
13	Henry Ford Avenue & Anaheim Street	City of Los Angeles	AM	0.642	B	0.685	B	0.044	No
			MID	0.631	B	0.684	B	0.053	No
			PM	0.802	D	0.827	D	0.025	**Yes**
14	Pico Avenue & Pier B Street	City of Long Beach	AM	0.470	A	0.479	A	0.009	No
			MID	0.529	A	0.546	A	0.017	No
			PM	0.479	A	0.493	A	0.014	No
15	Henry Ford Avenue/Terminal Island Ramps & Pier A Way	City of Long Beach	AM	0.581	A	0.658	B	0.077	No
			MID	0.570	A	0.595	A	0.025	No
			PM	0.617	B	0.629	B	0.012	No
16	Pico Avenue & Pier C Street	City of Long Beach	AM	0.516	A	0.544	A	0.028	No
			MID	0.557	A	0.576	A	0.019	No
			PM	0.588	A	0.600	A	0.012	No
17	Pico Avenue & Pier D Street	City of Long Beach	AM	0.425	A	0.443	A	0.018	No
			MID	0.500	A	0.519	A	0.019	No
			PM	0.471	A	0.486	A	0.015	No
18.1	Pico Avenue & Westbound Ocean Boulevard On-Ramp	City of Long Beach	AM	0.425	A	0.440	A	0.015	No
			MID	0.656	B	0.697	B	0.041	No
			PM	0.431	A	0.443	A	0.012	No
18.2	Pico Avenue & Westbound Ocean Boulevard Off-Ramp	City of Long Beach	AM	0.497	A	0.525	A	0.028	No
			MID	0.563	A	0.594	A	0.031	No
			PM	0.472	A	0.494	A	0.022	No
19	Pico Avenue & Pier E Street/Eastbound Ocean Boulevard Ramp	City of Long Beach	AM	0.601	B	0.616	B	0.015	No
			MID	0.610	B	0.672	B	0.062	No
			PM	0.507	A	0.550	A	0.043	No

TABLE 3.13-19. SUMMARY OF INTERSECTION LEVEL OF SERVICE – CUMULATIVE PLUS PROJECT CONDITIONS - PROPOSED PLAN

No.	Intersection	Jurisdiction	Peak Hour	Cumulative (Alt 1)		Cumulative Plus Project		Change in V/C	Significant Impact (Yes/No)
				V/C	LOS	V/C	LOS		
20	Pier S Avenue & New Dock Street	City of Long Beach	AM	0.613	B	0.622	B	0.009	No
			MID	0.596	A	0.664	B	0.068	No
			PM	0.565	A	0.569	A	0.004	No
21	Terminal Island Freeway & SR-47 Westbound	City of Long Beach	AM	0.659	B	0.709	C	0.050	No
			MID	0.713	C	0.757	C	0.044	No
			PM	0.620	B	0.703	C	0.083	No
22	Terminal Island Freeway & SR-47 Eastbound	City of Long Beach	AM	0.646	B	0.714	C	0.068	No
			MID	0.739	C	0.805	D	0.066	No
			PM	0.673	B	0.757	C	0.084	No
23	Pier S Avenue & SR-47 Westbound	City of Long Beach	AM	0.794	C	0.819	D	0.025	No
			MID	0.628	B	0.691	B	0.063	No
			PM	0.503	A	0.578	A	0.075	No
24	Pier S Avenue & SR-47 Eastbound	City of Long Beach	AM	0.498	A	0.505	A	0.007	No
			MID	0.589	A	0.622	B	0.033	No
			PM	0.437	A	0.484	A	0.047	No
25	Pico Avenue/Pier G Avenue & Harbor Plaza	City of Long Beach	AM	0.843	D	0.881	D	0.038	No
			MID	0.792	C	0.819	D	0.027	No
			PM	0.762	C	0.812	D	0.050	No
26	Navy Way & Seaside Freeway	City of Los Angeles	AM	**Not an intersection in the future**					
			MID						
			PM						
27	Harbor Plaza & Queensway Drive	City of Long Beach	AM	0.554	A	0.609	B	0.055	No
			MID	0.775	C	0.863	D	0.088	No
			PM	0.652	B	0.701	C	0.049	No
28	Harbor Plaza & Harbor Scenic Drive	City of Long Beach	AM	0.620	B	0.723	C	0.103	No
			MID	0.832	D	0.897	D	0.065	No
			PM	0.527	A	0.585	A	0.058	No
29	Navy Way & Reeves Avenue	City of Los Angeles	AM	0.645	B	0.645	B	0.000	No
			MID	0.495	A	0.565	A	0.071	No
			PM	0.275	A	0.450	A	0.175	No

TABLE 3.13-19. SUMMARY OF INTERSECTION LEVEL OF SERVICE – CUMULATIVE PLUS PROJECT CONDITIONS - PROPOSED PLAN

No.	Intersection	Jurisdiction	Peak Hour	Cumulative (Alt 1)		Cumulative Plus Project		Change in V/C	Significant Impact (Yes/No)
				V/C	LOS	V/C	LOS		
30	Long Beach Boulevard & Pacific Coast Highway	City of Long Beach	AM MID PM	0.766 0.707 0.752	C C C	0.771 0.719 0.776	C C C	0.005 0.012 0.024	No No No
31	Long Beach Boulevard & Anaheim Street	City of Long Beach	AM MID PM	0.681 0.630 0.717	B B C	0.695 0.640 0.717	B B C	0.014 0.010 0.000	No No No
32	Long Beach Boulevard & Ocean Boulevard	City of Long Beach	AM MID PM	0.585 0.404 0.584	A A A	0.585 0.427 0.615	A A B	0.000 0.023 0.031	No No No

Key: ALT = Alternative; AM = morning (7:00 to 8:00 a.m.); ICTF = Intermodal Container Transfer Facility; LOS = level of service; MID = mid-day (2:00 to 3:00 p.m.); PM = afternoon (4:00 to 5:00 p.m.); SR = State Route; V/C = volume-to-capacity

TABLE 3.13-20. SUMMARY OF FREEWAY LEVEL OF SERVICE – CUMULATIVE PLUS PROJECT - PROPOSED PLAN

No.	Location	Direction	No. of Lanes	Lane Capacity	Peak Hour	Cumulative (Alt 1) Volumes	Proposed Project Volumes	Cumulative Plus Project - Proposed Plan Volumes	Cumulative Alt 1		Cumulative Plus Project - Proposed Plan		Change in V/C	Significant Impact (Yes/No)
									V/C	LOS	V/C	LOS		
1A	I-110 South of C Street	Northbound	4	2000	AM MID PM	3,900 3,070 3,190	60 90 60	3,960 3,160 3,250	0.488 0.384 0.399	B B B	0.495 0.395 0.406	B B B	0.007 0.011 0.007	No No No
1B	I-110 South of C Street	Southbound	4	2000	AM MID PM	2,050 1,460 1,620	70 70 80	2,120 1,530 1,700	0.256 0.183 0.203	A A A	0.265 0.191 0.213	A A A	0.009 0.008 0.010	No No No
2A	I-110 South of Sepulveda Boulevard (North of Pacific Coast Highway)	Northbound	3	2000	AM MID PM	4,490 4,260 4,210	50 90 30	4,540 4,350 4,240	0.748 0.710 0.702	C C C	0.757 0.725 0.707	C C C	0.009 0.015 0.005	No No No

TABLE 3.13-20. SUMMARY OF FREEWAY LEVEL OF SERVICE – CUMULATIVE PLUS PROJECT - PROPOSED PLAN

No.	Location	Direction	No. of Lanes	Lane Capacity	Peak Hour	Cumulative (Alt 1) Volumes	Proposed Project Volumes	Cumulative Plus Project - Proposed Plan Volumes	Cumulative Alt 1		Cumulative Plus Project - Proposed Plan		Change in V/C	Significant Impact (Yes/No)
									V/C	LOS	V/C	LOS		
2B	I-110 South of Sepulveda Boulevard (North of Pacific Coast Highway)	Southbound	3	2000	AM	5,050	30	5,080	0.842	D	0.847	D	0.005	No
					MID	3,930	120	4,050	0.655	C	0.675	C	0.020	No
					PM	3,950	70	4,020	0.658	C	0.670	C	0.012	No
3A	I-710 North of I-405	Northbound	4	2000	AM	3,450	0	3,450	0.431	B	0.431	B	0.000	No
					MID	3,680	110	3,790	0.460	B	0.474	B	0.014	No
					PM	4,000	100	4,100	0.500	B	0.513	B	0.013	No
3B	I-710 North of I-405	Southbound	4	2000	AM	4,020	0	4,020	0.503	B	0.503	B	0.000	No
					MID	3,680	170	3,850	0.460	B	0.481	B	0.021	No
					PM	3,920	100	4,020	0.490	B	0.503	B	0.013	No
4A	I-405 at Santa Fe Avenue (West of I-710)	Westbound	4	2000	AM	6,250	0	6,250	0.781	D	0.781	D	0.000	No
					MID	6,120	10	6,130	0.765	C	0.766	C	0.001	No
					PM	6,320	60	6,380	0.790	D	0.798	D	0.008	No
4B	I-405 at Santa Fe Avenue (West of I-710)	Eastbound	4	2000	AM	5,780	0	5,780	0.723	C	0.723	C	0.000	No
					MID	5,730	30	5,760	0.716	C	0.720	C	0.004	No
					PM	5,510	20	5,530	0.689	C	0.691	C	0.002	No
5A	I-405 North of SR-22	Westbound	4	2000	AM	5,850	160	6,010	0.731	C	0.751	C	0.020	No
					MID	7,280	0	7,280	0.910	D	0.910	D	0.000	No
					PM	7,410	50	7,460	0.926	D	0.933	E	0.007	No
5B	I-405 North of SR-22	Eastbound	4	2000	AM	6,290	0	6,290	0.786	D	0.786	D	0.000	No
					MID	7,100	60	7,160	0.888	D	0.895	D	0.007	No
					PM	7,010	0	7,010	0.876	D	0.876	D	0.000	No

TABLE 3.13-20. SUMMARY OF FREEWAY LEVEL OF SERVICE – CUMULATIVE PLUS PROJECT - PROPOSED PLAN

No.	Location	Direction	No. of Lanes	Lane Capacity	Peak Hour	Cumulative (Alt 1) Volumes	Proposed Project Volumes	Cumulative Plus Project - Proposed Plan Volumes	Cumulative Alt 1		Cumulative Plus Project - Proposed Plan		Change in V/C	Significant Impact (Yes/No)
									V/C	LOS	V/C	LOS		
6A	SR-91 East of Alameda Street/Santa Fe Avenue	Westbound	6	2000	AM	6,820	220	7,040	0.568	C	0.587	C	0.019	No
					MID	4,830	0	4,830	0.403	B	0.403	B	0.000	No
					PM	5,010	60	5,070	0.418	B	0.423	B	0.005	No
6B	SR-91 East of Alameda Street/Santa Fe Avenue	Eastbound	6	2000	AM	5,930	0	5,930	0.494	B	0.494	B	0.000	No
					MID	6,340	30	6,370	0.528	B	0.531	B	0.003	No
					PM	5,770	140	5,910	0.481	B	0.493	B	0.012	No
7A	SR-91 East of Cherry Avenue	Westbound	5	2000	AM	6,610	40	6,650	0.661	C	0.665	C	0.004	No
					MID	7,660	110	7,770	0.766	C	0.777	D	0.011	No
					PM	8,100	40	8,140	0.810	D	0.814	D	0.004	No
7B	SR-91 East of Cherry Avenue	Eastbound	5	2000	AM	5,680	0	5,680	0.568	C	0.568	C	0.000	No
					MID	5,790	40	5,830	0.579	C	0.583	C	0.004	No
					PM	5,940	140	6,080	0.594	C	0.608	C	0.014	No
8A	I-605 North of SR-91 (South of Alondra Boulevard)	Northbound	6	2000	AM	8,660	20	8,680	0.722	C	0.723	C	0.001	No
					MID	8,490	40	8,530	0.708	C	0.711	C	0.003	No
					PM	8,050	40	8,090	0.671	C	0.674	C	0.003	No
8B	I-605 North of SR-91 (South of Alondra Boulevard)	Southbound	6	2000	AM	7,660	270	7,930	0.638	C	0.661	C	0.023	No
					MID	7,320	150	7,470	0.610	C	0.623	C	0.013	No
					PM	7,950	190	8,140	0.663	C	0.678	C	0.015	No

Key: ALT = Alternative; AM = morning (7:00 to 8:00 a.m.); I = Interstate; LOS = level of service; MID = mid-day (2:00 to 3:00 p.m.); PM = afternoon (4:00 to 5:00 p.m.); SR = State Route; V/C = volume-to-capacity

3.13.5 Mitigation Monitoring Program

Mitigation measure and monitoring requirements are summarized in Table 3.13-21.

TABLE 3.13-21. MITIGATION MONITORING PROGRAM

Mitigation Measure	Responsible Party	Timing/Frequency
TRANS-1: If a project-level traffic analysis shows a significant impact, traffic improvements in accordance with CEQA Guidelines will be required and implemented to minimize impacts. Types of improvements may include, but are not limited to, the following: additional lanes, signalization, signal phasing and timing improvements, restriping, and other measures in accordance with relevant policies and procedures. The specific improvements to be implemented shall be based on operational and technical feasibility, on a project-by-project basis.	POLB and other applicable local agencies in affected jurisdiction.	Timing to be determined on a project-by-project basis.

Key: CEQA = California Environmental Quality Act; OHSPER = Outer Harbor Sediment Placement Ecosystem Restoration; POLB = Port of Long Beach
Except for the OHSPER project, no development approvals are requested as part of this Plan. The implementation timeframe will be based on detailed traffic impact studies prepared for future individual projects as required by the development permit process.

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3.14 VESSEL TRANSPORTATION

This section describes the potential impacts on vessel transportation that could result from implementation of the Proposed Plan and its alternatives.

3.14.1 Environmental Setting

The Port is one of the world's busiest seaports and a leading gateway between the U.S. and transpacific trade. The Port handles trade valued at more than $194 billion annually and supports approximately 30,000 Port-related jobs in the Long Beach area, over 316,000 jobs in Southern California, and approximately 1.4 million trade-related jobs across the nation. The Port and its facilities are an essential element of the national maritime industry.

3.14.1.1 Area of Influence

The vessel transportation analysis covers the waters serving the Harbor District and the San Pedro Bay and approach and departure lanes to the bay.

3.14.1.2 Regional Setting

The POLB is one of the world's busiest seaports and is a leading gateway for trade between the U.S. and Asia. In 2018, the Port handled more than 8.1 million containers (TEUs). It is the second busiest port in the U.S. Commercial ship traffic generally approaches the Harbor District from either the north or south. Traffic from the northwest passes north of Catalina Island. Traffic from the south passes east of the island. Both directions use established commercial shipping lanes. The Harbor District consists of an Outer Harbor, Middle Harbor, Inner Harbor, and three named basin areas known as West, East, and Southeast (see Figure 1.2-1).

The Harbor District comprises 3,500 acres of land with 10 piers, 6 container terminals, 80 berths, and 71 post-Panamax gantry cranes. In total, there are some 17 miles of berthing frontage for commercial vessels and all berths lie within 4.5 nm of the open sea. Containers are the primary cargo moving through the Harbor District, with major container terminals at Piers A, C, D, E, F, G, J, and T. Bulk oil and products cargo are located at Piers B, D, and T, and dry bulk cargo is handled at Pier G. Other cargoes include forest products at Piers D and T, and scrap metal recycling and export at Pier T.

Vessel Transportation Safety

Vessel traffic levels are highly regulated by the USCG COTP and the Marine Exchange via the VTS to ensure the total number of vessels transiting the Harbor District does not exceed the design capacity of the federal channel limits. Mariners are required to report their position to the COTP and the VTS prior to transiting through the Harbor District. The VTS monitors the positions of all inbound and outbound vessels within the Precautionary Area and the approach corridor traffic lanes (Figure 3.14-1). In the event of scheduling conflicts and/or vessel occupancy that is operating at capacity, vessels are required to anchor at the anchorages outside the breakwater until mariners receive COTP authorization to initiate transit.

Several measures are in place to ensure the safety of vessel navigation in the Harbor District. As described in the following sections, restricted navigation areas and routes have been designated to ensure safe vessel navigation as regulated by various agencies and organizations.

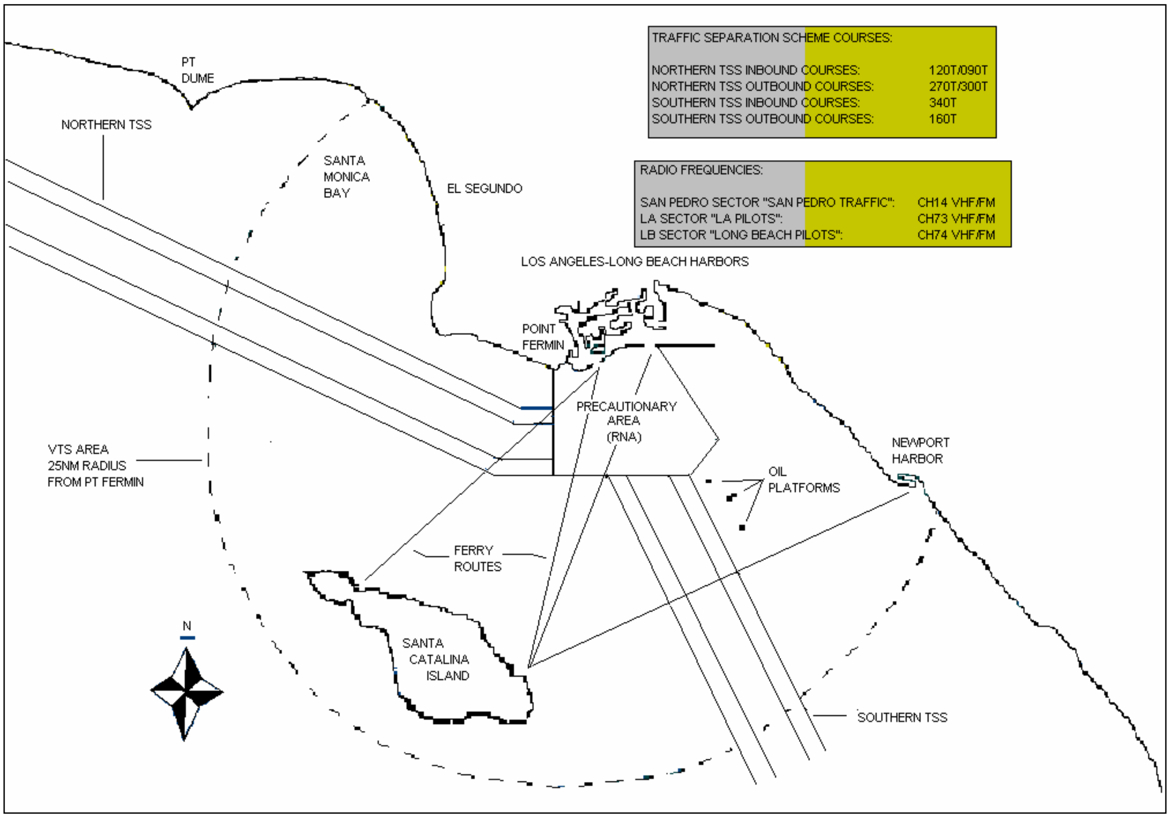

Figure 3.14-1. Vessel Navigation Safety Areas at Port of Long Beach and Port of Los Angeles

Source: (Marine Exchange 2006)

Marine Exchange of Southern California. The Marine Exchange is a nonprofit organization affiliated with the Los Angeles Chamber of Commerce and is designated to enhance navigation safety in the Precautionary Area and harbor area of the San Pedro Bay Ports. The organization is supported by subscriptions from port-related organizations that acknowledge the need for such an organization and use its services. The Marine Exchange monitors vessel traffic within the Precautionary Area. The service consists of a coordinating office, specific reporting points, and very high frequency-frequency modulation radio communications used with participating vessels. Vessel traffic channels and numerous aids to navigation (e.g., operating rules and regulations) have been established in the Harbor District. The Marine Exchange also operates the Physical Oceanographic Real-Time System (PORTS) (described in a following paragraph) as a service to those making operational decisions based on oceanographic and meteorological conditions in the vicinity of the bay. The PORTS collects and disseminates accurate “real-time” information on tides, visibility, winds, currents, and sea swell to maritime users to assist in the safe and efficient transit of vessels in San Pedro Bay.

Vessel Transportation Service. The VTS is a service owned by the Marine Exchange and operated jointly by the Marine Exchange and USCG under the oversight of the OSPR and the Port of Long Beach/Port of Los Angeles Harbor Safety Committee (Harbor Safety Committee) (Los Angeles-Long Beach VTS 2017). The VTS monitors traffic in the approach and departure lanes and inside the bay. It uses radar, radio, and visual inputs to gather real-time vessel traffic information and broadcast traffic advisories and summaries to assist mariners. The VTS station that services the Harbor District and the Port of Los Angeles overlooks San Pedro Bay with a backup station located in the Port of Long Beach (Marine Exchange VTS 2019). The system provides information on vessel traffic and ship locations so that vessels can avoid allisions (between a moving vessel and a stationary object, including another vessel), collisions (between two moving vessels), and groundings in the approaches to the ports. Further, the VTS assists in the safe navigation of vessels approaching the ports in the Precautionary Area.

Traffic Separation Scheme. A TSS is an internationally recognized vessel routing designation that separates opposing flows of vessel traffic into lanes, including a zone between lanes where traffic is to be avoided. The TSS has been designated to help direct offshore vessel traffic along portions of the California coastline such as the Santa Barbara Channel. Vessels are not required to use any designated TSS, but failure to use one, if available, would be a major factor for determining liability in the event of a collision. TSS designations are proposed by USCG but must be approved by the IMO, which is part of the United Nations. Figure 3.14-1 identifies the TSS nearest the Harbor District and Port of Los Angeles.

Safety Fairways. Offshore waters in high-traffic areas are designated as safety fairways, meaning that placement of surface structures, such as oil platforms, is prohibited to ensure safer navigation. USACE is prohibited from issuing permits for surface structures (e.g., oil platforms) within safety fairways, which are frequently located between a port and the entry into a TSS.

Precautionary and Regulated Navigation Areas. A Precautionary Area is designated in congested areas near the San Pedro Bay Harbor Complex entrances to set speed limits or to establish other safety precautions for ships entering or departing the harbor. A regulated navigation area is defined as a water area within a defined boundary for which federal regulations have been established under 33 CFR Part 165, Subsection 165.1109 for vessels navigating within the area. In the case of the Harbor District and the Port of Los Angeles, regulated navigation area boundaries match the designated Precautionary Area. Title 33 CFR Part 165 Subsection 165.1152 identifies portions of the Precautionary Area as a regulated navigation area (POLB 2009a).

The Precautionary Area for the Harbor District and the Port of Los Angeles is defined by a line that extends south from Point Fermin for approximately 7 nm, continues due east approximately 7 nm, continues northeast for approximately 3 nm, and then heads back northwest (Figure 3.14-1). Ships are required to cruise at speeds of 12 knots or less upon entering the Precautionary Area. A minimum vessel separation of 0.25 nm is also required in the Precautionary Area. The Marine Exchange monitors vessel traffic within the Precautionary Area.

Pilotage. Use of a Port Pilot for transit in and out of the San Pedro Bay Harbor Complex and adjacent waterways is required for all vessels of foreign registry and for those U.S. vessels enrolled as not having a federally licensed pilot on board. (Some U.S.-flag vessels have a trained and licensed pilot onboard, and those vessels are not required to take on a Port Pilot for navigating through the area.) Jacobsen Pilot Service and Los Angeles Harbor Pilots provide pilotage for the Harbor District and the Port of Los Angeles, respectively. Port Pilots receive special training that is instituted by the pilot companies and overseen by the Harbor Safety Committee (see description in Section 3.14.2.4, Local Regulations).

For the Harbor District, pilots typically board the vessels at the Queen's Gate entrance, and then pilot the vessels to their destinations. Pilots normally leave the vessels after docking, and re-board the vessels to pilot them back to sea or to other destinations within the Harbor District. The pilot service also manages the use of anchorages under an agreement with USCG.

In instances where a local pilot is not used, masters must have a local federal pilot license and receive approval by the USCG COTP prior to entering or departing the Harbor District.

In addition, the Port Tariffs require vessels greater than 300 gross tons to use a federally licensed pilot whenever navigating inside the breakwater. The Port Tariffs also require that a vessel notify the affected pilot station(s) in the rare instances when a pilot is not needed before entering, leaving, shifting, or moving between the ports. By Port Tariffs rule, pilots stay on outbound vessels until clear of the breakwater entrance. In bad weather, pilots who cannot disembark safely outside the breakwaters may disembark inside, once they assure the vessel's safe transit.

Tug Escort/Assist. "Tug Escort" refers to the stationing of tugs in proximity of a vessel as it transits into port to provide immediate assistance should a steering or propulsion failure develop. "Tug Assist" refers to the positioning of tugs alongside a vessel and applying force to assist in making turns, reducing speed, providing propulsion, and docking. Most OGVs are required to have tug assistance within the San Pedro Bay Harbor Complex (Marine Exchange 2006). However, some vessels have internal "tugs" (typically bow and stern thrusters) that allow the vessel to propel without engaging the main engines and accomplish maneuvers with the same precision as a tug-assisted vessel. These ships are not required to have external tug assistance.

Physical Oceanographic Real-Time System. In partnership with NOAA, National Ocean Service, California OSPR, USCG, and some businesses operating in the Harbor District and Port of Los Angeles, the Marine Exchange operates PORTS as a service to those making operational decisions based on oceanographic and meteorological conditions in the vicinity of the ports (National Ocean Service 2019). PORTS is a system of environmental sensors and supporting telemetry equipment that gathers and disseminates accurate "real-time" information on tides, visibility, winds, currents, and sea swell to maritime users to assist in the safe and efficient transit of vessels in the San Pedro Bay Harbor Complex. Locally, PORTS is designed to provide crucial real-time information to mariners, oil spill response teams, managers of coastal resources, and others about tides, water levels, currents, salinity, and winds.

The instruments that collect the information are deployed at strategic locations within the ports to provide data at critical locations and allow "now-casting" and forecasting using a mathematical model of oceanographic processes. Data from the sensors are fed into a central collection point and raw data are integrated and synthesized into information and analysis products, including graphical displays of PORTS data.

A Ports and Waterways Safety Assessment of the Port of Los Angeles and Port of Long Beach was conducted by the USCG Marine Transportation Systems Directorate in 2015 (USCG 2015) and concluded that while the waterways of the ports have very high traffic conditions and volumes of traffic, the associated risk is low based on the Harbor Safety Committee's proactive approach, a robust VTS, and the expertise and experience associated with pilotage and tug operations. Factors associated with low risk include: 1) implementation by the ports of effective mitigations including mandatory pilotage and required tug escorts; 2) decreases in the number of ship arrivals associated with general increases in ship size; 3) robust VTS and Automatic Identification System; excellent two-way communications for better control and organization of vessel movements; improvement of ship navigation equipment; 4) increased cooperation including sharing of information between shipping lines and sharing resources between shipping lines, which reduces the ship count; 5) 100 percent escort of cruise ships by USCG and local law enforcement; and 6) geography of the ports and associated harbors with relatively easy transits versus other major U.S. ports.

Navigational Hazards

Port Pilots responsible for directing vessels through Harbor District and Port of Los Angeles navigational waters can easily and safely identify fixed navigational hazards. These hazards, including breakwaters protecting the Outer Harbor, anchorage areas, and various wharves and land masses, are well-lighted and are readily identified by radar. Four bridges cross the navigation channels of both ports. All have restricted vertical clearances, and two have restricted horizontal clearances as well. Within the Harbor District, overhead power lines also restrict vertical clearance in the Cerritos Channel.

Two fixed bridges (Vincent Thomas and Gerald Desmond) and two drawbridges (Commodore Schuyler Heim Bridge and adjacent Badger Bridge) span the navigable channels of the ports. The latter two, crossing Cerritos Channel, are the only drawbridges within the Port's geographical area. The narrow channel width combined with restrictions on passing under the drawbridges limit traffic through Cerritos Channel (with extremely rare exceptions) to pleasure vessels, tugs without tows, and tugs with tows alongside or pushing ahead. However, tugs with bunker barges frequently pass under the bridges. Small-size tankers occasionally pass, given appropriate weather, vessel draft and trim, and maximum beam (Marine Exchange 2006).

Vessels waiting to enter the Harbor District and moor at a berth can anchor at anchorages outside and inside the breakwaters (Figure 1.2-1). Vessels do not require tug assistance to anchor outside the breakwater. Any vessel wanting to use an anchorage must advise VTS and be assigned an anchorage by the VTS watch. Jacobsen Pilot Service manages and monitors these anchorages for the Harbor District. For safety reasons, VTS will not assign tankers or vessels exceeding 656 feet in length to an anchorage in the first row of sites closest to the breakwater.

Vessels are required by law to report failures of navigational equipment, propulsion, steering, or other vital systems as soon as possible to USCG via the COTP office or the COTP representative at VTS. According to VTS, approximately 1 in 100 vessels calling at the ports experiences a mechanical failure during inbound or outbound transit.

Although marine safety is thoroughly regulated and managed, various undesirable events can occur during marine navigation. These conditions include vessel accidents, “close quarters,” and “near misses.”

Vessel Accidents. Marine vessel accidents include vessel allisions[13], collisions, and groundings (ACGs). Table 3.14-1 shows the number of vessel ACGs in the Harbor District and Port of Los Angeles between 2000 and 2011. Each of the accidents was subject to a USCG marine casualty investigation, and subsequent actions taken were targeted at preventing future occurrences.

TABLE 3.14-1. ALLISIONS, COLLISIONS, AND GROUNDINGS – HARBOR DISTRICT AND PORT OF LOS ANGELES (2004–2011)

Year	ACG Accidents			Total	ACG 5-Year Average
	Allisions	Collisions	Groundings		
2000	3	2	1	6	-
2001	4	1	0	5	-
2002	6	5	0	11	-
2003	4	2	2	8	-
2004	2	4	6	12	8.40
2005	0	1	3	4	8.00
2006	4	0	5	9	8.80
2007	3	1	6	10	8.60
2008	1	1	1	3	7.60
2009	3	0	0	3	5.80
2010	1	0	0	1	5.20
2011	7	0	1	8	5.00

Source: (POLA 2013)
Key: ACG = allision, collision, and grounding
Note: These commercial vessel accidents meet a reportable level defined in 46 Code of Federal Regulations Subpart 4.05, but do not include commercial fishing vessel or recreational boating incidents.

[13] Allision is the striking of a moving vessel against a stationary object, whereas collision is the striking of two moving vessels.

Incident Summaries. The Harbor Safety Committee tracks incidents related to port vessel traffic via the Marine Exchange. Incident types include loss of propulsion, steering, radar or electrical systems, and anchoring issues for pleasure craft in traffic lanes that do not involve ACGs. Table 3.14-2 lists the number of incidents for the years 2012 through 2017.

TABLE 3.14-2. VESSEL INCIDENTS

Year	Number of Incidents
2012	29
2013	25
2014	21
2015	31
2016	18
2017	17

Source: (Marine Exchange 2014, Marine Exchange 2017, Marine Exchange 2019)

Near Misses and Close Quarters. According to the Harbor Safety Committee, a reportable incident is one "…in which a pilot, master or other person in charge of navigating a vessel successfully takes action of a 'non-routine nature' to avoid a collision with another vessel, structure, or aid to navigation, grounding of the vessel, or damage to the environment."

The most practical and readily available near-miss data are obtained from VTS reports. The VTS documents, reports, and acts on "close quarters" situations. VTS close quarters situations are described as vessels passing an object or another vessel closer than 0.25 nm or 500 yards. These incidents usually occur within the traffic Precautionary Area. No reliable data are available for close quarters incidents outside the VTS area.

Normal actions taken in response to close quarters situations include initiating informal USCG investigations, sending Letters of Concern to owners and/or operators, having the involved vessel master(s) visit VTS and review the incident, and USCG enforcement boardings. An 11-year history of the number of close quarters situations is presented in Table 3.14-3. The Harbor Safety Committee states that "given the relatively steady amount of commercial transits over the past 5 years, a decreasing trend in close quarters incidents is discernable" (Marine Exchange 2006).

TABLE 3.14-3. NUMBER OF VTS-RECORDED CLOSE QUARTERS INCIDENTS, 1998–2008

Year	Number of Close Quarters Incidents
1998	9
1999	5
2000	1
2001	2
2002	6
2003	4
2004	0
2005	0
2006	0
2007	1
2008	1

Source: (Marine Exchange 2015)

Factors Affecting Vessel Traffic Safety

This section summarizes environmental conditions that could impact vessel safety in the San Pedro Bay Harbor Complex. More detailed information can be found in the existing conditions description of other sections in this PEIR (e.g., a detailed meteorological description is presented in Section 3.2, Air Quality and Health Risk).

Fog. Fog is a well-known weather condition in Southern California. Harbor area fog occurs most frequently in April and from September through January, when visibility over the bay is below 0.5 mile for 7 to 10 days per month. Fog at the ports is mostly a land (radiation) type fog that drifts off shore and worsens in the late night and early morning. Smoke from nearby industrial areas often adds to its thickness and persistence. Along the shore, fog drops visibility to less than 0.5 mile on 3 to 8 days per month from August through April and is generally at its worst in December (Marine Exchange 2006).

Winds. Winds vary, particularly in fall and winter, and are strongest during the period when Santa Ana winds may blow. This offshore desert wind, though infrequent, may be violent. It occurs when a strong high-pressure system sits over the plateau region and generates a northeasterly to easterly flow over Southern California. Aside from weather forecasts, there may be little warning of a Santa Ana's onset, although good visibility and unusually low humidity often prevail for some hours before it arrives. Shortly before arriving on the coast, the Santa Ana may appear as an approaching dark-brown dust cloud. This positive indication often gives a 10- to 30-minute warning. A Santa Ana wind condition may come at any time of day and can be reinforced by an early morning land breeze or weakened by an afternoon sea breeze.

Winter storms can produce strong winds over San Pedro Bay, particularly from southwesterly through northwesterly directions. Winds of 17 knots or greater occur about 1 to 2 percent of the time from November through May. Southwesterly through westerly winds begin to prevail in the spring and last into early fall.

Tides. The mean tide range is 3.7 feet for the Harbor District and 3.8 feet for the Port of Los Angeles. The diurnal range is about 5.4 feet for both ports and a range of 9 feet may occur at maximum tide. The time of tides is about the same for both ports (Marine Exchange 2006).

Currents. The tidal currents follow the axis of the channels and rarely exceed 1 knot. The Harbor District and Port of Los Angeles area is subject to seiche and surge, with the most persistent and conspicuous oscillation having about a 1-hour period. Near Reservation Point, at the south end of Terminal Island, the prominent hourly surge causes velocity variations as great as 1 knot. These variations often overcome the lesser tidal current, so that the current ebbs and flows at half-hour intervals. The more restricted channel usually causes the surge through the Back Channel to reach a greater velocity at the east end of Terminal Island, rather than west of Reservation Point. In the Back Channel, hourly variation may be 1.5 knots or more. At times the hourly surge, together with shorter, irregular oscillations, causes a very rapid change in water height and current direction/velocity, which may endanger vessels moored at the piers (Marine Exchange 2006).

USACE ship navigation studies indicate that current magnitudes within Harbor District channels are mostly negligible at 0.3 knot or less. Maximum current velocity in the Angel's Gate area is less than 1 knot. These current magnitudes, determined during a simulation study, indicate depth-averaged values over three layers. According to Jacobsen Pilot Service, the Long Beach Queen's Gate has deeper water than Angel's Gate and more open waterways just inside the breakwater.

The pilots have never experienced a current greater than 1 knot in this area (Marine Exchange 2006).

Water Depths. USACE maintains the federal channels in the Harbor District and Port of Los Angeles. All 77 deep-water berths in the Harbor District lie within 3 miles of the open sea, reached via a 76-foot deep Main Channel. Dredging outside the Harbor District breakwater Entrance Channel also provides a 76-foot depth. The Main Channel enables access for tankers up to a 310,000-ton class (current maximum draft 64 feet) for discharging their cargoes. Currently, USACE in conjunction with the Harbor District is preparing a Port of Long Beach Deep Draft Navigation Feasibility Study and Channel Deepening Project to identify, evaluate, and improve existing navigation channels within the Port. Further, periodic maintenance dredging maintains design depth and eliminates minor hazards caused by soil deposition or vessel prop wash anomalies occurring on the bottom.

Vessel Traffic

Current Traffic Levels. Based on data collected as part of air quality reports, in 2017 the Harbor District experienced approximately 2,805 ship calls, translating to about 5,610 inward and outward ship movements per year. Table 3.14-4 lists ship call data for the period 2009 through 2017 along with estimated ship movements per day. As another indicator of vessel traffic, in this case associated with TEUs as a related measure, 2018 was the busiest year in Harbor District history, handling a record 8.1 million TEUs. An additional 1,300 internal movements where vessels shifted berth or location within the Port were recorded in 2017, with most ship movements to and from the berths completed in 2 hours or less and very few movements greater than 3 hours in duration. The pilot service and tug assistance can routinely handle up to 25 ship movements per day and can handle peaks of 30 to 40 ship movements per day (Jacobsen Pilot Service 2019), which is well above the average historical levels as shown in Table 3.14-4.

TABLE 3.14-4. HARBOR DISTRICT SHIP CALLS, 2009–2017

Year	Ship Calls	Ships Movements per Day	Movements per Incident
2012	2,635	14.4	182
2013	2,504	13.7	200
2014	2,601	14.3	248
2015	2,689	14.7	173
2016	2,587	14.2	287
2017	2,805	15.4	330

Source: (POLB 2018h), with estimated calls based on 50 percent of ship movements

Table 3.14-1 (vessel accidents), Table 3.14-2 (vessel incidents), Table 3.14-3 (vessel close quarters incidents), and Table 3.14-4 ship movements per incident, show that the number of accident/incident/close quarter scenarios has been decreasing generally over time, and that the number of ship movements between incidents has been improving. This is in part due to the full implementation and expansion of the VTS service in the late 1990s and implementation of additional regulatory requirements including the vessel escort requirements in 2012. In addition, ship movements per day are well within the level that the pilot service and tug assistance can handle safely.

Future Traffic Levels. The demand for containerized cargo capacity is expected to increase in the coming years with increases in TEUs of over 50 percent by 2025. This potentially could result in an increase in ship movements, yet movements per day still remain below 25 per day. This level is still within the capabilities of the pilot and tug systems, and with accidents/incidents/close quarter events generally trending downward, these would still be within the capabilities of the port systems to manage safely. The ability to handle increasing numbers of ships associated with various trades depends on primary and secondary factors that can limit vessel traffic. Primary factors are those features of a port that cannot be changed or can be changed or modified only with very high capital expenditure, such as the breakwater entrance, channel depth, channel geometry, and/or environmental conditions. Secondary factors are those features that can be changed or modified at modest capital or operational expenditure, including pilotage and towage services. Of the primary factors, the breakwater entrance to the Harbor District is wide enough to accept two-way traffic and is unlikely to represent a constraint on capacity.

3.14.2 Regulatory Setting

Many laws and regulations are in place to regulate marine terminals, vessels calling at marine terminals, and emergency response/contingency planning. Responsibilities for enforcing or executing these laws and regulations fall to various international, federal, state, and local agencies, as summarized in the following sections.

3.14.2.1 International Regulations

International Maritime Organization

The agency governing the movement of goods at sea is the IMO. This is accomplished through a series of international protocols that individual countries must approve and adopt before they become effective. MARPOL governs the movement of oil and specifies tanker construction standards and equipment requirements. Regulation 26 of Annex I of MARPOL requires that every tanker of 150 gross tons and above shall carry on board a shipboard oil pollution emergency plan approved by IMO. The U.S. implemented MARPOL with passage of the Act of 1980 to Prevent Pollution from Ships. The IMO (IMO 2019b) has issued Guidelines for the Development of Shipboard Oil Pollution Emergency Plans to assist tanker owners in preparing plans that comply with the regulations and to assist governments in developing and enacting domestic laws that enforce the cited regulations. In 1990, USEPA passed the Oil Pollution Act of 1990 and the State of California passed the Lempert-Keene-Seastrand Oil Spill Prevention and Response Act (California SB 2040) to meet IMO requirements. TSSs must be approved by the IMO. The TSS at the entrances to the Harbor District and the Port of Los Angeles has been approved by the IMO.

The IMO adopted an amendment to the Safety International Convention for the Safety of Life at Sea (1974/1988) with provisions entitled “Special Measures to Enhance Maritime Safety,” and which became effective in 1996. These provisions allow for operational testing during state examinations to ensure that masters and crews for both U.S. and international vessels are familiar with essential shipboard procedures relating to ship safety. The USCG Marine Safety Office conducts these port state examinations as part of their vessel inspection program.

3.14.2.2 Federal Regulations

Several federal laws regulate marine terminals and vessels. These laws address, among other matters, design and construction standards, operational standards, and spill prevention and cleanup. Regulations to implement these laws are contained primarily in Titles 33 (Navigation and Navigable Waters), 40 (Protection of Environment), and 46 (Shipping) of the CFR. More detailed information on safety and safe navigation laws is provided in Section 3.6 (Hazards and Hazardous Materials).

Maritime Security Transportation Act

The MTSA is designed to protect the nation's ports and waterways from a terrorist attack. This law is the U.S. equivalent of the ISPS Code and was fully implemented on July 1, 2004. It requires vessels and port facilities to conduct vulnerability assessments and develop security plans that may include passenger, vehicle, and baggage screening procedures; security patrols; restricted areas; personnel identification procedures; access control measures; and/or installation of surveillance equipment.

United States Coast Guard

USCG, through Title 33 (Navigation and Navigable Waters) and Title 46 (Shipping) of the CFR, is the federal agency responsible for vessel inspection, marine terminal operations safety, coordination of federal responses to marine emergencies, enforcement of marine pollution statutes, marine safety (e.g., navigation aids, etc.), and operation of the National Response Center for spill response. They are also the lead agency for offshore spill response. More detailed information on safety and safe navigation responsibilities of USCG is provided in Section 3.6 (Hazards and Hazardous Materials).

Department of Defense

The U.S. Department of Defense, through USACE, is responsible for reviewing all aspects of a project and/or spill response activities that could affect navigation. USACE has specialized equipment and personnel for maintaining navigation channels, removing navigation obstructions, and accomplishing structural repairs.

Since 1789, the federal government has authorized navigation channel improvement projects. The General Survey Act of 1824 established USACE's role as the agency responsible for the navigation system. Since then, ports have worked in partnership with USACE to maintain waterside access to port facilities.

3.14.2.3 State Regulations

Chapter 1248 of the Statutes of 1990 (California State Bill 2040), the Lempert-Keene-Seastrand Oil Spill Prevention and Response Act, established a comprehensive approach for the prevention of and response to oil spills. Most of this regulation has to do with the prevention and response to oil spills and marine terminal safety; however, the regulation requires each major port to develop an HSP (see Section 3.14.2.4, Local Regulations) addressing navigational safety, including tug escort for tankers. The Harbor Safety Committee was formed in 1991 and issued its HSP shortly thereafter.

CCR Title 14, Division 1, Subdivision 4, OSPR, Chapter 4 has specific requirements for tanker vessels, tug escort requirements, crew and supervisor requirements, tanker vessel equipment requirements, and tanker and tug(s) matching criteria. That chapter also sets forth vessel escort requirements for tanker vessels underway in the San Pedro Bay Port Complex and its approaches and speed limits for tanker vessels transiting between the seaward limits of the pilot operating areas.

3.14.2.4 Local Regulations

Marine Exchange of Southern California

As discussed previously, the Marine Exchange is a nonprofit organization affiliated with the Los Angeles Chamber of Commerce. This voluntary service is designed to enhance navigation safety in the Precautionary Area and harbor area of the ports. The Marine Exchange monitors vessel traffic within the Precautionary Area. The Marine Exchange also operates PORTS (described in Section 3.14.1.2, Regional Setting) as a service to those making operational decisions based on oceanographic and meteorological conditions in the vicinity of the ports.

Harbor Safety Committee

The Harbor District and Port of Los Angeles have a Harbor Safety Committee that is responsible for planning the safe navigation and operation of tankers, barges, and other vessels within San Pedro Bay and the approaches thereto. This committee has been created under the authority of Government Code Section 8670.23(a), which requires the Administrator of the OSPR to create a Harbor Safety Committee for the Long Beach/Los Angeles/Harbor area. The committee issued the original HSP in 1991 and issues annual updates. Major issues that have been addressed by the committee include questions about the need for escort tugs, required capabilities of escort tugs, and/or the need for new or enhanced vessel traffic information systems to monitor and advise vessel traffic.

Harbor Safety Plan

The Harbor District and Port of Los Angeles HSP contains operating procedures for vessels operating in the port vicinity. The vessel operating procedures stipulated in the HSP are considered Good Marine Practice and some procedures are federal, state, or local regulations, while other guidelines are nonregulatory “Standards of Care.” The HSP provides specific rules for navigation of vessels under conditions of reduced visibility and establishes vessel speed limits (12 knots within the Precautionary Area or 6 knots within the harbor). These speed restrictions do not preclude the master or pilot from adjusting speeds to avoid or mitigate unsafe conditions.

Vessel Transportation Service

As described previously, VTS is a shipping service that monitors traffic in both approach and departure lanes, as well as internal movement within harbor areas. This system provides information on vessel traffic and ship locations so that vessels can avoid ACGs in the approaches to the ports. These services use radar, radio, and visual inputs to gather real-time vessel traffic information and broadcast traffic advisories and summaries to assist mariners.

3.14.3 Impacts and Mitigation Measures

3.14.3.1 Significance Criteria

Criteria for determining the significance of impacts on vessel transportation are based on the 2018 CEQA Guidelines, Appendix G (Environmental Checklist), and have been modified as necessary to reflect Port operations within a highly urbanized, industrial complex. Although Appendix G does not specify criteria specific to vessel transport, impacts related to air traffic patterns (CEQA Guidelines Appendix G, section XVI.c) have been utilized as applied to vessel transportation. Impacts during construction or operation would be considered significant if the Proposed Plan would:

- **VT-1:** Result in a change in vessel traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks.

3.14.3.2 Assessment Methodology

The analysis considered the specific type and number of vessels that currently visit the Harbor District and pass by or into the area represented by the Proposed Plan and its alternatives, and evaluated the number and characteristics of vessels that would be calling at the redeveloped facilities after implementation.

3.14.3.3 Proposed Plan

Impact VT-1: Construction and operations would not result in a change in vessel traffic patterns, including an increase in traffic volumes or a change in location that results in substantial incremental change in risks to vessel safety.

Impact Determination

Construction

Construction activities associated with the Administrative Building Site Support Yard (Expansion), Fourth Track at Ocean Boulevard, Ocean Boulevard Bicycle Gap Closure, Pier D Street Realignment projects, and land use changes are land-based and would not require the use of boats or vessels nor impact vessel navigation or transportation activities. Therefore, construction activities would not result in a change in vessel traffic patterns, increase in traffic volumes, or construction impacts that could cause significant environmental effects.

Construction activities associated with the Protective Boat Basin (Berth F202), Pier B Street Support Yard, Pier J Terminal Redevelopment, Pier S Mixed Use Development, Pier S Shoreline Enhancement, Pier T Improvements, Pier W Terminal Development projects, and land use changes would include relocation of docks, cut/fill/dredging operations, building wharf and terminal infrastructure, and the installation of seawalls and rock dikes. All vessel traffic involved with these projects would be subject to the standard existing safety precautions governing POLB navigation and approved tug pilots. All vessel activity would be monitored by the USCG COTP and the Marine Exchange via the VTS to ensure the total number of vessels transiting the Port does not exceed capacities or impact traffic. Therefore, the short-term presence of these vessels for construction activities would be included in and adequately addressed by the Harbor District vessel transportation and safety systems. Therefore, the vessels and barges associated with the Proposed Plan projects would not result in a change in vessel traffic patterns or traffic volumes that could cause significant environmental effects.

Implementation of the OHSPER project would not require construction as the facility is already operable in its present configuration. Therefore, there is no risk that the OHSPER project would involve construction activities that would result in a substantial incremental change in risks to vessel safety.

Operations

Operational changes from implementation of the Administrative Building Site Support Yard (Expansion), Ocean Boulevard Bicycle Gap Closure, Fourth Track at Ocean Boulevard, Pier D Street Realignment projects, and land use changes would not involve vessels or significant changes to waterfront areas that provide service to vessels. These projects would involve improvements to land-based rail and road operations and the installation of a segment of the Ocean Boulevard bike path system. Operational impacts from these projects would not result in a change in vessel traffic patterns, traffic volumes, or a change in location that could cause significant environmental effects.

Operations associated with the JCCC vessels for the Protective Boat Basin (Berth F202) project and land use changes would continue consistent with existing practices. Minor changes in small boat traffic and with JCCC vessels would result from changes to the Protective Boat Basin (Berth F202) and may also result in additional small boat activity associated with other governmental security agency vessels. The potential increase in small boat traffic would be associated with safety and security vessels and would not result in a significant change in vessel traffic patterns, traffic volumes, or a change in location that could cause significant environmental effects.

The Pier B Street Support Yard project was analyzed with a CEQA Mitigated Negative Declaration (MND) document in October 2015. The MND determined four impacts that required mitigation measures, including two related to operations. All power for operations was required to be electrical to mitigate air quality impacts; and improvements to the Pico Avenue/Pier B Street and I-710 ramps/9th Street intersections were required to address vehicle traffic impacts. Temporary use of the Pier B Street Support Yard has not resulted in a significant change in vessel traffic patterns, traffic volumes, or locations that could cause significant environmental effects.

The Pier J Terminal Redevelopment project and land use change would result in a new wharf, container terminal, and wide water areas in the Southeast Basin. These activities have the potential to modify the vessel traffic and vessel navigation for vessels in the area and vessels using the Pier J facilities. These changes in vessel activity may be significant; however, consistent with the Proposed Plan and Harbor District operations, all new vessel traffic and vessel navigation routes would be subject to the standard existing safety precautions governing navigation and approved tug pilots. In addition, all vessel activities would be monitored by the COTP and the Marine Exchange via the VTS consistent with current operations. As all potential changes to vessel traffic, vessel patterns, or locations would be consistent with these vessel navigation and safety systems, operational changes resulting from the Pier J Terminal Redevelopment project would not cause significant environmental effects.

For the Pier S Mixed Use Development project and land use changes, the availability of additional wharf facilities has the potential to modify vessel traffic, vessel patterns, and vessel locations. Any changes to operational vessel activities would be monitored by the COTP and the Marine Exchange via the VTS consistent with current operations and be subject to the standard existing safety precautions governing POLB navigation and pilotage. Therefore, the Pier S Mixed Use Development project would not result in a change in vessel traffic patterns, traffic volumes, or a change in location that could cause significant environmental effects.

The seawall and rock dike improvements at Pier S for the Pier S Shoreline Enhancement project would not have an impact on operational vessel activities in the Harbor District because once construction has been completed, any vessel use associated with the project would cease. Therefore, the project would not result in a change in vessel traffic patterns, traffic volumes, or a change in location that could cause significant environmental effects.

The addition of berth space and storage tracks resulting from the Pier T Improvements project has the potential to change vessel traffic in the Pier T area. As discussed for the other projects, these potential changes to vessel traffic and navigation patterns are addressed in the Proposed Plan and all vessel activity would be in accordance with Harbor District safety precautions, approved tug pilots, the COTP, and VTS. Therefore, operational changes resulting from the Pier T Improvements project would not result in a change in vessel traffic patterns, traffic volumes, or a change in location that could cause significant environmental effects.

Operation of a new container terminal and berth at Pier W for the Pier W Terminal Development project would change vessel traffic, vessel patterns, and vessel locations in the Pier W area and potentially the West Basin. These operational changes would be governed by the Harbor District navigation and safety systems, consistent with Proposed Plan goals and plans. All vessel traffic including vessel arrivals and departures associated with the new terminal and berth would be subject to the standard existing safety precautions governing Harbor District navigation, and pilotage and vessel activities would be monitored by the COTP and the Marine Exchange via the VTS, consistent with current operations. Historical vessel movements per day are substantially below those associated with levels considered safe by the pilot and tug operations (see Table 3.14-4). Although accidents or incidents can occur, as seen by the data on historical accidents/incidents, the number of ship movements between incidents has been increasing (improving), thereby indicating that incidents would not necessarily be expected to increase as vessel activity increases since vessel activities are still below levels at which congestion would exacerbate incidents (see Table 3.14-4). Therefore, operations at the new terminal and berth at Pier W would not result in a change in vessel traffic patterns, traffic volumes, or a change in location that could cause significant environmental effects.

The OHSPER project may result in a modification to vessel traffic or vessel location in the project area. The project boundaries are east of and outside the standby anchorage area; however, vessel traffic through the anchorage area may also be revised. Consistent with current practices, all vessel traffic would be monitored by the COTP and the Marine Exchange via the VTS and be subject to standard safety precautions governing Harbor District navigation and the use of approved tug pilots. As any change in vessel activities would be governed and adequately addressed by existing safety practices, operations associated with the OHSPER project would not result in a change in vessel traffic patterns, traffic volumes, or a change in location that could cause significant environmental effects.

As construction and operations would not result in a change in vessel traffic patterns that results in substantial incremental change in risks to vessel safety, impacts would be less than significant. No mitigation is required.

3.14.3.4 Alternative 1 (No Plan Alternative)

Alternative 1 (No Plan Alternative) considers what would reasonably occur if the Port did not update the PMP to include updates to the planning districts and allowable land and water use designations within the Harbor District. Alternative 1 includes projects that are 1) consistent with the 1990 PMP as amended, 2) may or may not have been evaluated in a final CEQA document, and/or 3) could be implemented without approval of the Proposed Plan. Alternative 1 includes the following projects: Administrative Building Site Support Yard (Expansion), Fourth Track at Ocean Boulevard, Ocean Boulevard Bicycle Gap Closure, Pier B Street Support Yard, Pier D Street Realignment, Pier S Mixed Use Development, and Pier S Shoreline Enhancement. This alternative also includes the Pier T Echo Support Yard project, which would construct a 17-acre support yard (chassis, empties, or peel-off) that would serve the Pier T container terminal. In addition, use of the WASSS would continue as currently permitted (i.e., placement and reuse of clean sediments).

<u>Impact Determination</u>

Types of impacts on vessel traffic from construction and operation of individual projects under Alternative 1 would be the same as for the Proposed Plan. However, from a programmatic perspective, the impacts from Alternative 1 would be comparatively less in magnitude due to the reduced construction and operational activities. All vessel traffic involved with construction and operation for these projects would be subject to the standard existing safety precautions governing POLB navigation and approved tug pilots. All vessel activity would be monitored by the USCG COTP and the Marine Exchange via the VTS to ensure the total number of vessels transiting the Port does not exceed capacities or impact traffic. The presence of vessels would be included in and adequately addressed by the Harbor District vessel transportation and safety systems. Therefore, the vessel traffic associated with Alternative 1 projects would not result in a change in vessel traffic patterns or volumes that could cause significant environmental effects. As implementation of Alternative 1 projects would result in less than significant impacts, no mitigation is required.

Under Alternative 1, continued use of the WASSS as currently permitted would result in similar potentials for impacts on vessel traffic as those associated with the OHSPER project under the Proposed Plan. As impacts would be less than significant, no mitigation is required.

3.14.3.5 Alternative 2 (No Terminal Development)

Alternative 2 (No Terminal Development) is similar to the Proposed Plan and would include updates to the planning districts and allowable land and water use designations in the Harbor District. However, Alternative 2 would not include terminal development projects at Pier T, Pier W, or Pier J. Alternative 2 would include the following projects: Administrative Building Site Support Yard (Expansion), Protective Boat Basin (Berth F202), OHSPER, Fourth Track at Ocean Boulevard, Ocean Boulevard Bicycle Gap Closure, Pier B Street Support Yard, Pier D Street Realignment, Pier T Echo Support Yard, Pier S Mixed Use Development, Pier S Shoreline Enhancement, and land use changes.

<u>Impact Determination</u>

Types of impacts on vessel traffic from construction and operation of individual projects and land use changes under Alternative 2 would be the same as for the Proposed Plan. However, because Alternative 2 would not include any of the container terminal development/redevelopment projects (e.g., Piers J, T, and W) that are part of the Proposed Plan, from a programmatic perspective, the impacts from Alternative 2 would be comparatively less in magnitude than the Proposed Plan. Any changes to operational vessel activities would be monitored by the COTP and the Marine Exchange via the VTS consistent with current operations and be subject to the standard existing safety precautions governing POLB navigation and pilotage. Therefore, Alternative 2 projects would not result in a change in vessel traffic patterns, traffic volumes, or a change in location that could cause significant environmental effects.

Under Alternative 2, operations associated with the OHSPER project would result in similar impacts on vessel traffic as those associated with the OHSPER project under the Proposed Plan. As impacts would be less than significant, no mitigation is required.

3.14.3.6 Alternative 3 (Reduced Terminal Development)

Alternative 3 (Reduced Terminal Development) is similar to the Proposed Plan and would include updates to the planning districts and allowable land and water use designations in the Harbor District. Under Alternative 3, development of the Pier J terminal would be reduced compared to the Pier J Terminal Redevelopment under the Proposed Plan. The Pier J Reduced Development would include dredging and filling the 22-acre triangle, cutting a 9-acre notch, extending the north wharf to the east, and relocating the existing rail line and yard to Pier J South. No development of a new Pier W terminal would occur. Alternative 3 would include the following projects: Administrative Building Site Support Yard (Expansion), Protective Boat Basin (Berth F202), OHSPER, Fourth Track at Ocean Boulevard, Ocean Boulevard Bicycle Gap Closure, Pier B Street Support Yard, Pier D Street Realignment, Pier S Mixed Use Development, Pier S Shoreline Enhancement, Pier T Improvements, Pier J Reduced Development, and land use changes.

Impact Determination

Types of impacts on vessel traffic from construction and operations of individual projects and land use changes under Alternative 3 would be the same as for the Proposed Plan. However, because Alternative 3 would not include full Pier J Terminal Redevelopment or the Pier W Terminal Development projects that are part of the Proposed Plan, there would be a reduced potential for impacts on vessel traffic from construction or operation of those projects. Any changes to operational vessel activities would be monitored by the COTP and the Marine Exchange via the VTS consistent with current operations and be subject to the standard existing safety precautions governing POLB navigation and pilotage. Therefore, Alternative 3 projects would not result in a change in vessel traffic patterns, traffic volumes, or a change in location that could cause significant environmental effects.

Under Alternative 3, operations associated with the OHSPER project would result in similar impacts on vessel traffic as those associated with the OHSPER project under the Proposed Plan. As impacts would be less than significant, no mitigation is required.

3.14.4 Cumulative Impacts

The geographic scope for cumulative impacts associated with vessel transportation includes the Harbor District and San Pedro Bay.

The significance criteria used for the cumulative analysis are the same as those used for the Proposed Plan in Section 3.14.3.1 (Significance Criteria).

- **VT-1: Result in a change in vessel traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks.**

Vessel traffic levels are highly regulated by the USCG COTP and the Marine Exchange via the VTS to ensure the total number of vessels transiting the Port does not exceed the design capacity of the federal channel limits. Mariners are required to report their position to the COTP and the VTS prior to transiting through the Port. The VTS monitors the positions of all inbound/outbound vessels within the Precautionary Area and the approach corridor traffic lanes. Vessels are required to anchor at the anchorages outside the federal breakwater until receiving COTP authorization to initiate transit into the Port. All recently completed and future projects at the POLB, and the adjacent Port of Los Angeles, involving vessel transportation are contemplated by the PMP for each port. These documents provide for the analysis of future projects and, specifically, the analysis of associated cumulative impacts to ensure that those impacts are less than significant or are mitigated to the level of less than significant. Therefore, the projects listed in Table 2.1-1 would not be expected to cause a significant cumulative impact from vessel transportation activities.

3.14.5 Mitigation Monitoring Program

As no mitigation measures are required to address impacts on vessel transportation, no mitigation monitoring program is required.

3.15 UTILITIES, SERVICE SYSTEMS, AND ENERGY CONSERVATION

This section describes the potential impacts on utilities, service systems, and energy conservation (i.e., electricity, natural gas, and petroleum fuels) that could result from implementation of the Proposed Plan and its alternatives.

3.15.1 Environmental Setting

3.15.1.1 Area of Influence

The area of influence for utilities, service systems, and energy conservation includes existing utilities and services within the Harbor District. Utilities include electricity, natural gas, waste and sewer facilities, stormwater infrastructure, oil pipelines, and solid waste disposal.

3.15.1.2 Setting

Utilities

Electricity

SCE provides electricity to the Harbor District. SCE maintains a network of power stations and substations that supply electricity throughout Southern California and the Port. Existing SCE facilities located in the Port are summarized in Table 3.15-1. Existing electrical demands at the Port primarily support electrified CHE (e.g., cranes), reefers (i.e., refrigerated containers), buildings, OGV shore power, lighting systems, and railyards (e.g., signaling on tracks).

TABLE 3.15-1. EXISTING SCE FACILITIES IN THE PORT

SCE Facility	Maximum Design Capacity	Existing Demand
Pier J Shore Power Wharf Substation	28,000 kVA	24,000 kVA
Pier G East Stevedore Substation	56,000 kVA	52,270 kVA
Pier G West Pier Substation	28,000 kVA	22,700 kVA
Pier T Dock Substation	105,000 kVA	94,100 kVA
Pier A Hanjin Substation	14,000 kVA	4,930 kVA
Pier C Distribution Area	12,959 kVA	8,000 kVA
Pier H Substation	66 kV	66 kV

Source: (POLB 2017, SCE 2016)
Key: kV = kilovolt; kVA = kilovolt-ampere; SCE = Southern California Edison

Natural Gas

The LBER, formerly Long Beach Gas and Oil, provides natural gas to the Harbor District. LBER purchases natural gas from Southern California Gas Company (SoCalGas) and provides it to approximately 500,000 residents and businesses in the City, including the Port (City of Long Beach 2019i). In 2016, LBER supplied a total of 23.7 million cubic feet per day of natural gas to its customers (Southern California Gas and Electric Utilities 2017). Existing natural gas pipelines have the capability of delivering approximately 6,724 million cubic feet per day to Southern California (Southern California Gas and Electric Utilities 2017).

Southern California's natural gas demand is expected to decrease by 0.6 percent per year between 2016 and 2035. This forecasted decline is due to a combination of modest economic growth, California Public Utilities Commission mandated energy efficiency standards and programs, renewable electricity goals, a decline in commercial and industrial demand, and conservation savings. The City's gas use is expected to increase slightly from 8 billion cubic feet in 2016 to 8.4 billion cubic feet in 2035. SoCalGas is expected to increase supplies to LBER from 7 billion cubic feet in 2016 to 7.4 billion cubic feet by 2035 (Southern California Gas and Electric Utilities 2017).

Water

The City of Long Beach Water Department (LBWD) supplies water to the Port and is responsible for supplying, treating, and distributing water to the City. Two sources of potable water (i.e., drinking water) are used by LBWD; groundwater and water purchased from the Metropolitan Water District. In addition, LBWD uses reclaimed water from the Long Beach Water Reclamation Plant as its source for non-potable water (LBWD 2018a).

LBWD is implementing projects to improve water supply and storage. The Long Beach Conjunctive Use Project will improve water supply and storage in the City by maximizing use of the City's underlying groundwater basin. This project includes the installation of four new aquifer storage and recovery units that will allow the City to store and extract up to 13,000 acre-feet of imported water. LBWD is also implementing another conjunctive use project that would allow for the storage of up to 3,600 acre-feet of imported water, increasing potential supply during drought or other emergency conditions (LBWD 2018c).

LBWD is in the preliminary stages of implementing its Recycled Water Expansion Project, which will expand the use of recycled water in the City from 4,000 to 9,000 acre-feet per year (LBWD 2018e). When fully implemented, the project would meet 12 percent of the City's total water demand. The project includes using approximately 1,000 acre-feet of recycled water for oil operations within the Harbor District. In addition, the project would also provide recycled water connections to industrial facilities within the Port.

The LBWD Urban Water Management Plan estimates water demand and supply over a 25-year period. In 2015, the average water demand for the LBWD service area was 55,206 acre-feet. In 2040, total citywide water demands, assuming active water conservation, are estimated to be 59,106 acre-feet. LBWD is expected to have sufficient, reliable supplies to meet projected demand through 2040 (LBWD 2015).

Service Systems

Sewer

LBWD provides wastewater treatment and sewer services to the Port. LBWD operates and maintains approximately 765 miles of sanitary sewer lines that deliver more than 40 mgd to Los Angeles County Sanitation District (LACSD) facilities. Treated wastewater from these facilities is either: 1) used for irrigating parks, golf courses, cemeteries, and athletic fields; 2) used for groundwater basin recharge; or 3) discharged to the Pacific Ocean (LBWD 2018d).

The majority of the City's wastewater is delivered to and treated at the LACSD's Joint Water Pollution Control Plant (LBWD 2018d). The Joint Water Pollution Control Plant is the largest of the LACSD treatment plants and provides advanced primary and partial secondary treatment for 260 mgd, serving most of the City's residents (LBWD 2018a). The remaining portion of the City's wastewater is sent to LACSD's Long Beach Water Reclamation Plant for treatment. The

Long Beach Water Reclamation Plant provides primary, secondary, and tertiary treatment for 25 mgd; approximately 6 mgd of the treated water from the Long Beach Water Reclamation Plant is reused at over 60 sites (LBWD 2018b).

Stormwater

The existing stormwater system at the POLB comprises 11 sub-basins, representing each of the piers (Piers A, A-West, B, C, D, E, F, G, J, S, and T). The collection system includes: approximately 300,000 feet of pipes ranging in size from 6 to 84 inches; approximately 1,700 manholes and catchments; 33 pump stations; and 163 outfalls (POLB 2013). The majority of the Port's stormwater system (i.e., stormwater pipelines, pump stations, manholes, and catch basins) is in good condition (POLB 2013).

The Port's MS4 is regulated by an NPDES permit issued by the RWQCB to the City (CAS004003) (refer to Section 3.7, Hydrology and Water Quality, for additional details). In addition, discharge of stormwater associated with certain types of industrial activities is regulated by the SWRCB under a General Industrial NPDES permit (General Permit) (CAS00001). The POLB Division of Environmental Planning manages the MS4 Program and implements the industrial component of the City of Long Beach MS4 NPDES permit and certain General Permit requirements.

The Port implements a Master Stormwater Program that has been in effect since 1992 and focuses on industrial, construction, and municipal discharges within the Harbor District. The program includes pollution prevention and treatment, water quality monitoring, and educational activities. Under this program, regular inspections and follow-up with Port facilities are conducted to ensure compliance with the Port's industrial stormwater permit. In addition, annual stormwater outfall sampling and reporting are conducted.

Oil Pipelines

The Harbor District overlies the Wilmington Oil Field that includes a number of oil operating areas that are devoted to the continued production of oil. Numerous active and abandoned oil pipelines, wells, and storage tanks are located in the Harbor District. The management of oil activities is the responsibility of LBER. The Port has an MOU with LBER that provides guidelines for ongoing coordination within the Harbor District.

Solid Waste

Existing development in the Harbor District generates solid waste consisting of nonhazardous materials and hazardous materials (e.g., contaminated soils, petroleum byproducts, and storage tank residue). All solid waste generated by existing development must comply with federal, state, and local regulations and codes pertaining to nonhazardous and hazardous solid waste disposal. Port tenants typically contract with private waste haulers for solid waste disposal.

Nonhazardous solid waste is currently disposed of at the SERRF, located at 120 Pier S Avenue, which is operated by LBER. Because SERRF incinerates wastes and recycles metals, capacity is not an issue. Nonhazardous wastes that cannot be sent to SERRF and must be landfilled are transported to Scholl Canyon Landfill, located approximately 32 miles from the Port. In 2015, Scholl Canyon Landfill had an estimated remaining capacity of 3.5 million tons of its 58.9 million ton permitted capacity (LACSD 2017). Scholl Canyon Landfill is owned and operated by the LACSD.

Hazardous materials generated within the Harbor District are hauled to a Class I landfill that accepts hazardous waste for disposal. The closest Class I landfill is the Kettleman Hills facility in Kings County. The facility has capacity limitations, but is the only such facility operating near Southern California. The landfill is seeking approval to expand its hazardous waste landfill to allow several more years of disposal. In addition, the landfill is requesting approval to develop a new hazardous waste landfill that would operate for 24 years after its existing hazardous landfill reaches capacity.

Energy Conservation

Electricity

Electricity, a consumptive utility, is a manufactured resource. The production of electricity requires the consumption or conversion of natural resources, such as water, wind, oil, gas, coal, solar, geothermal, or nuclear resources, into energy. The electricity delivery system has several components, including substations and transformers. Electricity is distributed through a network (power grid) of transmission and distribution lines. Conveyance of electricity through transmission lines is typically responsive to market demands.

Natural Gas

Natural gas is a combustible mixture of simple hydrocarbon compounds (primarily CH_4) that is used as a fuel. Natural gas consumed in California is obtained from natural reservoirs, mainly located outside the state, and delivered through high-pressure transmission pipelines. The natural gas transportation system is a nationwide network, so resource availability is typically not an issue. Natural gas satisfies almost one-third of the state's total energy requirements and is used in generating electricity, space and water heating, cooking, and industrial processes, and as a transportation fuel.

Natural gas is supplied to the Port by LBER; 80 percent of the natural gas used by the Port is provided by SoCalGas and 20 percent is provided by California Resources Corporation Tidelands. Historically, natural gas use at the Port has been minimal. Recently, however, portions of the drayage truck fleet have converted from diesel fuel to natural gas.

Petroleum Fuels

According to the California Energy Commission (CEC), transportation accounts for nearly 40 percent of California's total energy consumption and approximately 39 percent of the state's GHG emissions (CEC 2017). In 2017, California consumed approximately 15.8 billion gallons of gasoline (CEC 2017). Petroleum fuels account for over 90 percent of California's transportation energy sources. However, the state is now working on developing flexible strategies to reduce petroleum use. Over the last decade California has implemented several policies, rules, and regulations to improve vehicle efficiency, increase the development and use of alternative fuels, reduce air pollutants and GHGs from the transportation sector, and reduce VMT. According to the State Board of Equalization, gasoline consumption declined by 8.4 percent between 2005 and 2011 (State Board of Equalization 2013). The State Board of Equalization predicts that demand for gasoline will continue to decline over the next 10 years and the use of alternative fuels, such as natural gas, biofuels, and electricity will increase.

Port operations use petroleum fuels for rail and truck operations and for worker commute trips to and from the Port.

3.15.2 Regulatory Setting

Each public utility agency and private utility provider, including LBWD, SoCalGas, SCE, and LACSD, is directed by internal standards and policies that guide the provision of services to their customers. The CEC regulates the provision of natural gas and electricity to SCE and SoCalGas within the state.

3.15.2.1 Federal Regulations

Corporate Average Fuel Economy Standards

Under the Energy Policy and Conservation Act (EPCA), the National Highway Traffic Safety Administration (NHTSA), on behalf of the USDOT, has authority to set fuel economy standards for on-road vehicles. The federal Corporate Average Fuel Economy (CAFE) standard determines the fuel efficiency of certain vehicle classes in the U.S. EPCA requires that the CAFE standards for each model year be set at the maximum feasible level. In determining that level, NHTSA must consider technological feasibility, economic practicability, the effect of other motor vehicle standards of the government on fuel economy, and the need of the U.S. to conserve energy. Furthermore, NHTSA must set the model year 2011–2020 CAFE standards high enough to ensure that the industry-wide average of all new passenger cars and light trucks, combined, is not less than 35 miles per gallon by model year 2020.

On May 7, 2010, USEPA and NHTSA finalized a joint rule to establish a national program consisting of new standards for model year 2012 through 2016 light-duty vehicles that will improve fuel economy (Federal Register 75, No. 88: 25323–25728). NHTSA is finalizing CAFE standards under the EPCA.

3.15.2.2 State Regulations

Assembly Bill 628

AB 628, signed into law October 11, 2013, requires a harbor or port district to develop an energy management plan to be eligible for California Infrastructure Development Bank funding of projects that promote economic development. AB 628 requires a port to work in collaboration with an electrical corporation, gas corporation, or publicly owned electric utility to develop an energy management plan.

California Code of Regulations Title 24

CCR Title 24, Part 6 (California's Energy Efficiency Standards for Residential and Nonresidential Buildings) was first established in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods. The latest amendments to the energy efficiency standards were made in 2008 and became effective on August 1, 2009. Energy-efficient buildings require less electricity, natural gas, and other fuels.

The ongoing compliance with air quality and GHG regulations, plans, and policies described in Sections 3.2 (Air Quality and Health Risk) and 3.16 (Global Climate Change), respectively, also contributes indirectly to reductions in energy consumption or increases in energy efficiency.

California Urban Water Management Plan

The California Urban Water Management Planning Act requires urban water suppliers to initiate planning strategies that make every effort to ensure the appropriate level of reliability in its water service, sufficient to meet the needs of its various customers during normal, dry, and multiple dry-water years. The LBWD would be the water supplier, and as such, the Proposed Plan would be subject to LBWD's Urban Water Management Plan, which was prepared pursuant to the California Urban Water Management Planning Act.

California Solid Waste Reuse and Recycling Access Act

The California Solid Waste Reuse and Recycling Access Act of 1991 requires each jurisdiction to adopt an ordinance by September 1, 1994, requiring any "development project" for which an application for a building permit is submitted to provide an adequate storage area for collection and removal of recyclable materials. The LBMC Title 18, Section 18.67 sets forth requirements of the Construction and Demolition Recycling Program. The Port implements beneficial reuse of construction-generated materials and wastes in accordance with the City of Long Beach Construction and Demolition Recycling Program as part of its Port-wide sustainable development practices.

California Integrated Waste Management Act

AB 939 was designed to focus on source reduction, recycling and composting, and environmentally safe landfilling and transformation activities. This act required cities and counties to divert 25 percent of all solid waste from landfills and transformation facilities by 1995, and 50 percent by year 2000.

Senate Bill 1389

SB 1389 (PRC Sections 25300–25323) requires the development of an integrated plan for electricity, natural gas, and transportation fuels. The CEC must adopt and transmit to the Governor and Legislature an Integrated Energy Policy Report every 2 years. The latest report, the 2013 Integrated Energy Policy Report, addresses progress toward the state's 2050 goals.

3.15.2.3 Local Regulations

Long Beach Water Department Urban Water Management Plan

Consistent with the California Urban Water Management Planning Act, LBWD prepared an Urban Water Management Plan to describe how water resources are used and to propose strategies that would be used to meet the City's current and future water needs. To meet the objectives of the California Urban Water Management Planning Act, the LBWD Urban Water Management Plan focuses primarily on water supply reliability and water use efficiency measures. The California Urban Water Management Planning Act requires water suppliers to develop water management plans every 5 years.

Port of Long Beach Green Port Policy

Adopted in January 2005, the Green Port Policy establishes a framework for enhancing wildlife habitat, improving air and water quality, cleaning soil and sediments, and creating a sustainable Port. The Green Port Policy is intended to protect the community from adverse environmental impacts of Port operations, promote sustainability, use best available technology to address environmental impacts, and educate the community. The Green Port Policy directs the Port to integrate sustainable practices into Port development.

Port of Long Beach Energy Initiative Roadmap

The Port's Energy Initiative Roadmap will improve Port-wide energy management and infrastructure to provide system resiliency, create long-term cost stability, provide value for Port customers, and create new business opportunities, while achieving the Port's environmental and regulatory mandates. In 2013, the Port adopted an energy policy with objectives to reduce reliance on limited natural resources, work with customers on mutually beneficial energy choices and infrastructure, promote energy conservation and efficiency, optimize generation of alternative and renewable energy, foster innovative energy technologies, and ensure a safe and reliable energy supply to support continuity of Port operations (POLB 2017).

The Energy Initiative Roadmap describes the rationale, goals, and process by which the Port will move forward to ensure that the energy systems that will power the "Green Port of the Future" can operate reliably and competitively. The roadmap provides near-term (1-year), mid-term (2–5 years), and long-term (5+ years) priorities. It is intended to serve as a discussion document on the high-level approach for implementing energy conservation and power generation initiatives and securing feedback and guidance from the BHC and other advisors on the next steps.

3.15.3 Impacts and Mitigation Measures

3.15.3.1 Significance Criteria

Criteria for determining the significance of impacts on utilities, service systems, and energy conservation are based on the 2019 CEQA Guidelines, Appendix G (Environmental Checklist), and have been modified as necessary to reflect Port operations within a highly urbanized, industrial complex. Impacts during construction or operation would be considered significant if the Proposed Plan would:

- **UTIL-1:** Require or result in the relocation, construction of new, or expansion of, water, wastewater, storm drains, natural gas, electrical utility lines or facilities, or oil lines, the construction or relocation of which could cause significant environmental effects;
- **UTIL-2:** Exhaust or exceed existing water supply, wastewater treatment, electrical power, or landfill capacities;
- **UTIL-3:** Result in potentially significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation; and/or
- **UTIL-4:** Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

3.15.3.2 Assessment Methodology

Utility service providers were contacted to obtain current information including location of existing lines, ancillary facilities, and capacities. Assessment of potential impacts on utilities and service systems (water, sewer, stormwater, and solid waste) and energy providers (electricity and natural gas) varies depending on the utility but generally includes a comparison of the projected demand against existing and anticipated resource supplies and/or conveyance and storage capacities.

Energy conservation impacts were evaluated by addressing the consumption of energy resources (i.e., electricity, natural gas, and petroleum fuels) during construction and operations. The demands for energy resources attributable to the Proposed Plan were assessed to determine whether the current and planned electrical, natural gas, and petroleum fuel supplies are adequate to meet the Proposed Plan's forecasted energy consumption. The analysis includes an estimate of energy resources consumed by proposed construction and operational activities.

3.15.3.3 Proposed Plan

Impact UTIL-1: Construction and operations would not require or result in the relocation, construction of new, or expansion of, water, wastewater, storm drains, natural gas, electrical utility lines or facilities, or oil lines, the construction or relocation of which could cause significant environmental effects.

<u>Impact Determination</u>

Construction

Construction activities associated with most of the Proposed Plan projects (i.e., Administrative Building Site Support Yard (Expansion), Protective Boat Basin (Berth F202), Fourth Track at Ocean Boulevard, Pier D Street Realignment, Pier J Terminal Redevelopment, Pier S Mixed Use Development, Pier T Improvements, and Pier W Terminal Development) and land use changes would require demolition of existing and/or construction of new utility infrastructure (e.g., water and wastewater mains/lines, storm drains, and electrical lines). Demolition/relocation and construction of new underground utility mains and lines could require temporary interruptions of service as new lines are put into service and old ones are removed/abandoned in-place. These interruptions would be scheduled to minimize inconvenience to adjacent tenants and phased to avoid interfering with Port operations. New utility infrastructure would be designed and constructed in accordance with utility provider requirements, current design standards, and City code requirements. Demolition and/or relocation of oil pipelines and wells would be coordinated with the owners of the oil pipelines/wells. Therefore, construction activities would not result in the relocation, construction, or expansion of utility lines or infrastructure that would cause significant environmental effects.

Construction activities associated with the Ocean Boulevard Bicycle Gap Closure, Pier B Street Support Yard, and Pier S Shoreline Enhancement are not anticipated to require construction and/or expansion of utility infrastructure within the Harbor District.

Implementation of the OHSPER project and modifying the existing use of the WASSS to allow placement of contaminated material in the Outer Harbor would not result in the construction and/or expansion of utility infrastructure and impacts would be less than significant.

Operations

Construction and/or expansion of utility infrastructure could be required to accommodate operation of the Administrative Building Site Support Yard (Expansion), Pier J Terminal Redevelopment, Pier S Mixed Use Development, Pier T Improvements, Pier W Terminal Development, and land use changes. Proposed container and non-container terminal operations, including providing shore power for vessels at berth and connections to buildings, railyards, and other terminal support structures (e.g., lighting) could require new connections, upgrades, and/or minor modifications (tie-ins) to existing utility infrastructure. The Port would coordinate with utility providers to obtain any necessary permits for the Proposed Plan projects. Construction of utility lines and infrastructure would be in conformance with current design standards and would adequately accommodate the demands of the Proposed Plan projects. Therefore, operational activities would not result in the relocation, construction, or expansion of utility lines or infrastructure that would cause significant environmental effects.

Operational activities associated with the Protective Boat Basin (Berth F202), Fourth Track at Ocean Boulevard, Ocean Boulevard Bicycle Gap Closure, Pier B Street Support Yard, Pier D

Street Realignment, and Pier S Shoreline Enhancement projects are not anticipated to require construction and/or expansion of utility infrastructure within the Harbor District.

Implementation of the OHSPER project and modifying the existing use of the WASSS to allow placement of contaminated material in the Outer Harbor would not result in the construction and/or expansion of utility infrastructure and impacts would be less than significant.

As construction and operations would not require or result in the relocation, construction of new, or expansion of, water, wastewater, storm drains, natural gas, electrical utility lines or facilities, or oil lines that would cause significant environmental effects, no mitigation is required. Impacts would be less than significant.

Impact UTIL-2: Construction and operations would not exhaust or exceed existing water supply, wastewater treatment, or landfill capacities.

Impact Determination

Construction

Construction and demolition activities would generate debris that would require disposal in a landfill. Construction debris is one of the greatest individual contributors to solid waste capacity. Demolition of existing structures would be required to accommodate construction of the Proposed Plan projects, including the Administrative Building Site Support Yard (Expansion), Protective Boat Basin (Berth F202), Fourth Track at Ocean Boulevard, Ocean Boulevard Bicycle Gap Closure, Pier D Street Realignment, Pier J Terminal Redevelopment, Pier S Mixed Use Development, Pier S Shoreline Enhancement, Pier T Improvements, Pier W Terminal Development, and land use changes. In general, existing infrastructure to be removed would include buildings/structures, fences, reefer systems, railroad tracks, asphalt pavement, and wharf materials. Site improvements necessary for the Proposed Plan projects would also require demolition of underground oil wells and pipelines and utility lines (including storm drains, sewer, water, electrical, and natural gas) within the Port.

Construction workers would create increased demands on water supply, solid waste disposal, and wastewater treatment. However, as utility demands during construction of the Proposed Plan projects would be intermittent and temporary, these amounts would be considered a nominal percentage of the total demand on municipal utility capacities. In addition, construction of the Proposed Plan projects is not anticipated to occur simultaneously due to operational, capital planning, and budgetary constraints; permitting restrictions; and environmental credit requirements associated with fill. Therefore, construction worker activities would not substantially contribute to impacts on utilities/service systems.

Though not quantifiable at this time, the volume of construction waste associated with construction of the Proposed Plan projects would be substantially reduced because of applicable regulatory requirements and the City’s Construction and Demolition Recycling Program, which require compliance with waste reduction measures throughout construction activities. In addition, Proposed Plan projects would be required to document the amount of waste generated during construction activities to ensure adequate capacity is available at the appropriate disposal sites.

Permanent operation of the Pier B Street Support Yard would not require construction activities and, therefore, would not exhaust or exceed existing utility capacities (e.g., water supply, wastewater treatment, and/or landfill).

Implementation of the OHSPER project and modifying the existing use of the WASSS to allow placement of contaminated material in the Outer Harbor would not exhaust or exceed existing water supply, wastewater treatment, electrical power, or landfill capacities. Impacts would be less than significant.

Operations

Operations associated with the Administrative Building Site Support Yard (Expansion), Fourth Track at Ocean Boulevard, Protective Boat Basin (Berth F202), Pier J Terminal Redevelopment, Pier S Mixed Use Development, Pier T Improvements, and Pier W Terminal Development projects would generate increased demands on utilities and service systems. Container and non-container terminal operations (e.g., container/chassis storage, peel-off yards, bulk and break bulk terminals, auto storage, or other terminal support uses) would primarily consist of cargo loading and storage activities that would not generate substantial demands on water supply and wastewater treatment services, or solid waste requiring disposal in a landfill. Proposed operations would generate increased demands on electricity; however, electrical power demands are not anticipated to exhaust or exceed existing supplies and would not be substantial relative to the regional electrical supply. Utility demand assessments for the Proposed Plan projects would be conducted during subsequent environmental review when sufficient data is available.

Operational activities associated with the Ocean Boulevard Bicycle Gap Closure, Pier B Street Support Yard, Pier D Street Realignment, and Pier S Shoreline Enhancement projects are not anticipated to exhaust or exceed existing water supply, wastewater treatment, electrical power, or landfill capacities.

Implementation of the OHSPER project and modifying the existing use of the WASSS to allow placement of contaminated material in the Outer Harbor would not exhaust or exceed existing water supply, wastewater treatment, electrical power, or landfill capacities. Impacts would be less than significant.

As construction and operations would not exhaust or exceed existing water supply, wastewater treatment, or landfill capacities, no mitigation is required. Impacts would be less than significant.

Impact UTIL-3: Construction and operations would not result in potentially significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources.

<u>Impact Determination</u>

Construction

Construction activities associated with the Proposed Plan projects, including the Administrative Building Site Support Yard (Expansion), Protective Boat Basin (Berth F202), Fourth Track at Ocean Boulevard, Ocean Boulevard Bicycle Gap Closure, Pier D Street Realignment, Pier J Terminal Redevelopment, Pier S Mixed Use Development, Pier S Shoreline Enhancement, Pier T Improvements, and Pier W Terminal Development, and land use changes would include both direct and indirect energy consumption. Energy, specifically diesel fuel and electricity, would be directly used during construction of the Proposed Plan projects. Diesel fuel would be used to power on-site construction equipment and off-site construction vehicles. Electricity would be used for electrical construction equipment.

Energy expenditures during construction activities would be short in nature, occurring periodically during the construction phases of the Proposed Plan projects. Construction activities associated with the Proposed Plan projects would be planned and sequenced to maximize the efficiency of construction, reducing the potential for energy resources to be used inefficiently. Proposed Plan project specifications would include energy efficiency requirements and POLB Engineering (Construction Management Department) is responsible for inspection, management, and oversight of construction projects to ensure specifications are followed. In addition, emission controls for construction trucks and equipment would be implemented to limit air pollutant emissions per **Mitigation Measures AQ-1, AQ-2, and AQ-3**, which would indirectly contribute to energy conservation during construction. In addition, energy efficiency analyses would be conducted for the Proposed Plan projects during subsequent environmental review when sufficient data is available.

Permanent operation of the Pier B Street Support Yard would not require construction activities and, therefore, would not result in the wasteful and/or inefficient consumption of energy resources.

Implementation of the OHSPER project and modifying the existing use of the WASSS to allow placement of contaminated material in the Outer Harbor would not require construction activities that could result in the wasteful and/or inefficient consumption of energy resources. Impacts would be less than significant.

Operations

Operations associated with the Administrative Building Site Support Yard (Expansion), Fourth Track at Ocean Boulevard, Pier S Mixed Use Development, Pier J Terminal Redevelopment, Pier T Improvements, Pier W Terminal Development projects, and land use changes would increase energy consumption within the Port. Electricity and natural gas demands would be related to industrial uses, including facility operations, site and security lighting, and general site maintenance. Petroleum fuel would be required to support container and non-container terminal operations, including vessel loading and unloading, cargo storage activities, intermodal railyard operations, and trucking to off-site locations (e.g., warehouses and railyards). Operational energy consumption by these projects would result in substantial increases in energy, while supporting a substantially greater level of Port operations. These projects would generally utilize modern technologies and equipment, which would offset increases in energy consumption due to greater efficiency of new technologies. In addition, new equipment would be required to meet California energy efficiency standards, including Title 24 and City building code requirements.

Operational activities associated with the Protective Boat Basin (Berth F202), Ocean Boulevard Bicycle Gap Closure, Pier B Street Support Yard, Pier D Street Realignment, and Pier S Shoreline Enhancement projects would include a small boat basin and multi-use dock, support yard (chassis, empties, or peel-off) activities, bike path, street realignment, and a retrofitted seawall. These activities would generate negligible additional demands on energy resources (i.e., electricity, natural gas, and petroleum fuels) and would not result in significant environmental impacts associated with the wasteful and/or inefficient consumption of energy resources.

Implementation of the OHSPER project and modifying the existing use of the WASSS to allow placement of contaminated material in the Outer Harbor would not result in the wasteful and/or inefficient consumption of energy resources. Impacts would be less than significant.

As construction and operations would not result in potentially significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources, no mitigation is required. Impacts would be less than significant.

Impact UTIL-4: Construction and operations would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

Impact Determination

Construction and operations associated with the Administrative Building Site Support Yard (Expansion), Protective Boat Basin (Berth F202), Fourth Track at Ocean Boulevard, Ocean Boulevard Bicycle Gap Closure, Pier D Street Realignment, Pier J Terminal Redevelopment, Pier S Mixed Use Development, Pier S Shoreline Enhancement, Pier T Improvements, Pier W Terminal Development, and land use changes would be conducted in accordance with the Port's Green Port Policy and Energy Initiative Roadmap that require implementation of energy conservation techniques and technologies. In addition, all new buildings would be subject to the provisions stipulated in the Port's Sustainable Design Guidelines and City's Green Building Policy that require implementation of LEED design standards, which would reduce building energy consumption within the Port. Proposed Plan projects would also improve operational efficiencies by upgrading equipment and new equipment installed would be more efficient than the older equipment currently used at the project sites

Permanent operation of the Pier B Street Support Yard would not require construction activities and, therefore, would not conflict with or obstruct with a renewable energy or energy efficiency plan.

Implementation of the OHSPER project and modifying the existing use of the WASSS to allow placement of contaminated material in the Outer Harbor would not require construction or operations that could conflict with or obstruct with a renewable energy or energy efficiency plan. Impacts would be less than significant.

As construction and operations would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency, no mitigation is required. Impacts would be less than significant.

3.15.3.4 Alternative 1 (No Plan Alternative)

Alternative 1 (No Plan Alternative) considers what would reasonably occur if the Port did not update the PMP to include updates to the planning districts and allowable land and water use designations within the Harbor District. Alternative 1 includes projects that are 1) consistent with the 1990 PMP as amended, 2) may or may not have been evaluated in a final CEQA document, and/or 3) could be implemented without approval of the Proposed Plan. Alternative 1 includes the following projects: Administrative Building Site Support Yard (Expansion), Fourth Track at Ocean Boulevard, Ocean Boulevard Bicycle Gap Closure, Pier B Street Support Yard, Pier D Street Realignment, Pier S Mixed Use Development, and Pier S Shoreline Enhancement. This alternative also includes the Pier T Echo Support Yard project, which would construct a 17-acre support yard (chassis, empties, or peel-off) that would serve the Pier T container terminal. In addition, use of the WASSS would continue as currently permitted (i.e., placement and reuse of clean sediments).

Impact Determination

Impacts on utilities, service systems, and energy conservation from construction and operation of Alternative 1 projects would be similar but less than those identified under the Proposed Plan because the extent of construction activity and new structures and infrastructure would be reduced with elimination of container terminal development on Piers T, W, and J, and the Protective Boat Basin (Berth F202). As with the Proposed Plan, implementation of Alternative 1 would result in less than significant impacts and no mitigation is required. Even though the impacts from both Alternative 1 and the Proposed Plan would be less than significant, from a programmatic perspective, the impacts from Alternative 1 would be comparatively less in magnitude due to the reduced construction and operational activities.

Under Alternative 1, continued use of the WASSS as currently permitted would result in similar potentials for impacts on utilities, service systems, and energy conservation as those associated with the OHSPER project under the Proposed Plan. As impacts would be less than significant, no mitigation is required.

3.15.3.5 Alternative 2 (No Terminal Development)

Alternative 2 (No Terminal Development) is similar to the Proposed Plan and would include updates to the planning districts and allowable land and water use designations in the Harbor District. However, Alternative 2 would not include terminal development projects at Pier T, Pier W, or Pier J. Alternative 2 would include the following projects: Administrative Building Site Support Yard (Expansion), Protective Boat Basin (Berth F202), OHSPER, Fourth Track at Ocean Boulevard, Ocean Boulevard Bicycle Gap Closure, Pier B Street Support Yard, Pier D Street Realignment, Pier T Echo Support Yard, Pier S Mixed Use Development, Pier S Shoreline Enhancement, and land use changes.

Impact Determination

Impacts on utilities, service systems, and energy conservation from construction and operation of Alternative 2 projects and land use changes would be similar but less than those identified under the Proposed Plan because the extent of construction activity and new structures and infrastructure would be reduced with the elimination of container terminal development on Piers T, W, and Pier J. As with the Proposed Plan, implementation of Alternative 2 would result in less than significant impacts and no mitigation is required. Even though the impacts from both Alternative 2 and the Proposed Plan would be less than significant, from a programmatic perspective, the impacts from Alternative 2 would be comparatively less in magnitude than the Proposed Plan due to the differences in construction and operational activities.

Under Alternative 2, operations associated with the OHSPER project would result in similar impacts on utilities, service systems, and energy conservation as those associated with the OHSPER project under the Proposed Plan. As impacts would be less than significant, no mitigation is required.

3.15.3.6 Alternative 3 (Reduced Terminal Development)

Alternative 3 (Reduced Terminal Development) is similar to the Proposed Plan and would include updates to the planning districts and allowable land and water use designations in the Harbor District. Under Alternative 3, development of the Pier J terminal would be reduced compared to the Pier J Terminal Redevelopment under the Proposed Plan. The Pier J Reduced Development would include dredging and filling the 22-acre triangle, cutting a 9-acre notch, extending the north wharf to the east, and relocating the existing rail line and yard to Pier J South. No development of a new Pier W terminal would occur. Alternative 3 would include the following projects: Administrative Building Site Support Yard (Expansion), Protective Boat Basin (Berth F202), OHSPER, Fourth Track at Ocean Boulevard, Ocean Boulevard Bicycle Gap Closure, Pier B Street

Support Yard, Pier D Street Realignment, Pier S Mixed Use Development, Pier S Shoreline Enhancement, Pier T Improvements, Pier J Reduced Development, and land use changes.

Impact Determination

Impacts on utilities, service systems, and energy conservation from construction and operation of Alternative 3 projects and land use changes would be similar but less than those identified under the Proposed Plan because the extent of construction activity and new structures and infrastructure would be reduced with the elimination of the Pier W container terminal and reduced development on Pier J. As with the Proposed Plan, implementation of Alternative 3 would result in less than significant impacts and no mitigation is required. Even though the impacts from Alternative 3 would be less than significant, from a programmatic perspective, the impacts from Alternative 3 would be comparatively less in magnitude than the Proposed Plan due to the differences in construction and operational activities.

Under Alternative 3, operations associated with the OHSPER project would result in similar impacts on utilities, service systems, and energy conservation as those associated with the OHSPER project under the Proposed Plan. As impacts would be less than significant, no mitigation is required.

3.15.4 Cumulative Impacts

This section evaluates the potential for the Proposed Plan projects, together with other past, present, and reasonably foreseeable future projects, to make a cumulatively considerable contribution to a significant cumulative impact on utilities, service systems, and energy conservation. The region of influence for cumulative impacts on utilities, service systems, and energy conservation is the same as the analysis presented in Section 3.15.1.1 (Area of Influence), which includes existing utilities and services within the Harbor District. The significance criteria used for the cumulative analysis are the same as those used for the Proposed Plan and alternatives in Section 3.15.3.1 (Significance Criteria).

- **UTIL-1: Require or result in the relocation, construction of new, or expansion of, water, wastewater, storm drains, natural gas, electrical utility lines or facilities, or oil lines, the construction or relocation of which could cause significant environmental effects.**

Many of the related projects would require demolition of existing and/or construction of new utility infrastructure (Table 2.1-1). New utility infrastructure would be designed and constructed in accordance with utility provider requirements, current design standards, and municipal code requirements. New utility lines and infrastructure would be sized to adequately accommodate the demands of the related projects. Agencies would coordinate with utility providers to obtain any necessary permits for the related projects. Cumulative impacts associated with the construction and/or expansion of utility infrastructure for the reasonably foreseeable related projects would be less than significant. The Proposed Plan's contribution to this cumulative impact would be minimal because construction and operation of the Proposed Plan projects and land use changes would adhere to utility provider requirements, municipal code regulations, and current design standards, and new infrastructure would be adequately sized to meet the project demands. In addition, the Proposed Plan projects and land use changes would not result in the relocation, construction, or expansion of utility lines or infrastructure that would cause significant environmental effects. Therefore, the Proposed Plan's contribution to cumulative impacts on utilities and service systems would be less than significant.

- **UTIL-2: Exhaust or exceed existing water supply, wastewater treatment, electrical power, or landfill capacities.**

Construction and operation of the reasonably foreseeable related projects would generate increased demands on utilities and service systems. Several of the related projects listed in Table 2.1-1 would generate additional temporary and permanent employees that would result in additional demand on utilities and service systems, including increased generation of solid waste and wastewater treatment, or through consumption of water, electricity, or natural gas. Due to the number of related projects that would place additional demands on utilities and service systems, potentially significant cumulative impacts could occur. The Proposed Plan's contribution to cumulative impacts on utility demands would be minimal. The Proposed Plan projects and land use changes would not result in a substantial increase in demand for utilities and service systems, and supply is generally sufficient for the other future related projects. Therefore, the Proposed Plan would not result in a cumulatively considerable contribution to a significant cumulative impact on utilities and service systems.

- **UTIL-3: Result in potentially significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation.**

Electricity

Buildout of the related projects in SCE's service area would increase electricity consumption during construction and operations and, thus, cumulatively increase the need for energy supplies and infrastructure capacity, such as new or expanded energy facilities. The CEC estimates that electricity consumption within the SCE planning area was approximately 110,000 gigawatt hours in 2018 and will be approximately 130,000 gigawatt hours by 2030 (CEC 2018a).

Although future Port development would result in the irreversible use of renewable and non-renewable electricity resources during construction and operation of the Proposed Plan projects, which could limit future availability, the use of such resources would be on a relatively small scale and would be consistent with growth expectations for SCE's service area. Furthermore, similar to the Proposed Plan, during construction and operation, other related projects would be expected to incorporate energy conservation features, comply with applicable regulations including the State of California Title 24 energy standards, and incorporate mitigation measures. Therefore, the Proposed Plan would not result in a cumulatively considerable contribution to a significant cumulative impact from electricity consumption.

Natural Gas

Operations of the related projects in SoCalGas' service area are expected to increase natural gas consumption and, thus, cumulatively increase the need for natural gas supplies and infrastructure capacity. The CEC estimates natural gas consumption within SoCalGas' planning area was about 7,500 million therms in 2016 and will increase to approximately 8,000 million therms in 2030 (CEC 2018a). SoCalGas' forecasts take into account projected population growth and development based on local and regional plans. Although future development projects would result in the irreversible use of natural gas resources, which could limit future availability, the use of such resources would be on a relatively small scale and would be consistent with regional and local growth expectations for SoCalGas' service area. Furthermore, other future development projects would be expected to incorporate energy conservation features, comply with applicable regulations, and implement mitigation measures. Therefore, the Proposed Plan would not result in a cumulatively considerable contribution to a significant cumulative impact related to natural gas supplies.

Petroleum Fuel

The related projects and other forecasted growth in Southern California would contribute to overall population and economic growth in California. Although California's population is expected to increase, gasoline demand is projected to decline from approximately 15.8 billion gallons in 2017 to between 12.3 and 12.7 billion gallons in 2030, an approximately 20 percent reduction (CEC 2017). The anticipated decline is related to an increase in vehicle electrification and high fuel economy for vehicles. Diesel demands are anticipated to increase from approximately 3.7 billion gallons in 2015 to an estimated 4.7 billion gallons in 2030 (CEC 2017).

When combined with related projects, the Proposed Plan would contribute to a cumulative increase in consumption of gasoline and diesel. However, the Proposed Plan projects are anticipated to account for a negligible percentage of existing transportation-related energy consumption in California. Furthermore, other related projects would likewise be anticipated to represent a very small portion of overall demand.

Petroleum fuels account for over 90 percent of California's transportation energy sources. Over the last decade, California has implemented several policies, rules, and regulations to improve vehicle efficiency, increase the development and use of alternative fuels, and reduce VMT, which reduces reliance on petroleum fuels.

The CEC predicts that demand for gasoline will continue to decline over the next 10 years and demand for diesel fuel will increase slightly. Other future development projects would be expected to reduce VMT by encouraging the use of alternative modes of transportation and other project features that promote the reduction of VMT. Thus, while there would be an increase in consumption of petroleum fuels, the Proposed Plan would not result in a cumulatively considerable contribution to a significant cumulative impact related to petroleum fuel supplies.

- **UTIL-4: Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.**

Several of the related projects would require construction and/or demolition activities (Table 2.1-1). Construction and operation of related projects in the Harbor District would be conducted in accordance with the Port's Green Port Policy and Energy Initiative Roadmap that require implementation of energy conservation techniques and technologies. New buildings would be LEED-certified, which would further reduce energy consumption within the Harbor District. Several of the related projects would also improve operational efficiencies by upgrading equipment, which would be more efficient than the older equipment currently used at those project sites. The Proposed Plan's contribution to this cumulative impact would be minimal because construction and operation of the Proposed Plan projects and land use changes would adhere to the Port's Green Port Policy and Energy Initiative Roadmap energy conservation requirements, ensure new buildings are LEED-certified, and upgrade existing equipment with more energy-efficient technologies. Therefore, the Proposed Plan's contribution to cumulative impacts on renewable energy and energy efficiency plans would be less than significant.

3.15.5 Mitigation Monitoring Program

As no mitigation measures are required to address impacts on utilities, service systems, and energy conservation, no mitigation monitoring program is required.

3.16 GLOBAL CLIMATE CHANGE

This section describes the potential impacts on global climate change that could result from implementation of the Proposed Plan and its alternatives. This section also describes the types of GHG emissions, the current scientific understanding of global climate change, observations and predictions of SLR, and regulations that would apply to GHGs emitted from activities associated with the Proposed Plan and its alternatives.

3.16.1 Environmental Setting

It is well documented that the earth's climate has fluctuated throughout its history. However, scientific evidence now indicates a correlation between increasing global temperatures over the past century and the worldwide proliferation of GHG emissions by mankind.

Global climate change is expressed as global changes in the average weather of the earth, as measured by changes in wind patterns, storms, precipitation, and temperature. Global climate change is predicted to produce negative environmental, economic, and social consequences across the globe and, in turn, would manifest as impacts on resources and ecosystems in California.

This section evaluates the potential for effects to global climate change from GHG emissions under the Proposed Plan. Although global climate change could affect a variety of environmental conditions in the future, SLR is the condition that has the greatest potential to affect the Port region. SLR is defined as the change in global MSL over time. Therefore, this section also includes an assessment of how future predictions of SLR would potentially affect operation of the Proposed Plan.

3.16.1.1 GHG Emissions and Effects

GHGs trap heat in the atmosphere and are emitted from both natural processes and human activities. Examples of GHGs produced both by natural processes and human activity include carbon dioxide (CO_2), CH_4, and nitrous oxide (N_2O). Examples of GHGs emitted through human activities alone include fluorinated gases and sulfur hexafluoride (SF_6). The natural balance of GHGs in the atmosphere regulates the earth's temperature; without this natural greenhouse effect, the earth's surface would be approximately 60 °F cooler (USGCRP 2018). However, emissions from fossil fuel combustion by humans and other industrial activities have elevated the concentration of GHGs in the atmosphere to amounts that exceed natural levels.

Numerous studies document the recent trend of rising atmospheric concentrations of CO_2. The longest continuous record of CO_2 monitoring extends back to 1958 (Keeling 1960, Scripps Institution of Oceanography 2019). These data show that atmospheric CO_2 levels have risen an average of 1.6 ppm per year over the last 60 years (NOAA 2019). As of 2018, CO_2 levels are approximately 40 percent higher than the highest levels estimated for the 800,000 years preceding the industrial revolution, as determined from CO_2 concentrations analyzed from air bubbles in Antarctic ice core samples (USGCRP 2018).

Recent observed environmental changes due to global warming include rising temperatures, shrinking glaciers and sea ice, thawing permafrost, a lengthened growing season, and shifts in plant and animal ranges (IPCC 2014, USGCRP 2018, State of California 2019a).

The most recent assessment of climate change impacts in California conducted by the State of California (California's Fourth Climate Change Assessment or Fourth Assessment) predicts that temperatures will increase by 5.6°F or 8.8°F by 2100, based on scenarios of moderate GHG emission reductions from current levels or a continuation of current GHG emission levels (business as usual) (Representative Concentration Pathways [RCP] 4.5 and 8.5 scenarios, respectively, as developed in the Intergovernmental Panel on Climate Change Fifth Assessment Report) (Bedsworth, et al. 2018). Predictions of long-term negative environmental impacts in California include exacerbation of air quality problems, a substantial reduction in potential municipal water supply from the Sierra snowpack, SLR that would displace coastal development, an increase in wildfires, damage to ecosystems and infrastructure, reductions in agricultural production, and an increase in the incidences of human health problems (Bedsworth, et al. 2018).

The State of California and USEPA have identified six GHGs generated by human activity that are believed to be the primary contributors to man-made global warming: CO_2, CH_4, N_2O, hydrofluorocarbons (HFCs), perfluorocarbons, and SF_6. Of these, CO_2, CH_4, and N_2O are GHGs of interest in this analysis, as only minor amounts of HFCs, perfluorocarbons, and SF_6 would be emitted by proposed activities.

Each GHG has a global warming potential (GWP), which is its ability to trap heat in the atmosphere. By convention, CO_2 is assigned a GWP of one. In comparison, CH_4 has a GWP of 25, which means that it has a global warming effect 25 times greater than CO_2 on an equal-mass basis over a 100-year time horizon. To account for GWP, GHG emissions are often reported as carbon dioxide equivalent (CO_2e). CO_2e is calculated by multiplying each GHG emission by its GWP and adding the results together to produce a single, combined emission rate representing all GHG emissions. This PEIR uses GWPs from the Intergovernmental Panel on Climate Change Fourth Assessment Report (IPCC 2007), which is consistent with those used in the POLB 2017 Air Emissions Inventory (Starcrest Consulting Group, LLC 2018) and USEPA's Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2017 (USEPA 2019d). CO_2e emissions are commonly presented in units of metric tons (MT). One MT equals 1,000 kilograms or 1.1 short tons.

3.16.1.2 Black Carbon

Black carbon (or soot) is a combustion byproduct of fossil fuels, biofuels, and biomass. Emissions of black carbon contribute to global warming due to its ability to absorb sunlight, which then enables it to warm the atmosphere and to melt snow and ice if deposited onto these surfaces. The U.S. Global Change Research Program estimates that black carbon contributed about 1.4 percent of the total radiative forcing of all man-made GHGs in year 2011 (USGCRP 2017).

At present, there are no protocols for assessing the impacts of black carbon on global climate change. Therefore, this PEIR provides a qualitative assessment of this effect in that black carbon is a component of DPM that would occur from the range of diesel-powered sources associated with the Proposed Plan. Section 3.2 of this PEIR (Air Quality and Health Risk) presents evaluations of DPM emissions as a criteria pollutant and TAC and mitigation measures that would reduce potential DPM (and, therefore, black carbon) emissions from the Proposed Plan.

3.16.1.3 Direct Effects of Sea Level Rise on the California Coast

SLR is defined as the change in global MSL over time. SLR is a long-term environmental impact of global climate change attributed to increasing global temperatures. SLR increases the likelihood and risk of coastal flooding. Over the past century, sea level along much of the California coast rose by an average of about 6 inches (Sievanen, et al. 2018). The rate of SLR is predicted to increase in the future. Available predictions for SLR in California vary widely and depend on analysis methods, years of interest, future emission scenarios, and probability rankings. For example, the Fourth Assessment predicts that mean SLR for the Los Angeles area under the

RCP 4.5 (moderate GHG emission reductions from current levels) and RCP 8.5 (business as usual) scenarios would be the following (Hall, Berg and Reich 2018):

- For year 2050, mean values of 0.5 and 0.6 feet; and
- For year 2100, mean values of 2.1 and 4.2 feet.

The mean SLR projections developed for the Fourth Assessment are slightly higher than those defined by the California Ocean Protection Council (OPC) in their preparation of the State of California Sea-Level Rise Guidance (OPC 2018) (see Section 3.16.2.2, State Regulations), as each program uses somewhat different inputs and modeling methods. Since there is considerable uncertainty in these results, the Fourth Assessment projections are meant for research purposes while the OPC projections are meant for regulatory and planning purposes (Bedsworth, et al. 2018).

SLR would affect all of the waters of the Long Beach Harbor. In addition to the physical problems of coastal flooding, the resultant economic impact could be important as well. SLR would reduce bridge clearance, which could reduce the size of ships able to pass or could restrict their movements to times of lower tide. In addition, higher sea levels would cause ships to sit higher in relation to current dock elevations, possibly resulting in less-efficient Port operations. While mitigation is important to minimize and to avoid the climatic and ecological effects related to global climate change, adaptation, such as modifying facilities, may be the only feasible way to address the future effects of SLR at the Port. The California Climate Adaptation Strategy acknowledges this as a possible adaptation strategy to SLR for ports (CNRA 2018). The Port also has developed adaptation strategies for SLR and climate change effects as part of its CRP (POLB 2016a) (see Section 3.16.2.3, Local Regulations).

Port-Wide Emissions

GHG emission sources associated with the movement of goods at the Port include OGVs, tugboats, CHE, on-road trucks, and locomotives. Other emission sources associated with Port operations include automobile trips made by employees and Port visitors, delivery vehicles, and TRU generation sets used to cool reefers when mounted on trucks and railcars. Reefers also leak refrigerants containing GHGs with high GWP. Port electrical consumption also results in GHG emissions from regional power plants producing the electricity. The major sources of electrical consumption at the Port include OGV shore power, electric CHE (such as gantry cranes, automated guided vehicles, and automatic stacking cranes), Port lighting, and reefers while plugged into shoreside grid power.

Table 3.16-1 summarizes the annual GHG emissions estimated for operations at the POLB in 2017. These emissions occurred within the Port area and extended to the California land and over-water border for OGVs, trucks, and trains. Because climate change is a global impact, this PEIR evaluates proposed GHG emissions over a larger domain compared to the analysis of criteria pollutants (to the California border vs. SCAB boundary). All emissions associated with electrical consumption were conservatively assumed to occur within California. The emissions data for sources related to goods movement were developed through the POLB annual emissions inventory process (Starcrest Consulting Group, LLC 2018). Additional calculations were necessary for automobiles, TRUs, and electrical consumption and to extend the OGV, truck, and train emissions to the California border. Appendix E (Air Emission Calculations) contains a description of the emission sources, discussion of the emission calculation methodology, and emission calculation tables.

TABLE 3.16-1. ANNUAL GHG EMISSIONS FOR POLB OPERATIONS – 2017 BASELINE

Emission Source	Annual CO_2e Emissions (metric tons per year)[1]
Ocean-Going Vessels	
OGVs in Transit[2]	307,250
OGVs at Berth[3]	165,352
Harbor Craft[4]	15,260
Cargo Handling Equipment	115,792
Locomotives	
Switchers On-Port	3,020
Line Haul Locomotives On-Port	12,037
Line Haul Locomotives Off-Port[5]	121,737
Heavy-Duty Vehicles	
HDVs On-Terminal Exhaust[6]	24,233
HDVs Off-Terminal Exhaust[7]	305,690
Automobiles	32,413
Refrigerated Containers[8]	
TRU Genset Exhaust	270
Refrigerant Leakage	9,281
Electricity Consumption[9]	
OGV Shore Power	15,073
Electric CHE	6,896
Port Lighting	9,845
Refrigerated Containers on Grid Power[10]	12,692
Total 2017 Baseline	**1,156,841**

Key: CHE = cargo handling equipment; CO_2e = carbon dioxide equivalent; Genset = generation set; GHG = greenhouse gas; HDVs = heavy-duty vehicles; nm = nautical miles; OGVs = ocean-going vessels; POLB or Port = Port of Long Beach; TRU = transport refrigeration unit; VSR = vessel speed reduction

Notes:

[1] The emissions domain for GHGs is the State of California.

[2] OGV transit emissions include transit between the berth and the boundary of California regulated waters, and anchoring in the harbor while waiting for an available berth. The emissions reflect that, in 2017, 97 percent of all calls used VSR (maximum 12 knots) within 20 nm of Point Fermin, and 91 percent of all calls used VSR between 20 and 40 nm of Point Fermin.

[3] OGV at-berth emissions reflect that, in 2017, 39 percent of all calls (72 percent of container ships, 95 percent of cruise vessels, 4 percent of tankers, 100 percent of roll on/roll off vessels, and 0 percent of all other vessels) used shore power, and 1 percent of all calls used an Advanced Maritime Emission Control System.

[4] Harbor craft emissions are from assist tugboats only. All other harbor craft activity is not directly related to cargo throughput and, therefore, is not expected to increase substantially in the future.

[5] Off-Port line haul locomotive emissions include trains that originate/terminate at the Port and trains carrying Port containers that originate/terminate at off-dock railyards within California (calculated as the equivalent number of trains needed to carry only the Port-related cargo).

[6] On-terminal HDV emissions include queuing at terminal entry gates, travel and idling within the terminals, and queuing at the terminal exit gates.

[7] Off-terminal HDV emissions represent trips between the Port and the first point of rest or California border, whichever comes first.

[8] Refrigerated container emissions are quantified for the time they spend at the Port.

[9] Electricity consumption occurs on-Port, but emissions are produced at regional power plants.

[10] Refrigerated containers at the Port are plugged into grid power when they are not being transported.

Table 3.16-1 shows that OGVs and trucks were the largest source contributors to 2017 CO_2e emissions. The emission estimates for OGV transit reflect a VSR compliance rate of 97 percent within 20 nm of Point Fermin (which is 4 miles southwest of the Port) and 91 percent between

20 and 40 nm of Point Fermin (Starcrest Consulting Group, LLC 2018). VSR involves limiting the vessel speed to 12 knots, which produces substantial emission reductions during vessel transit because of the cubic relationship between vessel speed and propulsion engine power and, therefore, fuel usage. The at-berth OGV emissions reflect that in 2017, 39 percent of all vessel calls (72 percent of container ships, 95 percent of cruise vessels, 4 percent of tankers, 100 percent of Ro/Ro vessels, and 0 percent of all other vessels) used shore power. Shore power enables vessels to turn off their diesel auxiliary engines while at berth and use grid power instead.

The Proposed Plan would affect goods movement activities throughout the Harbor District. Therefore, the Port-wide GHG emissions estimated for calendar year 2017 in Table 3.16-1 are used to define the Baseline GHG emission conditions for the Proposed Plan alternatives.

3.16.2 Regulatory Setting

All levels of government have some responsibility to protect air quality through adoption and enforcement of regulations. The regulation of GHG emissions is a relatively new component of air quality. This section describes the federal, state, and local GHG regulations that would apply to the Proposed Plan and it alternatives.

3.16.2.1 Federal Regulations

The U.S. government administers a wide array of programs designed to reduce GHG emissions nationwide. These programs focus on energy efficiency, renewable energy, non-CO_2 gases, and implementation of technologies designed to achieve GHG reductions.

The 2007 U.S. Supreme Court decision in *Massachusetts et al. v. USEPA* (549 U.S. 497 2007) gave USEPA authority to regulate GHGs as air pollutants under the federal CAA (refer to Section 3.2.2, Regulatory Setting, for a discussion of the CAA). USEPA has promulgated several GHG regulations for stationary sources, such as the Prevention of Significant Deterioration Permit Program and the Rule for Mandatory Reporting of Greenhouse Gases. However, because emissions associated with Port operations are primarily mobile in nature, USEPA's regulations directed at mobile sources are of primary interest for the Proposed Plan and its alternatives.

Light-Duty Vehicle Greenhouse Gas Emissions and Corporate Average Fuel Economy Standards

On May 7, 2010, USEPA and USDOT NHTSA finalized the Light-Duty Vehicle Rule, which established a national program consisting of GHG emission and CAFE standards for light-duty vehicles. Light-Duty Vehicle Rule standards apply to new cars and trucks starting with model year 2012.

Heavy-Duty Vehicle National Program

In September 2011, USEPA and NHTSA developed the Heavy-Duty Vehicle National Program, which was designed to reduce fuel consumption (and GHG emissions by association) from medium- and heavy-duty vehicles. The program was directed at vehicle model years 2014–2018 and was projected to reduce GHG emissions by approximately 270 million metric tons (MMT). In August 2016, USEPA and NHTSA adopted Phase 2 of the program. Phase 2 aims to set performance-based standards that would be met through wider deployment of existing and advanced technologies. For diesel engines, the proposed standards would begin for model year 2018 engines and phase in vehicle model years through 2027.

3.16.2.2 State Regulations

To date, California is one of 23 states that have set GHG emission targets. EO S-3-05 and AB 32, the California Global Warming Solutions Act of 2006, promulgated targets to achieve reductions in GHGs to 1990 levels by the year 2020. This target-setting approach allows progress to be made in addressing climate change and is a forerunner to setting emission limits. The CARB is responsible for regulating GHGs in California.

Executive Order S-3-05 (2005)

Governor Arnold Schwarzenegger announced on June 1, 2005, through EO S-3-05, statewide GHG emission-reduction targets as follows: by 2010, reduce GHG emissions to 2000 levels; by 2020, reduce GHG emissions to 1990 levels; and by 2050, reduce GHG emissions to 80 percent below 1990 levels. Some literature equates these reductions to 11 percent by 2010 and 25 percent by 2020 compared to 1990 levels.

Assembly Bill 32 – California Global Warming Solutions Act of 2006

AB 32 requires statewide GHG reductions to 1990 levels by 2020 and continued reductions beyond 2020. The law requires the CARB to establish a program to track and report GHG emissions, approve a Scoping Plan for achieving technologically feasible and cost-effective measures that reduce GHG emissions, and adopt, implement, and enforce regulations to ensure the achievement of the required GHG emission reductions.

Assembly Bill 32 Scoping Plans

AB 32 required the CARB to develop a Scoping Plan that describes the approach California will take to reduce GHGs to achieve the goal of reducing emissions to 1990 levels by 2020. The Scoping Plan was first approved by CARB in 2008 and must be updated every 5 years. The First Update to the Climate Change Scoping Plan was approved by the board in May 2014, and it identified regulatory actions for vehicles and fuels and several measures that target movement of goods and Port operations. The Scoping Plan also identified challenges to meeting future electrical demand, including building transmission lines for sources of renewable energy and modernizing electricity infrastructure. In 2016, statewide GHG emissions were 429 MMT of CO_2e, which for the first time achieved the AB32 2020 target of 431 MMT (1990 levels) (CARB 2018d).

In 2016, the California State Legislature passed SB 32, which codifies a GHG emissions reduction target of 40 percent below 1990 levels by 2030. In December 2017, the CARB approved the 2017 Climate Change Scoping Plan, which proposes new GHG reduction measures from all sectors of the economy to enable the state to meet the 2030 GHG target (CARB 2017a). Transportation produces the largest amount of GHGs of any Scoping Plan sector in California, and the 2017 Scoping Plan emphasizes the need for freight and goods movement systems to improve efficiency and maximize the use of near-zero and zero-emission vehicles and equipment powered by renewable energy.

Executive Order S-01-07 (2007)

This EO was signed by the California governor in January 2007. The order mandates that: 1) a statewide goal be established to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020 and 2) a low-carbon fuel standard for transportation fuels be established for California. CARB adopted the final standard in November 2009, and the standard became effective in 2011.

Assembly Bill 1493 – Vehicular Emissions of Greenhouse Gases

AB 1493, enacted in July 2002, and amended in September 2009, required CARB to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light-duty trucks. Regulations adopted by CARB apply to 2009 model year and later vehicles. CARB estimated that the regulation will reduce GHGs emissions from light-duty passenger vehicle fleet by 18 percent in 2020 and 27 percent in 2030. USEPA granted California the authority to implement GHG emission-reduction standards for new passenger cars, pick-up trucks, and sport utility vehicles on June 30, 2009.

Executive Order S-13-08

On November 14, 2008, Governor Schwarzenegger issued EO S-13-08 (State of California 2019b) to enhance California's management of potential effects of climate change. The EO directed the California Natural Resources Agency to do the following:

1. Initiate California's first statewide climate change adaptation strategy that will assess the state's expected climate change impacts, identify where California is most vulnerable, and recommend climate adaptation policies by early 2009;
2. Request the National Academy of Sciences to establish an expert panel to report on SLR impacts in California to inform state planning and development efforts;
3. Issue guidance to state agencies for how to plan for SLR in designated coastal and floodplain areas for new projects; and
4. Initiate a report on critical existing and planned infrastructure projects vulnerable to SLR.

The California Natural Resources Agency issued draft guidance on SLR in response to EO S-13-08 in a document entitled 2009 California Climate Adaptation Strategy (CNRA 2009). The guidance document provides the agency's summary of the latest science on how climate change could impact the state and recommendations on how to manage against those threats in seven sector areas, including public health, biodiversity and habitat, ocean and coastal resources, water management, agriculture, forestry, and transportation and energy infrastructure.

The Coastal and Ocean Working Group of the California Climate Action Team, with science support provided by the OPC's Science Advisory Team and the California Ocean Science Trust, released interim guidance that recommended a range of SLR estimates for years 2030 to 2100 for state agencies to consider for planning development projects. The National Research Council of the National Academy of Sciences released their final report on SLR for California in June 2012 (NRC 2012) and the Coastal and Ocean Working Group of the California Climate Action Team updated their SLR Interim Guidance Document the following year based on these findings (CO-CAT 2013).

In 2018, the OPC provided updated SLR guidance for California, based on the best available science of SLR projections (OPC 2018). This updated guidance includes a range of SLR projections for a given emission scenario (and an extreme SLR scenario), based on the likelihood of occurrence or probability of a sea level height. The guidance also recommends an approach for low, medium-high, and extreme risk aversion decisions, which equate to 66, 95, and 99.5 percentile SLR values for a given scenario. The CCC SLR Policy Guidance incorporates the finding of these studies (CCC 2018).

Senate Bill 391 (2009)

SB 391 requires the California Transportation Plan to support a reduction in GHG emissions to 80 percent below 1990 levels by 2050.

Renewables Portfolio Standard

Established in 2002 under SB 1078, accelerated in 2006 under SB 107, and expanded in 2011 under SB 2, California's Renewables Portfolio Standard (RPS) is an ambitious renewable energy standard. California's RPS requires that 33 percent of total retail sales of electricity be procured from eligible renewable sources by the end of 2020. Because these RPS requirements will be effective as of the beginning of the planning horizon for the Proposed Plan, the RPS requirements were included in the emission calculations for electricity use associated with the Proposed Plan and its alternatives.

Executive Order B-16-12 (2012)

EO B-16-12 specifies a GHG emissions reduction target of 80 percent below 1990 levels by 2050 specifically for transportation.

California Heavy-Duty Truck Greenhouse Gas Regulations

The Heavy-Duty Tractor-Trailer GHG Regulation, adopted by the CARB in 2008, proposes to reduce GHG emissions by improving the fuel efficiency of heavy-duty tractors through improvements in tractor and trailer aerodynamics and the use of low-rolling-resistance tires. In 2013, the CARB adopted a regulation establishing combustive GHG emission-reduction requirements for all medium- and heavy-duty vehicles and engines manufactured for use in California, harmonizing with the GHG emission-reduction rule finalized by USEPA and the NHTSA in 2011.

Senate Bill 650 (2014)

SB 650 directed CARB to develop a comprehensive strategy in coordination with other state agencies and local air quality management and air pollution control districts to reduce emissions of short-lived climate pollutants. SB 1383 directed the board to set statewide 2030 emission-reduction targets for CH_4, HFCs, and anthropogenic black carbon. The Short-Lived Climate Pollutants Reduction Strategy was approved by the board in March 2017 (CARB 2017b).

Assembly Bill 691 (2014)

AB 691 requires agencies with state granted public trust lands to evaluate the effects of SLR on their infrastructure and operations and to report them to the CSLC. The required evaluations include: 1) an assessment of impacts of SLR out to year 2100, including consideration of recommendations described in the current State Sea Level Rise Policy Guidance (OPC Guidance as mentioned above); 2) financial costs of SLR; and 3) description of how to protect and to preserve resources and structures that would be impacted by SLR. As part of the requirements of AB 691, the Port completed a CRP in 2016 (discussed below in Section 3.16.2.3, Local Regulations).

Executive Order B-30-15 (2015)

EO B-30-15 extends the goal of AB 32 and sets a GHG emissions reduction goal of 40 percent below 1990 levels by 2030. The EO also addresses the need for climate adaptation and directs state governments to take a number of actions, including factoring climate change in state agencies' planning and investment decisions. SB 32 (2016) codifies EO B-30-15.

California Sustainable Freight Action Plan (2016)

In July 2015, Governor Brown issued EO B-32-15, which provides a vision for California's transition to a more efficient, more economically competitive, and less polluting freight transport system. To implement this EO, the Secretary of California State Transportation Agency, Secretary of the CalEPA, and the Secretary of the Natural Resources Agency developed the CSFAP in July 2016 (Governor Edmund G. Brown Jr. 2016). The CSFAP proposes a broader and more unified approach between state agencies and stakeholders to achieve this vision.

The CSFAP sets the following targets for the goods movement sector:

- System efficiency. Improve freight system efficiency 25 percent by increasing the value of goods and services produced (as measured by gross domestic product) from the freight sector, relative to the amount of carbon that it produces by 2030.
- Transition to zero-emissions technologies. Deploy over 100,000 freight vehicles and equipment capable of zero-emission operation and maximize near-zero-emission freight vehicles and equipment powered by renewable energy by 2030.
- Increased competitiveness and economic growth. Establish a target or targets for increased state competitiveness and future economic growth within the freight and goods movement industry based on a variety of metrics.

The CSFAP identifies initial state policies, programs, and investments to achieve these targets. State agencies participating in the CSFAP include the CARB, Caltrans, CEC, and the Governor's Office of Business and Economic Development. The CSFAP will be informed by existing state agency strategies, including the CFMP, Sustainable Freight Pathways to Zero and Near-Zero Emissions, and the Integrated Energy Policy Report. In addition, strategies in the 2017 CAAP Update (see Sections 3.16.2.3 and 3.2.2.4, Local Regulations) align with the CSFAP targets.

Senate Bill 100 (2018)

SB 100 establishes a state goal of 100 percent clean electricity by 2045 and advances the RPS to 50 percent by 2025 and 60 percent by 2030.

Executive Order B-55-18 (2018)

EO B-55-18 directs the state to achieve carbon neutrality no later than 2045 and achieve and maintain net negative emissions thereafter.

3.16.2.3 Local Regulations

Port of Long Beach Green Port Policy (2005)

As discussed in Section 3.2.2.4 (Local Regulations), the POLB Green Port Policy includes initiatives that reduce emissions of criteria pollutants and TACs from operations at the Port. Many of these measures also would result in GHG emission reductions.

San Pedro Bay Ports Clean Air Action Plan (2006, 2010 Update, and 2017 Update)

As a means to implement the Green Port Policy, the POLB implements the San Pedro Bay Ports CAAP process, as discussed in 3.2.2.4 (Local Regulations). Many CAAP measures designed to reduce criteria pollutants also would result in GHG reductions.

The 2017 CAAP Update includes new strategies that have been guided by ongoing regional air quality compliance efforts and, notably, the goals of the CSFAP. As articulated in the CSFAP, to support the ultimate goal of zero-emissions goods movement, the ports must develop strategies that include the introduction of clean vehicles and equipment, infrastructure, freight efficiency, and energy planning.

The 2017 CAAP Update continues the health risk and emission-reduction targets set in the 2010 CAAP Update and it promotes two new emission-reduction targets:

- Reduce GHGs from port-related sources to 40 percent below 1990 levels by 2030; and
- Reduce GHGs from port-related sources to 80 percent below 1990 levels by 2050.

The 2017 CAAP Update also incorporates the recent commitment by the mayors of Los Angeles and Long Beach to move toward zero emissions at the ports, including setting goals of zero-emissions CHE by 2030 and zero-emissions drayage trucks by 2035.

Port of Long Beach Targets for Reducing Greenhouse Gas Emissions

The Port's commitment to protecting the environment from the harmful effects of Port operations, as stated in the Green Port Policy, addresses the development of programs and projects to reduce GHG emissions. Aligning with GHG reduction goals as set by the State of California and the mayors of Long Beach and Los Angeles, the San Pedro Bay Ports' CAAP 2017 update calls for reductions in GHG emissions from port-related mobile sources to 40 percent below 1990 levels by 2030, and 80 percent below 1990 levels by 2050. The following commitments and strategies will aid in the path toward reducing GHGs, sustainability, and improved air quality:

- Initiated in 2006, the POLB released an annual air emissions inventory that quantifies GHG emissions from OGVs, heavy-duty trucks, CHE, harbor craft, and locomotive sources.
- The Port collaborated with other City departments to produce the City's first voluntary GHG emissions inventory in 2007, which was submitted to the California Climate Action Registry. The reporting portion of the California Climate Action Registry has since transitioned to The Climate Registry.
- The Port's Renewable Energy Working Group finalized a Solar Energy Technology and Siting Study (Solar Siting Study) that reviewed available solar technologies and estimated the solar energy generation potential for the entire Harbor District. The study determined that there are many sites where solar energy technologies could be developed on building rooftops and at ground level.
- In February 2010, the City adopted the Long Beach Sustainable City Action Plan that includes initiatives, goals, and actions that will move Long Beach toward becoming a sustainable city. The Sustainable City Action Plan includes initiatives to reduce the City's carbon footprint and sets a goal to reduce GHG emissions from City facilities and operations 15 percent by 2020, relative to 2007 levels.
- In May 2013, the Port BHC adopted the POLB Energy Policy to guide efforts to secure a more sustainable and resilient supply of power as demand grows. Under the policy, the Port of Long Beach will implement measures to increase efficiency, conservation, resiliency, and renewable energy in collaboration with various groups, including Port tenants, utilities, other City departments, industry stakeholders, labor unions, universities, and the Port of Los Angeles.

- In 2019, the Port released their San Pedro Bay Ports 1990 GHG Emissions Baseline Report. As a first step in tracking progress toward GHG emission reductions, the report quantified the 1990 baseline emission level.
- In 2019, the City will release its final Climate Action and Adaptation Plan, which will include updated Citywide GHG inventories and reduction targets.

Port of Long Beach Community Grants Program (2009 and 2016)

In 2009, the Port launched its Community Mitigation Grant Programs to address cumulative air and health impacts arising from new development projects. Since establishing the Community Mitigation Grant Programs, the Port has provided $17.4 million in funding for nearly 120 community-based mitigation projects.

In 2016, the Port developed the Community Grants Program to improve community health and to reduce GHG emissions by lessening the impacts of Port-related air pollution. The Community Grants Program builds upon the 2009 Community Mitigation Grants Program by providing additional funding for community-based mitigation. The Community Grants Program allocates $46.4 million over the next 12 to 15 years in three categories: community health, facility improvements, and community infrastructure. The Community Grants Investment Plan provides guidance for spending mitigation funds in order to most effectively address community impacts while conforming to a state requirement that stringently governs the use of Port funds (POLB 2019b).

Long Beach Sustainable City Action Plan (2010)

The Long Beach Sustainable City Action Plan is intended to guide operational, policy, and financial decisions to create a more sustainable Long Beach. Although the plan is mostly focused on City property, buildings, and public transportation, some elements refer to Port activities. This includes Action 1 of Transportation Initiative 4, which seeks to reduce emissions from Port mobile sources through implementing mitigation incentive measures to modernize fleets, retrofit older engines, and use cleaner fuels.

City of Long Beach General Plan – Mobility Element, The Mobility of Goods (2013)

The City of Long Beach General Plan, Mobility Element was developed to improve the way people, goods, and resources are moved in Long Beach. The Mobility of Goods section does not identify specific strategies designed to reduce GHG emissions, but it does call for the improvement of citywide infrastructure, especially increase of on-dock rail facilities. The Mobility of Goods section notes that, without rail infrastructure improvements, more containers will be shipped by truck to near-dock and off-dock rail yards; the result would be more truck trips on freeways and roadways near the Port.

City of Long Beach Construction and Demolition Recycling Program

The City of Long Beach Construction and Demolition Recycling Program, set forth in LBMC Section 18.67.090, encourages the use of green building techniques in new construction and promotes reuse or salvaging of recyclable materials in demolition, deconstruction, and construction projects. Much of the construction and demolition debris, which represents an estimated 22 percent of the total disposed waste stream in local landfills, can be reused or recycled, conserving natural resources and saving valuable landfill space. In response to state-mandated waste reduction goals and as part of the City's commitment to sustainable development, the City adopted an ordinance that requires certain demolition and/or construction projects to divert at least 60 percent of waste either through recycling, salvage, or deconstruction (City of Long Beach 2011).

City of Long Beach Green Building Standards for Public and Private Development

As codified in LBMC Section 21.45.400, new buildings or alterations of existing buildings constructed on City land that result in the addition of 7,500 square feet or more of gross floor area would require silver LEED certification. To administer its Green Building Program, the City uses the LEED rating system created by the U.S. Green Building Council. Alternative green building systems may be substituted, if the system can be demonstrated to achieve a comparable standard of achievement as LEED. This ordinance also includes requirements for shade trees, bicycle racks, solar-ready roofs, and designated areas for the collection of recyclables. LEED-certified buildings are more energy efficient and, therefore, reduce GHG emissions compared to a conventional building design.

POLB Administrative Directive for Sustainable Business Practices

The Port's Administrative Directive for Sustainable Business Practices includes recycling objectives (POLB 2006). In general, products made with recycled materials require less energy and raw materials to produce than products made with unrecycled or raw materials. The directive also includes energy conservation practices, purchasing of "green" products, energy-efficient lighting, low-VOC paint and finishes, and use of recycled or remanufactured carpeting and office furnishings. This directive also includes minimizing the use of paper and plastic, reusing materials and equipment, and proper disposal of alkaline batteries. This savings in energy and raw material use translates into GHG emission reductions.

Climate Adaptation and Coastal Resiliency Plan (2016)

As part of the requirements of AB 691, the POLB developed a CRP that will enable the Port to prepare for climate change and its associated hazards within the Harbor District (POLB 2016a). The following steps were taken to develop the CRP:

- Reviewed the best available climate science to determine primary stressors and impacts;
- Inventoried Port assets and completed vulnerability and risk assessments of those assets;
- Completed inundation mapping for six SLR scenarios;
- Developed profiles of infrastructure vulnerability;
- Identified and prioritized adaptation strategies; and
- Completed five detailed adaptation strategies that will make the Port more resilient to climate change, including adding SLR analyses to the HDP process.

The primary climate hazards identified in the study were SLR, storm surge, changes in precipitation, extreme temperatures, extreme winds, and ocean acidification. The adaptive strategies chosen for implementation ranged from incorporating climate language into existing Port policies and plans to actual conceptual design of physical structures to protect the Port from SLR and flooding.

Southern California Association of Governments 2016–2040 Regional Transportation Plan/Sustainable Communities Strategy (2016)

The SCAG developed the 2016–2040 RTP/SCS with the primary goal of increasing mobility for the region's residents and visitors but also with an emphasis on sustainability, pursuant to SB 375 (Sustainable Communities and Climate Protection Act of 2008). This law set regional targets for GHG emission reductions from passenger vehicle use for 2020 and 2035 and it requires that SCAG include an SCS in the RTP that would reduce GHG emissions from passenger vehicles. The RTP/SCS also includes strategies for goods movement.

The RTP/SCS Goods Movement Appendix identifies strategies for regional highway improvements, regional rail improvements (i.e., on-dock and near-dock rail), and San Pedro Bay Ports access projects. The RTP/SCS Goods Movement Appendix also identifies goods movement environmental strategies such as the short-term deployment of commercially available lower-emission trucks and locomotives and the longer-term development of a zero- and near-zero emission freight system. The Proposed Plan promotes these goods movement strategies through development goals, as it proposes to increase on-dock rail capacity, to redesign terminals to improve the efficiency of goods movement, and to support implementation of the Green Port Policy initiatives, such as the 2017 CAAP Update and its objective to achieve zero- and near-zero emission CHE and drayage trucks.

3.16.3 Impacts and Mitigation Measures

The following section evaluates impacts of GHGs that would occur from the Proposed Plan and its alternatives. This section also includes an assessment of how future predictions of SLR would potentially affect implementation of the Proposed Plan and its alternatives. The analysis compares potential impacts from each alternative to criteria presented in Section 3.16.3.1 (Significance Criteria) to determine their significance. Since global climate change impacts are global by nature and, therefore, contribute to cumulative impacts, there is no separate cumulative impacts analysis for global climate change in this PEIR. The Proposed Plan impacts evaluated in this section are the same as cumulative impacts.

3.16.3.1 Significance Criteria

CEQA Guidelines allow the lead agency discretion in how to address and evaluate significance of GHG emissions. After considering CEQA Guidelines and Port-specific climate change impact issues, the Port established criteria for determining the significance of impacts on global climate change that are based on the 2019 CEQA Guidelines, Appendix G (Environmental Checklist) and modified to reflect Port operations within a highly urbanized, industrial complex. Impacts during construction or operation would be considered significant if the Proposed Plan would:

- **GCC-1:** Cause GHG emissions to exceed the SCAQMD interim significant emissions threshold for industrial projects of 10,000 MT CO_2e per year (SCAQMD 2019b);

  While the SCAQMD developed this threshold for stationary sources, it is used in this PEIR to evaluate mobile sources of GHGs. Other lead agencies, such as the Port of Los Angeles, use this same approach for CEQA purposes. To provide additional information regarding the potential environmental impacts of proposed GHGs, the analysis also evaluates proposed activities with the use of an efficiency metric, which is defined in terms of a mass of GHGs per cargo throughput unit (in the case of containerized cargo, a TEU).

- **GCC-2:** Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions; and/or

- **GCC-3:** Expose people and structures to a significant risk of loss, injury, or death involving flooding as a result of SLR.

These thresholds usually pertain to the significance of impacts from individual projects and proposed developments. Therefore, use of these thresholds to evaluate several combined actions under a Proposed Plan alternative is a more conservative approach.

3.16.3.2 Assessment Methodology

The Proposed Plan and its alternatives would result in a variety of construction and operational activities that would generate GHG emissions within the Harbor District and surrounding region. The timing and specific details of many of these activities are somewhat uncertain, as the Proposed Plan planning horizon extends out to the distant year of 2040. However, reasonable assumptions of these activities were made to enable an adequate level of impact quantification for this PEIR.

The following section describes the methods used to evaluate GHG emissions from the Proposed Plan alternatives. To determine their significance, potential emissions and impacts predicted to occur from each alternative were evaluated in comparison to the significance criteria presented above in Section 3.16.3.1 (Significance Criteria). Appendix E (Air Emission Calculations) includes data and assumptions used to estimate GHG emissions for construction and operational activities under each alternative.

Construction Impact Analyses

<u>Construction Emissions</u>

The Proposed Plan would include several types of construction activities, such as: 1) dredging/diking/landfilling, 2) wharf construction, 3) terminal backlands improvements, 4) railyard construction, and 5) roadway and rail line realignments (as described in Section 1.8.4, Proposed Plan Projects Analyzed in the PEIR). These activities would require the use of off-road construction equipment (including landside construction equipment and in-water equipment such as dredges and barge equipment), on-road trucks, and tugboats. These sources primarily would use diesel fuel and would generate GHG emissions. Worker commuter vehicles also would generate GHG emissions.

To define construction air emissions from these activities, this PEIR relies on previous analyses conducted for activities that are similar to those identified for the Proposed Plan alternatives and found in the most recent project-level POLB CEQA/NEPA documents. This surrogate approach is deemed adequate for defining programmatic-level GHG impacts in this PEIR. Future project-level CEQA documentation for individual actions included in the alternatives will provide detailed analyses, as appropriate, of project-specific GHG impacts.

The *POLB Pier S Marine Terminal + Back Channel Improvements Project Final EIS/Final EIR* evaluated construction of a new 160-acre container terminal with 3,200 feet of concrete pile-supported wharf, terminal buildings, truck gates, utilities, a 17-acre intermodal railyard with supporting rail tracks, installation of container cranes and other CHE, dredging of up to 881,000 cy of materials, and realignment of an existing dike (POLB 2012). In addition, the POLB Pier B On-Dock Rail Support Facility Project Final EIR evaluated expansion of an existing railyard from 82 to 182 acres (POLB 2018c). Therefore, this PEIR analysis relies on the total GHG construction emissions estimates from these analyses for use as surrogates for total GHG construction emissions that could occur under the Proposed Plan or an alternative. The environmental documents relied upon to provide surrogate estimates for GHG emissions for construction activities are as follows:

- Dredging/diking/landfilling: *Pier S Final EIS/Final EIR*;
- Wharf construction: *Pier S Final EIS/Final EIR*;
- Backlands improvements: *Pier S Final EIS/Final EIR*; and
- Railyard construction/roadway and rail line realignments: *Pier B Final EIR*.

To estimate total construction GHG emissions under the Proposed Plan and each alternative, the analysis used the following approach (using the Proposed Plan as an example):

- Multiplied GHG emissions estimated for an applicable surrogate construction activity by the level of construction effort associated with the Proposed Plan activity divided by the level of construction effort associated with the surrogate construction activity; and
- Summed estimates of GHG emissions for each proposed construction activity to obtain total construction GHG emissions under the Proposed Plan.

To follow SCAQMD guidance, the total construction emissions estimated over the entire construction period for each alternative were amortized over 30 years and added to operational annual emissions (SCAQMD 2008b). Since this PEIR evaluates total construction emissions by scaling from prior CEQA/NEPA documents, the estimated construction emissions presented in this PEIR are only approximations. The emissions from prior CEQA documents were calculated under different assumptions regarding analysis years and equipment usage. They also were calculated using emission factors and methodologies that are periodically updated and revised by regulatory agencies. However, because the amortized construction emissions associated with the Proposed Plan alternatives are estimated to be relatively small compared to their annual operational emissions, this method of approximating the construction emissions is adequate for characterizing GHG impacts in this PEIR.

Operational Impact Analyses

<u>Operational Emissions</u>

Operation of the Proposed Plan and alternatives would involve all of the goods movement activities that currently exist at the Port. Emission sources associated with these operations include OGVs, tugboats, CHE, trucks, and locomotives. These sources primarily would use diesel fuel and would generate GHG emissions. In addition, automobile trips made by workers, delivery vehicles, and Port visitors would generate GHG emissions. TRU generation sets and refrigerant loss from reefers at the Port would generate GHG emissions. The analysis also calculates potential indirect GHG emissions that would occur from the generation of electricity needed for future operations. For CEQA purposes, the GHG emissions and impact determinations in this section are based on the emissions that would occur within California borders (the full jurisdictional domain of CEQA) because climate change is a global, rather than air basin-specific, impact.

In general, the 2040 emissions data for OGVs, tugboats, CHE, and locomotives were developed through the POLB ILUT (see Section 3.2.3.2, Assessment Methodology, and Appendix E, Air Emission Calculations, for further details). The ILUT projects future Port-wide activity levels and applies emission factors generated using the same methodology as the POLB 2017 Air Emissions Inventory. Additional calculations were necessary for trucks, automobiles, TRU generation sets, reefer refrigerant loss, and electrical consumption and to extend OGV, truck, and train emissions from the SCAB boundary to the California border.

In analyzing impacts prior to mitigation (i.e., unmitigated scenarios), this PEIR assumes implementation of current regulations that apply to the main emission source categories that operate at the Port. By year 2040, these requirements generally equal or exceed those identified as source-specific control measures in the 2010 CAAP Update. These existing regulations and CAAP measures are described in Section 3.16.2 (Regulatory Setting). For CEQA purposes, this PEIR conservatively assumes in the unmitigated scenarios that none of the emission control measures proposed in the 2017 CAAP Update would be implemented above existing practice or above what would be required by existing regulations. In analyzing impacts with mitigation incorporated (i.e., mitigated scenarios), the analysis discusses how emission-reduction strategies proposed in the 2017 CAAP Update and future regulations could mitigate significant emissions.

Some portions of the Harbor District would either not be affected by the Proposed Plan or would be modified in accordance with prior certified project-level CEQA documents. For example, the Pier B On-Dock Rail Support Facility project was evaluated in an EIR certified in 2018. The emissions associated with these separate, approved projects are not required to be included in this PEIR because they have already been evaluated. However, the Port determined that it would be very difficult to exclude the operational emissions associated with those projects from the Port-wide emission calculations prepared for this PEIR because of the interrelated nature of Port operations. Therefore, for the 2017 Baseline and 2040 Proposed Plan alternatives, all Port operations were conservatively included in the emission calculations for this PEIR except for several stationary industrial sources not related to the Port's goods movement activities. Sources excluded from the emission calculations include Harbor Cogeneration, South East Resource Recovery Facility, Tidelands Oil Production Company, THUMS Oil Operations, and Long Beach Generation. These facilities are not proposed for modification or expansion under the Proposed Plan or alternatives. The exclusion of these sources is consistent with the POLB 2017 Air Emissions Inventory.

The Proposed Plan alternatives also could generate a small amount of indirect GHG emissions from water conveyance, wastewater generation, and solid waste, but those indirect GHG emissions cannot be readily estimated and would be minor in comparison with the other direct and indirect GHG emissions estimated for the Port. Similarly, any natural gas used at the Port for space heating would produce negligible GHG emissions relative to other quantified sources; therefore, the analysis did not quantify direct emissions associated with natural gas usage.

The net change between the construction and operational GHG emissions for each alternative and the 2017 Baseline were compared to Threshold GCC-1 to determine their significance. For impacts that would exceed a significance criterion, mitigation measures, where feasible, were applied to determine their ability to reduce impacts to below the level of significance.

3.16.3.3 Proposed Plan

Impact GCC-1: Construction and operations would exceed the SCAQMD interim significant emissions threshold for industrial projects of 10,000 MT CO_2e per year.

<u>Impact Determination</u>

Table 3.16-2 presents estimates of unmitigated annual CO_2e emissions that would occur within California from construction and operation of the full build-out scenario of the Proposed Plan in year 2040. The largest contributors to emissions would include trucks, CHE, OGVs, and line haul locomotives. The following discusses how unmitigated emissions for each source category would change relative to the 2017 baseline:

- Emissions from OGVs in transit would increase in response to the projected increase in the number of vessel calls, and in the case of container vessels, the gradual shift toward larger vessels. The Port's assumptions for VSR participation in 2040 are informed by past participation rates and therefore do not substantially affect the emissions increase. Specifically, VSR within 20 nm of Point Fermin was conservatively assumed to decrease from 97 percent in 2017 to 95 percent in 2040. VSR between 20 and 40 nm of Point Fermin was assumed to change from 91 percent in 2017 to 90 and 95 percent of outbound and inbound vessels, respectively, in 2040.
- Emissions from OGVs at berth would decrease in part because of the increase in the use of shore power in compliance with the California Port Regulations for At-Berth Ocean-Going Vessels. For example, the percentage of container vessels using shore power was assumed to increase from 72 percent in 2017 to 80 percent in 2040. The 2040 emissions also show an economy-of-scale benefit whereby larger vessels typically have lower auxiliary engine and boiler emissions per unit of cargo.
- Emissions from harbor craft would increase in response to the projected increase in the number of vessel calls.
- Emissions from CHE would increase in response to the projected increase in the number of TEUs. The estimate of unmitigated CHE emissions conservatively assumes there would be no zero-emissions equipment added to the fleet serving the Port above existing percentages.
- Emissions from switcher locomotives would decrease because of the proposed improvements in on-dock rail capacity and efficiency, which would lead to less switcher locomotive use (POLB 2019d).
- Emissions from line haul locomotives would increase in response to the projected increase in the number of TEUs transported by rail. The longer average train travel distance associated with a higher ratio of on-dock to off-dock trains also would contribute to the emissions increase.
- Emissions from heavy-duty vehicles would increase in response to the projected increase in VMT determined by the traffic study. The unmitigated emissions conservatively assume no zero-emission trucks would serve the Port in 2040.
- Emissions from automobiles would decrease despite increased VMT because of future improvements in fuel economy assumed in CARB's EMFAC 2017 model.
- Emissions from reefers would increase in response to the projected increase in the number of TEUs and the assumption that the proportion of reefers would remain constant between 2017 and 2040.
- Emissions associated with electricity consumption would increase in response to the projected increase in the amount of OGV shore power usage, electric CHE usage (which is assumed to increase in proportion to total CHE usage), Port lighting, and reefer volume. The increase is tempered by a lower CO_2e emission factor in 2040, which assumes 50 percent carbon-free electricity as mandated by the CEC.
- Emissions from construction would increase because no construction is assumed for the 2017 baseline.

TABLE 3.16-2. ANNUAL UNMITIGATED GHG EMISSIONS FROM THE PROPOSED PLAN – 2040

Emission Source	Annual CO_2e Emissions (metric tons per year)[1]
Ocean-Going Vessels	
OGVs in Transit[2]	490,001
OGVs at Berth[3]	94,263
Harbor Craft[4]	41,584
Cargo Handling Equipment	200,633
Locomotives	
Switchers On-Port	2,336
Line Haul Locomotives On-Port	49,048
Line Haul Locomotives Off-Port[5]	392,445
Heavy-Duty Vehicles	
HDVs On-Terminal Exhaust[6]	51,227
HDVs Off-Terminal Exhaust[7]	571,887
Automobiles	28,146
Refrigerated Containers[8]	
TRU Genset Exhaust	635
Refrigerant Leakage	20,835
Electricity Consumption[9]	
OGV Shore Power	29,308
Electric CHE	14,335
Port Lighting	11,052
Refrigerated Containers on Grid Power[10]	26,382
Construction[11]	5,145
Total, Proposed Plan	**2,029,262**
CEQA Impacts	
Total 2017 Baseline	**1,156,841**
Proposed Plan minus 2017 Baseline	872,421
Significance Threshold	10,000
Significant?	**Yes**

Key: CEQA = California Environmental Quality Act; CHE = cargo handling equipment; CO_2e = carbon dioxide equivalent; Genset = generation set; GHG = greenhouse gas; HDVs = heavy-duty vehicles; nm = nautical miles; OGVs = ocean-going vessels; POLB or Port = Port of Long Beach; TRU = transport refrigeration unit; VSR = vessel speed reduction

Notes:

[1] The emissions domain for GHGs is the State of California.

[2] OGV transit emissions include transit between the berth and the boundary of California regulated waters, and anchoring in the harbor while waiting for an available berth. The emissions assume that in 2040, 95 percent of all inbound vessels will use VSR (maximum 12 knots) within 40 nm of Point Fermin, 95 percent of all outbound vessels will use VSR within 20 nm of Point Fermin, and 90 percent of all outbound vessels will use VSR between 20 and 40 nm of Point Fermin (Starcrest Consulting Group, LLC 2019b).

[3] OGV at-berth emissions assume that the shore power usage rates in 2040 would be 80 percent for containerships, cruise vessels, and reefer vessels; and 0 percent for all other vessels.

TABLE 3.16-2. ANNUAL UNMITIGATED GHG EMISSIONS FROM THE PROPOSED PLAN – 2040

[4] Harbor craft emissions are from assist tugboats only. All other harbor craft activity is not directly related to cargo throughput and, therefore, is not expected to increase substantially in the future.
[5] Off-Port line haul locomotive emissions include trains that originate/terminate at the Port and trains carrying Port containers that originate/terminate at off-dock railyards within California (calculated as the equivalent number of trains needed to carry only the Port-related cargo).
[6] On-terminal HDV emissions include queuing at terminal entry gates, travel and idling within the terminals, and queuing at the terminal exit gates.
[7] Off-terminal HDV emissions represent trips between the Port and the first point of rest or California border, whichever comes first.
[8] Refrigerated container emissions are quantified for the time they spend at the Port.
[9] Electricity consumption occurs on-Port, but emissions are produced at regional power plants.
[10] Refrigerated containers at the Port are plugged into grid power when they are not being transported.
[11] Construction emissions are estimated by scaling from prior Port of Long Beach CEQA documents. Per South Coast Air Quality Management District (SCAQMD 2008b) guidance, construction emissions are amortized over 30 years (i.e., total construction emissions divided by 30 years).

Table 3.16-2 shows that the unmitigated annual CO_2e emissions generated from Port construction and operations under the Proposed Plan minus the 2017 Baseline scenario would exceed the SCAQMD annual GHG emission threshold of 10,000 MT of CO_2e. Therefore, the 2040 unmitigated GHG emissions associated with the Proposed Plan would constitute a significant impact.

To provide additional information regarding impacts under Impact GCC-1, this PEIR also evaluates a GHG efficiency metric for the Proposed Plan (similar to the efficiency metric presented in the POLB 2017 Air Emissions Inventory). Table 3.16-3 compares the CO_2e emissions associated with the 2040 Proposed Plan to the 2017 Baseline on a per-TEU basis. In 2017, the Port produced 1,156,841 MT CO_2e and handled 7,544,508 TEU, resulting in an efficiency of 0.153 MT per TEU. In 2040, the Proposed Plan would produce 2,029,262 MT CO_2e and would handle 16,937,000 TEU, resulting in an efficiency of 0.120 MT per TEU. Therefore, the 2040 Proposed Plan would be 22 percent more efficient than the 2017 Baseline on an emissions-per-TEU basis.

TABLE 3.16-3. GHG EFFICIENCY FOR THE UNMITIGATED PROPOSED PLAN – 2040

Description	CO_2e Emissions per TEU (MT/TEU)
2017 Baseline	0.153
Proposed Plan	0.120
Efficiency Improvement of Proposed Plan Relative to Baseline	22%

Key: CO_2e = carbon dioxide equivalent; GHG = greenhouse gas; MT = metric ton; TEU = twenty-foot equivalent unit

Implementation of the OHSPER project would not require construction, as the facility is already operable in its present configuration. Therefore, the OHSPER project would not result in any GHG emissions due to construction. Operation of the OHSPER project would include the use of diesel-powered dredges, scows, tugboats, and other vessels that would carry materials to the project site. Because these same types of emission sources operate as part of the existing use of the WASSS, the net change in GHG emissions between existing and proposed uses of the site would be minimal.

Mitigation Measures

Mitigation Measures AQ-1, AQ-2, AQ-3, and AQ-6, which were prescribed in Section 3.2 (Air Quality and Health Risk) to reduce criteria pollutant emissions during construction, also would reduce GHG emissions during construction. **Mitigation Measures AQ-7 through AQ-9,** which were prescribed in Section 3.2.3.3 (Proposed Plan) to reduce criteria pollutant emissions from operations, also would reduce GHG emissions during operations.

The estimate of unmitigated GHG emissions from operations under the Proposed Plan in year 2040 is based on the approach of conservatively assuming that Port sources would operate in compliance with all applicable current regulations and most source-specific control measures identified in the 2010 CAAP Update, but not measures identified in the 2017 CAAP Update. The 2017 CAAP Update proposes strategies that will transition port operations from fossil-fueled to near-zero and zero emissions technologies. Therefore, the control strategies in the 2017 CAAP Update represent measures that would mitigate significant levels of GHG emissions from future Port operations under the Proposed Plan.

The 2017 CAAP Update emission-reduction strategies are in various stages of planning. As part of the 2017 CAAP Update process, the San Pedro Bay Ports estimated potential emission reductions from implementation of the following strategies and goals, based on a variety of equipment and vehicle turnover rate assumptions: 1) zero-emissions CHE by 2030 and 2) zero-emissions drayage trucks by 2035 (POLA and POLB 2017a). This analysis showed substantial GHG emission reductions from the implementation of near-zero and zero-emissions drayage trucks between the interim years of 2017 and 2035. Specifying actual emission reductions from these measures in future years would be too speculative for analysis in this PEIR, due to the uncertainty of predicting how and when the measures would be implemented under the Proposed Plan. However, implementation of these and other source-specific emission-reduction strategies from the 2017 CAAP Update (proposed as **Mitigation Measure AQ-8**) could result in substantial reductions of GHG emissions from sources that operate under the Proposed Plan.

The following measures would be implemented as applicable to minimize impacts associated with target sources of GHG emissions within the Harbor District. These mitigation measures would be implemented as part of the project-level environmental review process and subsequent terminal lease agreements that would occur under the Proposed Plan.

GCC-1: LED Lighting. All lighting within new buildings and outdoor areas shall be light-emitting diode (LED) lighting or a technology with similar energy-saving capabilities.

GCC-2: Xeriscaping. Water conservation features shall be implemented, including drought-tolerant plant materials. Xeriscape landscaping shall incorporate the use of water conservation features including, but not limited to, drought-tolerant plants; hardscape; permeable material such as concrete, asphalt, and pavers; recycled material such as concrete, gravel, granite, and shredded redwood; and drip irrigation systems and timers.

GCC-3: Tree Planting. Trees shall be planted on site/within the facility and shall be selected, as appropriate, from lists contained in the City of Long Beach Public Works' Approved Tree List, which identifies trees to be planted in public rights-of-way; the Port of Long Beach Sustainable Landscape Palette, which identified native and drought-tolerant species; and the Port of Long Beach's latest Community Mitigation Grants Program Approved Tree List, which prioritizes trees based on their crown diameter and ability to capture CO_2 from the atmosphere.

Trees act as insulators from weather, thereby decreasing energy requirements. On-site trees also provide carbon storage. For example, a mature tree can absorb CO_2 at a rate of 48 pounds per year (Keystone 10 Million Trees Partnership 2019).

GCC-4: Tree Planting in Transportation Corridors. For projects for which the Port is the proponent, the Port shall plant new shade trees on Port-controlled lands adjacent to the roads that lead into the facility, to the extent practicable, consistent with safety and other land use considerations.

GCC-5: Employee Carpooling. Construction and facility employees shall be encouraged to carpool or to use public transportation. Employers shall provide incentives to promote the measure, such as preferential parking for carpoolers or vanpool subsidies, and they shall provide information to employees regarding the benefits of alternative transportation methods.

GCC-6: Community Grants Program. The Community Grants Program will be implemented and funded to partially address the cumulative GHG impacts of individual projects under the Proposed Plan. To determine a project's contribution to the Community Grants Program, the methodology described in the latest Port of Long Beach Community Grants Program and Investment Plan shall be used.

GCC-7: Indirect GHG Emission Avoidance and Mitigation. Indirect GHG emissions shall be minimized through measures that reduce or avoid electricity consumption during operations. Measures may include, but are not limited to, the use of low-energy demand lighting (e.g., fluorescent or LED), use of energy-efficient floodlights, third-party energy audits, and installation of innovative power-saving technologies where feasible, such as power factor correction systems and lighting power regulators. Such systems help to maximize usable electric current and eliminate wasted electricity, thereby lowering overall electricity use.

<u>Significance of Impact after Mitigation</u>

It is uncertain to what degree individual projects under the Proposed Plan would be able to implement the proposed mitigation measures. For example, implementation of source-specific emission-reduction strategies identified in the 2017 CAAP Update (**Mitigation Measure AQ-8**) would depend on the availability of future advancements in technology, regulatory development, and economic incentives (POLA and POLB 2017a). Therefore, this PEIR does not fully quantify mitigated GHG emissions associated with the Proposed Plan alternatives. However, implementation of zero-emission drayage trucks and CHE proposed in the 2017 CAAP Update could substantially reduce the annual unmitigated emissions estimated for the Proposed Plan in Table 3.16-2 and could improve the emissions-per-TEU efficiency metric shown in Table 3.16-3. With these emission reductions, mitigated CO_2e emissions from the Proposed Plan potentially would remain above the SCAQMD's interim significance threshold of 10,000 MT per year since the Proposed Plan emissions from all other sources would still exceed the total baseline emissions by more than 10,000 MT per year. Because it is uncertain how and when the proposed measures would be implemented, this analysis conservatively concludes that impacts on GHG emissions would remain significant after mitigation.

Impact GCC-2: Construction and operations would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHG.

<u>Impact Determination</u>

Table 3.16-4 evaluates relevant plans, policies, and regulations adopted for the purpose of reducing GHG emissions. The table describes whether or not the plans, policies, and regulations are applicable on a project-specific basis and, therefore, applicable to the Proposed Plan. The table shows that the Proposed Plan would not conflict with any of the applicable federal, state, regional, or local GHG emission-reduction plans, policies, or regulations. Therefore, this impact would be less than significant.

TABLE 3.16-4. PLAN, POLICY, AND REGULATORY EVALUATION

Plan or Policy	Applicability	Evaluation of Project and Build Alternatives
EO S-3-05 (2005) established the following GHG emission-reduction targets for California state agencies: 1) Year 2000 levels by 2010, 2) year 1990 levels by 2020, and 3) 80 percent below 1990 levels by 2050.	Established statewide goals that are not directly applicable to a project-level analysis. Nonetheless, certain elements of the Proposed Plan serve to facilitate state goals by providing infrastructure for more efficient cargo transport.	EO S-3-05 established state targets and directed state legislature to develop legislation to address those targets. The Proposed Plan analysis has quantified GHG impacts for 2040 and has identified feasible mitigation measures. The analysis predicts that impacts beyond 2040 would remain constant; this is a conservative assumption because it takes into account only GHG emission-reduction technologies pursuant to existing regulations and does not take into account GHG emission reductions anticipated due to future regulatory efforts. EO S-3-05 did not identify project-level measures. The Proposed Plan would comply with existing regulations applicable to project activities and would, by law, comply with future regulatory requirements applicable to project activities. The Proposed Plan, therefore, would not preclude the state's compliance with EO S-3-05.
AB 32 – California Global Warming Solutions Act (2006) codified the following S-3-05 targets: 1) Year 2000 levels by 2010 and 2) Year 1990 levels by 2020.	Established statewide goals that are not directly applicable to a project-level analysis. Nonetheless, certain elements of the Proposed Plan serve to facilitate state goals by providing infrastructure for more efficient cargo transport.	AB 32 codified S-3-05 targets through 2020 and directed state regulatory agencies to develop rules and regulations to meet the 2020 state targets, but it did not identify project-level measures. See evaluation for EO S-3-05 (2005).
California Air Resources Board's AB 32 Scoping Plan (2008) set a statewide roadmap for achieving the following AB 32 state targets: 1) Year 2000 levels by 2010 and 2) Year 1990 levels by 2020.	Includes general recommendations to reduce GHG emissions from various sources. The most relevant to the Proposed Plan are the goods movement recommendations, which are generally applicable to the Proposed Plan.	The AB 32 Scoping Plan describes California's approach to achieve the GHG emissions reduction goal of 1990 emission levels by 2020. The Scoping Plan's GHG reduction actions include direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, market-based mechanisms such as a cap-and-trade system, and an AB 32 program implementation fee regulation to fund the program. The Scoping Plan's reduction actions do not identify specific direct project-level measures.

TABLE 3.16-4. PLAN, POLICY, AND REGULATORY EVALUATION		
Plan or Policy	**Applicability**	**Evaluation of Project and Build Alternatives**
		The Scoping Plan identified a discrete early-action regulation for port operations. This action resulted in the promulgation of a regulation for electrification of ship auxiliary engines while at berth. The Proposed Plan complies with this requirement and this PEIR analysis simulated that 80 percent of the affected ship calls would use shoreside power. The Scoping Plan includes recommendations to reduce GHG from transportation activities associated with the movement of freight within the state. Measure T-6 is described as “Goods Movement Efficiency Measures – System-Wide Efficiency Improvements.” On an emissions-per-TEU basis, the Proposed Plan would improve goods movement efficiency by 21 percent over 2017 Baseline conditions, as shown in Table 3.16-3.
AB 32 Scoping Plan Update (2014) built upon the 2008 Scoping Plan with new strategies to achieve the following AB 32 state target: Year 1990 levels by 2020.	Includes general recommendations to reduce GHG emissions from various sources. The most relevant to the Proposed Plan are the goods movement recommendations, which are generally applicable to the Proposed Plan.	The AB 32 Scoping Plan Update highlights the state’s progress toward meeting the 2020 GHG emission-reduction goal, identifies funding opportunities to reduce GHG emissions through planning and low-carbon investments, identifies climate change priorities for 5 years, and sets the groundwork to reach long-term goals of EO S-3-05. The Scoping Plan Update includes specific recommended actions for lead agencies, identifies possible regulatory actions for vehicles and fuels, and introduces the need for a sustainable freight initiative and the 2014 Sustainable Freight Strategy (technical assessments that identify near-term and 2020 actions for each freight sector). The Scoping Plan Update identifies the following technology-specific objectives for the freight/transportation sector but does not identify specific direct project-level measures: • Accelerate the introduction and deployment of zero and near-zero emission trucks, including trucks capable of zero-emission miles; • Continue improving the efficiency of trucks (both engines and vehicles); • Support development and introduction of locomotives capable of zero-emission track miles;

TABLE 3.16-4. PLAN, POLICY, AND REGULATORY EVALUATION		
Plan or Policy	**Applicability**	**Evaluation of Project and Build Alternatives**
		• Accelerate cleanup of the existing locomotive fleet; • Increase near-dock rail in Oakland/Los Angeles/Long Beach; • Reduce GHGs and criteria pollutants from ocean-going vessels; and • Identify efficiency improvements on all levels (equipment, sector, and system). • The Proposed Plan would increase on-dock rail capacity at the POLB. Since rail is a more efficient form of goods transport than drayage trucks, the proposed improvements to the Port rail systems are expected to reduce regional GHG emissions as compared to a transportation system that relies on drayage trucks to move cargo from the terminal to off-dock railyards. In addition, the Proposed Plan analysis has identified feasible mitigation measures. The Proposed Plan also would redesign terminals to improve the efficiencies of good movements. The Proposed Plan would not interfere with attainment of any Scoping Plan Update objective and, therefore, would not conflict with the Scoping Plan Update.
California Sustainable Freight Action Plan (July 2016)	While the plan does not have project-level goals or requirements, its strategies are broadly applicable to the Proposed Plan.	Pursuant to EO B-32-15 (2015), the Sustainable Freight Action Plan established target goals to improve freight efficiency, transition to zero-emission technologies, and make California's freight system more competitive. Sustainable Freight Action Plan measures are conceptual and rely on the future development of regulations to implement the strategies. Plan strategies include on-dock and near-dock strategies to shift goods movement from truck to rail (California Sustainable Freight Action Plan, Appendix C – State Agency Actions, Action 3 – Focus Freight Infrastructure Planning and Investments on Providing Modern Freight Corridors, Section H, Elements 1 and 2; Appendix E – Discussion Concepts for Potential Future Action, Section H – Infrastructure Projects, Element 3). The Proposed Plan would increase on-dock rail capacity at the Port, thereby promoting the shift of cargo from truck to rail. Since rail

TABLE 3.16-4. PLAN, POLICY, AND REGULATORY EVALUATION		
Plan or Policy	**Applicability**	**Evaluation of Project and Build Alternatives**
		is a more efficient form of goods transport, the improvements to the rail system are expected to reduce regional GHG emissions as compared to a transportation system that relies on drayage trucks to move cargo from the terminal to off-dock railyards. The Proposed Plan also would redesign terminals to improve the efficiencies of good movements. Therefore, the Proposed Plan would promote the California Sustainable Freight Action Plan.
California's 2017 Climate Change Scoping Plan (2017 Scoping Plan) builds on the 2008 Scoping Plan and 2014 update with new strategies to achieve the following AB 32 state target: a 40 percent reduction in GHGs by 2030 compared to 1990 levels.	Includes general recommendations to reduce GHG emissions from various sources. The most relevant to the Proposed Plan are the sustainable freight goals.	The 2017 Scoping Plan provides further guidance on how to meet the statewide GHG reduction goal of 40 percent below 1990 emission levels by 2030. The Plan also discusses its relation to the 2050 GHG reduction target under the EO B-30-15, which is 80 percent below 1990 levels. The transportation sustainability guidance in the 2017 Scoping Plan notes that the state's transportation system, while providing benefits such as economic growth and greater accessibility, also has adverse consequences, including GHG emissions, air pollutants, and traffic congestion. The Plan identifies the transportation system, as a whole, as the largest emitter of GHG emissions in California. The 2017 Scoping Plan emphasizes the need for freight and goods movement systems to improve efficiency and to maximize the use of near-zero and zero-emission vehicles and equipment powered by renewable energy. The Plan concludes that most GHG reductions in the transportation sector will come from new technologies and low-carbon fuels, but that a reduction in VMT is needed to enable the statewide 2030 GHG reduction goal. High-level objectives and goals set out in the 2017 Scoping Plan to reduce GHGs in the transportation sector include: • Update the California Environmental Quality Act metric of transportation impacts, from level of service to VMT, statewide; • Promote transportation fuel system infrastructure for electric, fuel-cell, and other emerging clean technologies;

TABLE 3.16-4. PLAN, POLICY, AND REGULATORY EVALUATION		
Plan or Policy	**Applicability**	**Evaluation of Project and Build Alternatives**
		• Promote potential efficiency gains from automated transportation systems; and • Continue research and development on transportation system infrastructure. The Proposed Plan complies with many of the Final 2017 Scoping Plan Update objectives and goals described above. The Proposed Plan would increase on-dock rail capacity at the Port. The Proposed Plan also would redesign terminals to improve the efficiencies of good movements. Therefore, the Proposed Plan would promote the goals of the 2017 Scoping Plan.
EO B-30-15 (2015) established a statewide GHG emissions reduction target of 40 percent below 1990 levels by 2030.	Established statewide goals that are not directly applicable to a project-level analysis. Nonetheless, certain elements of the Proposed Plan serve to facilitate state goals by providing infrastructure for more efficient cargo transport.	EO B-30-15 established a state GHG target of 40 percent below 1990 levels by 2030 and directed the state legislature to develop legislation to address this target. This target was established to ensure California meets the EO S-3-05 target of reducing GHG emissions to 80 percent below 1990 levels by 2050. The Proposed Plan analysis has quantified GHG impacts for 2040 and has identified feasible mitigation measures. The analysis assumes that impacts beyond 2040 would remain constant; this is a conservative assumption because it takes into account only GHG emission-reduction technologies pursuant to existing regulations and does not take into account GHG emission reductions anticipated in future regulatory efforts. Similar to EO S-3-05, EO B-30-15 did not identify project-level measures. The Proposed Plan would comply with existing regulations, applicable to project activities, and would, by law, comply with future regulatory requirements, applicable to project activities. The Proposed Plan, therefore, would not preclude the state's compliance with EO B-30-15.
SB 32 (2016) codified the B-30-15 target: 40 percent reduction below 1990 levels by 2030.	Established statewide goals that are not directly applicable to a project-level analysis. Nonetheless, certain elements of the Proposed Plan serve to facilitate state goals by providing infrastructure for	SB 32 codified the EO B-30-15 target through 2030 and directed state regulatory agencies to develop rules and regulations to meet the 2030 target but did not identify project-level measures. See the evaluation for EO B-30-15 (2015).

TABLE 3.16-4. PLAN, POLICY, AND REGULATORY EVALUATION		
Plan or Policy	**Applicability**	**Evaluation of Project and Build Alternatives**
	more efficient cargo transport.	
SCAG 2016–2040 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) (2016) provides for development of a sustainable communities strategy in the context of the existing regional transportation planning process.	While the RTP/SCS does not have project-level goals or requirements, its strategies are broadly applicable to the Proposed Plan.	SCAG developed the 2016–2040 RTP/SCS with the primary goal of increasing mobility for the region's residents and visitors but also with an emphasis on sustainability, pursuant to SB 375 (Sustainable Communities and Climate Protection Act of 2008). This law set regional targets for GHG emission reductions from passenger vehicle use for 2020 and 2035 for each region covered by one of the state's metropolitan planning organizations. SB 375 further required that SCAG include an SCS in the RTP that reduces GHG emissions from passenger vehicles. Although SB 375 focuses on light-duty vehicle emissions, SCAG's RTP/SCS includes additional regional strategies directed at goods movement. The RTP/SCS Goods Movement Appendix identifies strategies for regional highway improvements, regional rail improvements (i.e., on-dock and near-dock rail), and San Pedro Bay Ports access projects. The RTP/SCS Goods Movement Appendix also identifies goods movement environmental strategies such as the short-term deployment of commercially available lower-emission trucks and locomotives and the longer-term strategy development of phased implementation of a zero- and near-zero emission freight system. The longer-term strategies include technology and pilot studies, demonstration projects, regulatory development, and funding commitments. The Goods Movement Appendix specifically identifies the San Pedro Bay Port Complex as part of the regional rail strategy. The appendix describes the extensive benefits of the rail strategies on page 32. These include reduced emissions and reduced truck trips. The Proposed Plan would increase on-dock rail capacity at the Port. Since rail is a more efficient form of goods transport than drayage trucks, the proposed improvements to the rail system are expected to reduce regional GHG emissions as compared to the use of drayage trucks to move cargo from the terminal to off-dock rail yards.

TABLE 3.16-4. PLAN, POLICY, AND REGULATORY EVALUATION

Plan or Policy	Applicability	Evaluation of Project and Build Alternatives
		Finally, the Proposed Plan would comply with CAAP measures, existing regulations applicable to project activities, and would by law comply with future regulatory requirements applicable to project activities. Therefore, the Proposed Plan would not conflict with SCAG's RTP/SCS.
Port of Long Beach Green Port Policy (2005)	Applicable.	The POLB Green Port Policy serves as a guide for decision-making and establishes a framework for environmentally friendly Port operations. One of the policy's guiding principles is to promote sustainability. The sustainability element identifies GHG-reducing measures such as green building principles, recycling programs, landscaping projects, and energy/fuel efficiency. The Proposed Plan would support implementation of the POLB Green Port Policy initiatives through Development Goal 3 (see Section 1.8.1, Development Goals). Therefore, the Proposed Plan would not conflict with the POLB Green Port Policy.
San Pedro Bay Ports 2006 Clean Air Action Plan (CAAP) (2007), CAAP Update (2010), and 2017 CAAP Update (2017)	The CAAP and its updates include requirements to reduce criteria pollutants that also would reduce GHG emissions from the San Pedro Bay Ports' goods movement operations.	While the 2006 CAAP and 2010 Update were primarily designed to reduce criteria pollutants and air toxics, many of the CAAP strategies also would reduce GHG emissions. The CAAP 2017 Update furthers the goals of the previous CAAPs and promotes goals related to the Sustainable Freight Action Plan and 2017 Scoping Plan for the goods movement sector and recent commitments by the mayors of Los Angeles and Long Beach to move toward zero emissions at the San Pedro Bay Ports. Among the strategies to achieve these goals are: • Transition drayage trucks to near-zero and zero emissions by 2035; and • Implement zero-emissions cargo handling equipment by 2030. The 2017 CAAP Update also incorporates two new emission-reduction targets: Reduce GHGs from port-related sources to 40 percent below 1990 levels by 2030. Reduce GHGs from port-related sources to 80 percent below 1990 levels by 2050. The 2017 CAAP Update also proposes goals to improve freight infrastructure with

TABLE 3.16-4. PLAN, POLICY, AND REGULATORY EVALUATION		
Plan or Policy	**Applicability**	**Evaluation of Project and Build Alternatives**
		investments and planning and improve freight efficiency. The CAAP process is one of the strategies that implement the POLB Green Port Policy. Since the Proposed Plan would support implementation of the POLB Green Port Policy, it would directly implement the CAAP and emission-reduction initiatives identified in the 2010 and 2017 CAAP Updates. The Proposed Plan would increase on-dock rail capacity and redesign terminals to improve the efficiency of goods movement at the Port. Therefore, the Proposed Plan would be consistent with the CAAPs, and it would promote achievement of the GHG goals in the 2017 CAAP Update.
Long Beach Sustainable City Action Plan (February 2010)	Applicable.	The Long Beach Sustainable City Action Plan is intended to guide operational, policy, and financial decisions to create a more sustainable Long Beach. Although the Action Plan is mostly focused on City property, buildings, and public transportation, some elements refer to Port activities. The Transportation section defers to the CAAP for criteria pollutant emission reductions; GHG emission reductions are not explicitly addressed (in the 2007 CAAP), but their reduction would be a benefit of CAAP compliance. The Proposed Plan would comply with the CAAP. The Action Plan also promotes green building principles, such as recycling of building materials, as well as Leadership in Energy and Environmental Design certification. It is a goal of the Green Port Policy to implement sustainable practices in design, construction, and operations and so it would not conflict with the Sustainable City Action Plan. Since the Proposed Plan supports implementation of the Green Port Policy, the Proposed Plan would not conflict with the Sustainable City Action Plan.
City of Long Beach General Plan – Mobility Element, The Mobility of Goods (October 15, 2013)	Applicable.	The City of Long Beach General Plan, Mobility Element was developed to improve the way people, goods, and resources are moved in Long Beach. The Mobility of Goods section expressly identifies the increase of on-dock rail facilities as one of

TABLE 3.16-4. PLAN, POLICY, AND REGULATORY EVALUATION		
Plan or Policy	**Applicability**	**Evaluation of Project and Build Alternatives**
		the three approaches to improve the efficiency of goods transport. The Mobility of Goods section identifies the significant benefits of moving cargo directly from an on-dock railyard instead of first moving it by drayage truck to an off-dock railyard. The following is identified in the Mobility Element as a "fast fact" regarding the use of on-dock rail facilities: "Each train loaded on-dock at the Port of Long Beach eliminates up to 750 truck trips from local freeways. One container ship entering the Port generates as much as five trains' worth of intermodal cargo. By using on-dock rail, the Port can potentially eliminate 3,750 truck trips for every vessel call." (Mobility Element, p. 105.) The Proposed Plan would increase on-dock rail capacity at the Port, thereby promoting the shift of cargo from truck to rail. As explained above, this is expected to reduce regional GHG emissions as compared to a transportation system that relies on drayage trucks to move cargo from the terminal to off-dock railyards. The Proposed Plan, therefore, would implement the City of Long Beach General Plan, Mobility Element, and would not conflict with it.
Construction and Demolition Recycling Program (City of Long Beach Municipal Code Chapter 18.67)	Applicable.	This municipal code regulation requires covered projects to divert at least 65 percent of all project-related construction and demolition material waste. There are exceptions for materials with low recyclability, which would likely include channel sediment waste. Compliance with this regulation will ensure conformance with other construction waste recycling GHG emissions reduction policies.
Key: AB = Assembly Bill; CAAP = Clean Air Action Plan; EO = Executive Order; GHG = greenhouse gas; PEIR = Program Environmental Impact Report; POLB or Port = Port of Long Beach; RTP = Regional Transportation Plan; SB = Senate Bill; SCAG = Southern California Association of Governments; SCS = Sustainable Communities Strategy; TEU = twenty-foot equivalent unit; VMT = vehicle miles traveled		

Operation of the OHSPER project would include the use of diesel-powered dredges, scows, tugboats, and other vessels that would carry materials to the project site. These same types of emission sources operate as part of the existing use of the WASSS and they would comply with applicable air quality and GHG regulations. As a result, operation of the OHSPER project would not conflict with an applicable plan, policy, or regulation.

As construction and operations of Proposed Plan projects would not conflict with GHG emission-reduction plans, policies, and regulations, impacts would be less than significant. No mitigation is required.

Impact GCC-3: Construction and operations would not expose people and structures to a significant risk of loss, injury, or death involving flooding as a result of SLR.

Impact Determination

SLR would affect all of the waters of the Harbor District. The POLB completed a CRP that evaluates the potential risks of SLR to infrastructure within the Harbor District, based on a range of inundation scenarios (see Section 3.16.2.3, Local Regulations). The evaluation determined that portions of Piers S and D would be inundated first by SLR and, under the most extreme projections, the backlands of Piers A, B, and C also would be inundated as well the tip of Pier E. Through further evaluation in the CRP, the Port prioritized five adaptation strategies to address the future threat of SLR. One of these approaches, the Pier S Shoreline Enhancement Project, is currently in the feasibility and planning phase. Another strategy adds SLR analysis to the HDP process and, therefore, ensures that future development at the Port fully considers potential vulnerability to SLR. The CRP also considered several additional adaptation strategies for future development by Port staff.

Almost all of the projects proposed for development under the Proposed Plan would be located in areas that would not be severely threatened by SLR (POLB 2016a). While a portion of the proposed Pier S Mixed Use Development project footprint would occur within the area predicted to be initially inundated by the CRP, this inundation would be eliminated by the Pier S Shoreline Enhancement project currently in the feasibility and planning stage. In addition, the current POLB HDP process requires SLR analyses to ensure that any future project would be designed to avoid significant risks from SLR. These SLR analyses would consider current state SLR guidance developed by the OPC, CCC, and CSLC (see Section 3.16.2.2, State Regulations, under EO S-13-08 and AB 691). Therefore, the impact from SLR to the Proposed Plan would be less than significant and no mitigation is required.

Operation of the OHSPER project would include use of the existing WASSS. This site is an area of relatively deep water within the Harbor District and future SLR would have an imperceptible effect at this location. As a result, operation of the OHSPER project would not expose people and structures to the effects of SLR.

As construction and operations would not expose people and structures to a significant risk of loss, injury, or death involving flooding as a result of SLR, impacts would be less than significant and no mitigation is required.

3.16.3.4 Alternative 1 (No Plan Alternative)

Alternative 1 (No Plan Alternative) considers what would reasonably occur if the Port did not update the 1990 PMP as amended to include updates to the planning districts and allowable land and water use designations within the Harbor District. Alternative 1 includes projects that are 1) consistent with the 1990 PMP as amended, 2) may or may not have been evaluated in a final CEQA document, and/or 3) could be implemented without approval of the Proposed Plan. Alternative 1 includes the following projects: Administrative Building Site Support Yard (Expansion), Fourth Track at Ocean Boulevard, Ocean Boulevard Bicycle Gap Closure, Pier B Street Support Yard, Pier D Street Realignment, Pier S Mixed Use Development, and Pier S Shoreline Enhancement. This alternative also includes the Pier T Echo Support Yard project, which would construct a 17-acre support yard (chassis, empties, or peel-off) that would serve the Pier T container terminal. In addition, use of the WASSS would continue as currently permitted (i.e., placement and reuse of clean sediments).

Impact Determination

Table 3.16-5 presents estimates of unmitigated annual CO_2e emissions that would occur within California from construction and operation of the full build-out scenario of Alternative 1 in year 2040. The largest contributors to emissions would include trucks, CHE, OGVs, and line haul locomotives. The data in Table 3.16-5 show that the unmitigated annual CO_2e emissions generated from Port construction and operations under Alternative 1 minus the 2017 Baseline scenario would exceed the SCAQMD annual GHG emission threshold of 10,000 MT of CO_2e. Therefore, the 2040 unmitigated GHG emissions associated with Alternative 1 would be significant under Impact GCC-1. In comparison, the 2040 unmitigated GHG emissions estimated for Alternative 1 would be about 13 percent lower than those estimated for the Proposed Plan (see Table 3.16-2).

Mitigation Measures AQ-1, AQ-2, AQ-3, and AQ-6 would reduce GHG emissions during construction and **Mitigation Measures AQ-7 through AQ-9** would reduce GHG emissions during operations (see Section 3.2.3.3, Proposed Plan). In addition, **Mitigation Measures GCC-1 through GCC-7** would reduce sources of GHG emissions from activities under Alternative 1. The data in Table 3.16-5 show that full implementation of zero-emission drayage trucks and CHE proposed in the 2017 CAAP Update (and **Mitigation Measure AQ-8**) could substantially reduce the annual unmitigated GHG emissions estimated for Alternative 1 in year 2040. However, since it is uncertain to what degree individual projects under Alternative 1 would implement the proposed mitigation measures, this analysis conservatively concludes that mitigated CO_2e emissions potentially would remain above the SCAQMD interim significance threshold of 10,000 MT per year. Therefore, impacts would remain significant after mitigation.

TABLE 3.16-5. ANNUAL UNMITIGATED GHG EMISSIONS FROM ALTERNATIVE 1 – 2040

Emission Source	Annual CO_2e Emissions (metric tons per year)[1]
Ocean-Going Vessels	
OGVs in Transit[2]	445,226
OGVs at Berth[3]	90,868
Harbor Craft[4]	38,705
Cargo Handling Equipment	162,257
Locomotives	
Switchers On-Port	2,938
Line Haul Locomotives On-Port	41,163
Line Haul Locomotives Off-Port[5]	327,477
Heavy-Duty Vehicles	
HDVs On-Terminal Exhaust[6]	42,741
HDVs Off-Terminal Exhaust[7]	493,593
Automobiles	25,650
Refrigerated Containers[8]	

TABLE 3.16-5. ANNUAL UNMITIGATED GHG EMISSIONS FROM ALTERNATIVE 1 – 2040	
Emission Source	**Annual CO_2e Emissions (metric tons per year)[1]**
TRU Genset Exhaust	525
Refrigerant Leakage	17,243
Electricity Consumption[9]	
OGV Shore Power	24,472
Electric CHE	11,864
Port Lighting	10,262
Refrigerated Containers on Grid Power[10]	21,833
Construction[11]	794
Total Alternative 1	**1,757,613**
CEQA Impacts	
Total, 2017 Baseline	1,156,841
Alternative 1 minus 2017 Baseline	600,772
Significance Threshold	10,000
Significant?	**Yes**

Key: CEQA = California Environmental Quality Act; CHE = cargo handling equipment; CO_2e = carbon dioxide equivalent; Genset = generation set; GHG = greenhouse gas; HDVs = heavy-duty vehicles; nm = nautical miles; OGVs = ocean-going vessels; POLB or Port = Port of Long Beach; TRU = transport refrigeration unit; VSR = vessel speed reduction

Notes:

[1] The emissions domain for GHGs is the State of California.

[2] OGV transit emissions include transit between the berth and the boundary of California regulated waters, and anchoring in the harbor while waiting for an available berth. The emissions assume that, in 2040, 95 percent of all inbound vessels will use VSR (maximum 12 knots) within 40 nm of Point Fermin, 95 percent of all outbound vessels will use VSR within 20 nm of Point Fermin, and 90 percent of all outbound vessels will use VSR between 20 and 40 nm of Point Fermin.

[3] OGV at-berth emissions assume that the shore power usage rates in 2040 would be 80 percent for containerships, cruise vessels, and reefer vessels; and 0 percent for all other vessels.

[4] Harbor craft emissions are from assist tugboats only. All other harbor craft activity is not directly related to cargo throughput and, therefore, is not expected to increase substantially in the future.

[5] Off-Port line haul locomotive emissions include trains that originate/terminate at the Port and trains carrying Port containers that originate/terminate at off-dock railyards within California (calculated as the equivalent number of trains needed to carry only the Port-related cargo).

[6] On-terminal HDV emissions include queuing at terminal entry gates, travel and idling within the terminals, and queuing at the terminal exit gates.

[7] Off-terminal HDV emissions represent trips between the Port and the first point of rest or California border, whichever comes first.

[8] Refrigerated container emissions are quantified for the time they spend at the Port.

[9] Electricity consumption occurs on-Port but emissions are produced at regional power plants.

[10] Refrigerated containers at the Port are plugged into grid power when they are not being transported.

[11] Construction emissions are estimated by scaling from prior POLB CEQA documents. Per South Coast Air Quality Management District (SCAQMD 2008b) guidance, construction emissions are amortized over 30 years (i.e., total construction emissions divided by 30 years).

To provide additional information for impacts under Impact GCC-1, Table 3.16-6 presents an efficiency analysis of Alternative 1, based on the use of a CO_2e emissions-per-TEU throughput metric. These data show that Alternative 1 would be 18 percent more efficient than the

2017 Baseline on a CO_2e emissions-per-TEU basis. In comparison, the Proposed Plan would be 22 percent more efficient than the 2017 Baseline on a CO_2e emissions-per-TEU basis.

TABLE 3.16-6. GHG EFFICIENCY FOR THE UNMITIGATED ALTERNATIVE 1 – 2040	
Description	**CO_2e Emissions per TEU (MT/TEU)**
2017 Baseline	0.153
Alternative 1	0.125
Efficiency Improvement of Alternative 1 Relative to Baseline	18%
Key: CO_2e = carbon dioxide equivalent; GHG = greenhouse gas; MT = metric tons; TEU = twenty-foot equivalent	

Similar to the Proposed Plan, construction and operations from Alternative 1 would not conflict with applicable GHG emissions reduction plans, policies, or regulations. In addition, construction and operations from Alternative 1 would not expose people and structures to a significant risk of loss, injury, or death involving flooding as a result of SLR. Therefore, Impacts GCC-2 and GCC-3 under Alternative 1 would be less than significant and no mitigation is required.

3.16.3.5 Alternative 2 (No Terminal Development)

Alternative 2 (No Terminal Development) is similar to the Proposed Plan and would include updates to the planning districts and allowable land and water use designations in the Harbor District. However, Alternative 2 would not include terminal development projects at Pier T, Pier W, or Pier J. Alternative 2 would include the following projects: Administrative Building Site Support Yard (Expansion), Protective Boat Basin (Berth F202), OHSPER, Fourth Track at Ocean Boulevard, Ocean Boulevard Bicycle Gap Closure, Pier B Street Support Yard, Pier D Street Realignment, Pier T Echo Support Yard, Pier S Mixed Use Development, and Pier S Shoreline Enhancement.

Impact Determination

Table 3.16-7 presents estimates of unmitigated annual CO_2e emissions that would occur within California from construction and operation of the full build-out scenario of Alternative 2 in year 2040. The largest contributors to emissions would include trucks, CHE, OGVs, and line haul locomotives. The data in Table 3.16-7 show that the unmitigated annual CO_2e emissions generated from Port construction and operations under Alternative 2 minus the 2017 Baseline scenario would exceed the SCAQMD annual GHG emission threshold of 10,000 MT of CO_2e. Therefore, the 2040 unmitigated GHG emissions associated with Alternative 2 would be significant under Impact GCC-1. In comparison, the 2040 unmitigated GHG emissions estimated for Alternative 2 would be about 13 percent lower than those estimated for the Proposed Plan (see Table 3.16-2).

Mitigation Measures AQ-1, AQ-2, AQ-3, and AQ-6 would reduce GHG emissions during construction and **Mitigation Measures AQ-7 through AQ-9** would reduce GHG emissions during operations (see Section 3.2.3.3, Proposed Plan). In addition, **Mitigation Measures GCC-1 through GCC-7** would reduce sources of GHG emissions from activities under Alternative 2. The data in Table 3.16-7 show that full implementation of zero-emission drayage trucks and CHE proposed in the 2017 CAAP Update (and **Mitigation Measure AQ-8**) could substantially reduce the annual unmitigated GHG emissions estimated for Alternative 2 in year 2040. However, since it is uncertain to what degree individual projects under Alternative 2 would implement the proposed mitigation measures, this analysis conservatively concludes that mitigated CO_2e emissions potentially would remain above the SCAQMD interim significance threshold of 10,000 MT per year. Therefore, impacts would remain significant after mitigation.

To provide additional information for impacts under Impact GCC-1, Table 3.16-8 presents an efficiency analysis of Alternative 2, based on the use of a CO_2e emissions-per-TEU throughput metric. These data show that Alternative 2 would be 18 percent more efficient than the 2017 Baseline on a CO_2e emissions-per-TEU basis. In comparison, the Proposed Plan would be 22 percent more efficient than the 2017 Baseline on a CO_2e emissions-per-TEU basis.

Similar to the Proposed Plan, construction and operations from Alternative 2 would not conflict with applicable GHG emissions reduction plans, policies, or regulations. In addition, construction and operations from Alternative 2 would not expose people and structures to a significant risk of loss, injury, or death involving flooding as a result of SLR. Therefore, Impacts GCC-2 and GCC-3 under Alternative 2 would be less than significant and no mitigation is required.

TABLE 3.16-7. ANNUAL UNMITIGATED GHG OPERATIONAL EMISSIONS FROM ALTERNATIVE 2 – 2040

Emission Source	Annual CO_2e Emissions (metric tons per year)[1]
Ocean-Going Vessels	
OGVs in Transit[2]	445,226
OGVs at Berth[3]	90,868
Harbor Craft[4]	38,705
Cargo Handling Equipment	162,257
Locomotives	
Switchers On-Port	2,938
Line Haul Locomotives On-Port	41,163
Line Haul Locomotives Off-Port[5]	327,477
Heavy-Duty Vehicles	
HDVs On-Terminal Exhaust[6]	42,741
HDVs Off-Terminal Exhaust[7]	493,593
Automobiles	25,650
Refrigerated Containers[8]	
TRU Genset Exhaust	525
Refrigerant Leakage	17,243
Electricity Consumption[9]	
OGV Shore Power	24,472
Electric CHE	11,864
Port Lighting	10,266
Refrigerated Containers on Grid Power[10]	21,833
Construction[11]	806
Total Alternative 2	**1,757,629**
CEQA Impacts	
Total, 2017 Baseline	1,156,841
Alternative 2 minus 2017 Baseline	600,788
Significance Threshold	10,000
Significant?	**Yes**

TABLE 3.16-7. ANNUAL UNMITIGATED GHG OPERATIONAL EMISSIONS FROM ALTERNATIVE 2 – 2040
Key: CEQA = California Environmental Quality Act; CHE = cargo handling equipment; CO_2e = carbon dioxide equivalent; Genset = generation set; GHG = greenhouse gas; HDVs = heavy-duty vehicles; nm = nautical miles; OGVs = ocean-going vessels; Port = Port of Long Beach; TRU = transport refrigeration unit; VSR = vessel speed reduction Notes: [1] The emissions domain for GHGs is the State of California. [2] OGV transit emissions include transit between the berth and the boundary of California regulated waters, and anchoring in the harbor while waiting for an available berth. The emissions assume that, in 2040, 95 percent of all inbound vessels will use VSR (maximum 12 knots) within 40 nm of Point Fermin, 95 percent of all outbound vessels will use VSR within 20 nm of Point Fermin, and 90 percent of all outbound vessels will use VSR between 20 and 40 nm of Point Fermin. [3] OGV at-berth emissions assume that the shore power usage rates in 2040 would be 80 percent for containerships, cruise vessels, and reefer vessels; and 0 percent for all other vessels. [4] Harbor craft emissions are from assist tugboats only. All other harbor craft activity is not directly related to cargo throughput and, therefore, is not expected to increase substantially in the future. [5] Off-Port line haul locomotive emissions include trains that originate/terminate at the Port and trains carrying Port containers that originate/terminate at off-dock railyards within California (calculated as the equivalent number of trains needed to carry only the Port-related cargo). [6] On-terminal HDV emissions include queuing at terminal entry gates, travel and idling within the terminals, and queuing at the terminal exit gates. [7] Off-terminal HDV emissions represent trips between the Port and the first point of rest or California border, whichever comes first. [8] Refrigerated container emissions are quantified for the time they spend at the Port. [9] Electricity consumption occurs on-Port, but emissions are produced at regional power plants. [10] Refrigerated containers at the Port are plugged into grid power when they are not being transported. [11] Construction emissions are estimated by scaling from prior Port CEQA documents. Per South Coast Air Quality Management District (SCAQMD 2008b) guidance, construction emissions are amortized over 30 years (i.e., total construction emissions divided by 30 years).

TABLE 3.16-8. GHG EFFICIENCY FOR THE UNMITIGATED ALTERNATIVE 2 – 2040

Description	CO_2e Emissions per TEU (MT/TEU)
2017 Baseline	0.153
Alternative 2	0.125
Efficiency Improvement of Alternative 2 Relative to Baseline	18%
Key: CO_2e = carbon dioxide equivalent; GHG = greenhouse gas; MT = metric tons; TEU = twenty-foot equivalent unit	

3.16.3.6 Alternative 3 (Reduced Terminal Development)

Alternative 3 (Reduced Terminal Development) is similar to the Proposed Plan and would include updates to the planning districts and allowable land and water use designations in the Harbor District. Under Alternative 3, development of the Pier J terminal would be reduced compared to the Pier J Terminal Redevelopment under the Proposed Plan. The Pier J Reduced Development would include dredging and filling the 22-acre triangle, cutting a 9-acre notch, extending the north wharf to the east, and relocating the existing rail line and yard to Pier J South. No development of a new Pier W Terminal would occur. Alternative 3 would include the following projects: Administrative Building Site Support Yard (Expansion), Protective Boat Basin (Berth F202), OHSPER, Fourth Track at Ocean Boulevard, Ocean Boulevard Bicycle Gap Closure, Pier B Street Support Yard, Pier D Street Realignment, Pier S Mixed Use Development, Pier S Shoreline Enhancement, Pier T Improvements, and Pier J Reduced Development.

Impact Determination

Table 3.16-9 presents estimates of unmitigated annual CO_2e emissions that would occur within California from construction and operation of the full build-out scenario of Alternative 3 in year 2040. The largest contributors to emissions would include trucks, CHE, OGVs, and line haul locomotives. The data in Table 3.16-9 show that the unmitigated annual CO_2e emissions generated from Port construction and operations under Alternative 3 minus the 2017 Baseline scenario would exceed the SCAQMD annual GHG emission threshold of 10,000 MT of CO_2e. Therefore, the 2040 unmitigated GHG emissions associated with Alternative 3 would be significant under Impact GCC-1. In comparison, the 2040 unmitigated GHG emissions estimated for Alternative 3 would be about 6 percent lower than those estimated for the Proposed Plan (see Table 3.16-2).

Mitigation Measures AQ-1, AQ-2, AQ-3, and AQ-6 would reduce GHG emissions during construction and **Mitigation Measures AQ-7 through AQ-9** would reduce GHG emissions during operations (see Section 3.2.3.3, Proposed Plan). In addition, **Mitigation Measures GCC-1 through GCC-7** would reduce sources of GHG emissions from activities under Alternative 3. The data in Table 3.16-9 show that full implementation of zero-emission drayage trucks and CHE proposed in the 2017 CAAP Update (and **Mitigation Measure AQ-8**) could substantially reduce the annual unmitigated GHG emissions estimated for Alternative 3 in year 2040. However, since it is uncertain to what degree individual projects under Alternative 3 would implement the proposed mitigation measures, this analysis conservatively concludes that mitigated CO_2e emissions potentially would remain above the SCAQMD interim significance threshold of 10,000 MT per year. Therefore, impacts would remain significant after mitigation.

To provide additional information for impacts under Impact GCC-1, Table 3.16-10 presents an efficiency analysis of Alternative 3, based on the use of a CO_2e emissions-per-TEU throughput metric. These data show that Alternative 3 would be 19 percent more efficient than the 2017 Baseline on a CO_2e emissions-per-TEU basis. In comparison, the Proposed Plan would be 22 percent more efficient than the 2017 Baseline on a CO_2e-emissions per-TEU basis.

TABLE 3.16-9. ANNUAL UNMITIGATED GHG EMISSIONS FROM ALTERNATIVE 3 – 2040

Emission Source	Annual CO_2e Emissions (metric tons per year)[1]
Ocean-Going Vessels	
OGVs in Transit[2]	460,737
OGVs at Berth[3]	92,108
Harbor Craft[4]	39,278
Cargo Handling Equipment	179,909
Locomotives	
Switchers On-Port	3,718
Line Haul Locomotives On-Port	48,491
Line Haul Locomotives Off-Port[5]	374,619
Heavy-Duty Vehicles	
HDVs On-Terminal Exhaust[6]	46,380
HDVs Off-Terminal Exhaust[7]	527,703
Automobiles	26,782
Refrigerated Containers[8]	
TRU Genset Exhaust	607
Refrigerant Leakage	18,765

TABLE 3.16-9. ANNUAL UNMITIGATED GHG EMISSIONS FROM ALTERNATIVE 3 – 2040

Emission Source	Annual CO_2e Emissions (metric tons per year)[1]
Electricity Consumption[9]	
OGV Shore Power	27,662
Electric CHE	12,910
Port Lighting	10,476
Refrigerated Containers on Grid Power[10]	23,760
Construction[11]	3,679
Total Alternative 3	**1,897,587**
CEQA Impacts	
Total, 2017 Baseline	1,156,841
Alternative 3 minus 2017 Baseline	740,746
Significance Threshold	10,000
Significant?	**Yes**

Key: CEQA = California Environmental Quality Act; CHE = cargo handling equipment; CO_2e = carbon dioxide equivalent; Genset = generation set; GHG = greenhouse gas; HDVs = heavy-duty vehicles; nm = nautical miles; OGVs = ocean-going vessels; POLB or Port = Port of Long Beach; TRU = transport refrigeration unit; VSR = vessel speed reduction

Notes:

[1] The emissions domain for GHGs is the State of California.

[2] OGV transit emissions include transit between the berth and the boundary of California regulated waters, and anchoring in the harbor while waiting for an available berth. The emissions assume that, in 2040, 95 percent of all inbound vessels will use VSR (maximum 12 knots) within 40 nm of Point Fermin, 95 percent of all outbound vessels will use VSR within 20 nm of Point Fermin, and 90 percent of all outbound vessels will use VSR between 20 and 40 nm of Point Fermin.

[3] OGV at-berth emissions assume that the shore power usage rates in 2040 would be 80 percent for containerships, cruise vessels, and reefer vessels; and 0 percent for all other vessels.

[4] Harbor craft emissions are from assist tugboats only. All other harbor craft activity is not directly related to cargo throughput and, therefore, is not expected to increase substantially in the future.

[5] Off-Port line haul locomotive emissions include trains that originate/terminate at the Port and trains carrying Port containers that originate/terminate at off-dock railyards within California (calculated as the equivalent number of trains needed to carry only the Port-related cargo).

[6] On-terminal HDV emissions include queuing at terminal entry gates, travel and idling within the terminals, and queuing at the terminal exit gates.

[7] Off-terminal HDV emissions represent trips between the Port and the first point of rest or California border, whichever comes first.

[8] Refrigerated container emissions are quantified for the time they spend at the Port.

[9] Electricity consumption occurs on-Port, but emissions are produced at regional power plants.

[10] Refrigerated containers at the Port are plugged into grid power when they are not being transported.

[11] Construction emissions are estimated by scaling from prior POLB CEQA documents. Per South Coast Air Quality Management District (SCAQMD 2008b) guidance, construction emissions are amortized over 30 years (i.e., total construction emissions divided by 30 years).

TABLE 3.16-10. GHG EFFICIENCY FOR THE UNMITIGATED ALTERNATIVE 3 – 2040

Description	CO_2e Emissions per TEU (MT/TEU)
2017 Baseline	0.153
Alternative 3	0.124
Efficiency Improvement of Alternative 3 Relative to Baseline	19%

Key: CO_2e = carbon dioxide equivalent; GHG = greenhouse gas; MT = metric tons; TEU = twenty-foot equivalent unit

Similar to the Proposed Plan, construction and operations from Alternative 3 would not conflict with applicable GHG emissions reduction plans, policies, or regulations. In addition, construction and operations from Alternative 3 would not expose people and structures to a significant risk of loss, injury, or death involving flooding as a result of SLR. Therefore, Impacts GCC-2 and GCC-3 under Alternative 3 would be less than significant and no mitigation is required.

3.16.4 Cumulative Impacts

GHG impacts are inherently cumulative; therefore, no additional discussion related to cumulative impacts is provided. See Section 3.16.3 (Impacts and Mitigation Measures).

3.16.5 Mitigation Monitoring Program

Implementation of **Mitigation Measures GCC-1 through GCC-7** would be required to reduce impacts from GHG emissions associated with construction and operation of the Proposed Plan. These mitigation measures and monitoring requirements are summarized in Table 3.16-11.

TABLE 3.16-11. MITIGATION MONITORING PROGRAM

Mitigation Measure	Responsible Party	Timing/Frequency
GCC-1: LED Lighting. All lighting within new buildings and outdoor areas shall be LED lighting or a technology with similar energy-saving capabilities.	POLB	Prior to project operations; continuous during operations
GCC-2: Xeriscaping. Water conservation features shall be implemented, including drought-tolerant plant materials. Xeriscape landscaping shall incorporate the use of water conservation features including, but not limited to, drought-tolerant plants; hardscape; permeable material such as concrete, asphalt, and pavers; recycled material such as concrete, gravel, granite, and shredded redwood; and drip irrigation systems and timers.	POLB	Prior to project operations; continuous during operations
GCC-3: Tree Planting. Trees shall be planted on site/within the facility and shall be selected, as appropriate, from lists contained in the City of Long Beach Public Works' Approved Tree List, which identifies trees to be planted in public rights-of-way; the Port of Long Beach Sustainable Landscape Palette, which identifies native and drought-tolerant species; and the Port of Long Beach's latest Community Mitigation Grants Program Approved Tree List, which prioritizes trees based on their crown diameter and ability to capture CO_2 from the atmosphere.	POLB	Prior to project operations; continuous during operations
GCC-4: Tree Planting in Transportation Corridors. For projects for which the Port is the proponent, the Port shall plant new shade trees on Port-controlled lands adjacent to the roads that lead into the facility, to the extent practicable, consistent with safety and other land use considerations.	POLB	Prior to project operations; continuous during operations
GCC-5: Employee Carpooling. Construction and facility employees shall be encouraged to carpool or to use public transportation. Employers shall provide incentives to promote the measure, such as preferential parking for carpoolers or vanpool subsidies, and they shall provide information to employees regarding the benefits of alternative transportation methods.	POLB	Continuous during project construction

TABLE 3.16-11. MITIGATION MONITORING PROGRAM		
Mitigation Measure	**Responsible Party**	**Timing/Frequency**
GCC-6: Community Grants Program. The Community Grants Program will be implemented and funded to partially address the cumulative GHG impacts of individual projects under the Proposed Plan. To determine a project's contribution to the Community Grants Program, the methodology described in the latest Port of Long Beach Community Grants Program and Investment Plan shall be used.	POLB	Prior to operations; one time
GCC-7: Indirect GHG Emission Avoidance and Mitigation. Indirect GHG emissions shall be minimized through measures that reduce or avoid electricity consumption during operations. Measures may include, but are not limited to, the use of low-energy demand lighting (e.g., fluorescent or LED), use of energy-efficient floodlights, third-party energy audits, and installation of innovative power-saving technologies where feasible, such as power factor correction systems and lighting power regulators. Such systems help to maximize usable electric current and eliminate wasted electricity, thereby lowering overall electricity use.	POLB	Prior to project operations; continuous during operations.
Key: CO_2 = carbon dioxide; GCC = global climate change; GHG = greenhouse gas; LED = light-emitting diode; POLB or Port = Port of Long Beach		

CHAPTER 4 ALTERNATIVES COMPARISON

4.1 INTRODUCTION

This chapter presents a comparison of the Proposed Plan to the alternatives that were considered during preparation of this Program Environmental Impact Report (PEIR).

California Environmental Quality Act (CEQA) Guidelines Section 15126.6(a) states that an Environmental Impact Report (EIR) shall describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives. An EIR need not consider every conceivable alternative to a project. Rather, it must consider a reasonable range of potentially feasible alternatives that will foster informed decision-making and public participation. This PEIR describes the alternatives, compares their impacts, and identifies an environmentally superior alternative, as required by CEQA and the CEQA Guidelines.

CEQA Guidelines Section 15126.6(b) and (e) state that an EIR alternatives analysis is required to:

- Focus on potentially feasible alternatives to the project or its location that are capable of avoiding or substantially lessening significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly;
- Identify an “environmentally superior” alternative to the proposed project; and
- Include analysis of the “No Project” (in this case, No Plan) Alternative, assuming the reasonable future use of the project site if the project was not approved. If the environmentally superior alternative is the No Plan Alternative, the EIR must identify an additional “environmentally superior” choice among the other project alternatives.

The lead agency (in this case, the Port of Long Beach [POLB or Port]) is responsible for selecting a range of project alternatives for examination and must publicly disclose its reasoning for selecting those alternatives.

This PEIR presents a reasonable range of alternatives that is consistent with the POLB’s legal mandates under the California Coastal Act of 1976 (CCA), which identifies the POLB 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, environmental preservation, and public recreation. To comply with CEQA requirements, all alternatives considered in the PEIR have been evaluated in accordance with the following:

- Does the alternative accomplish all or most of the basic Proposed Plan objectives?
- Is the alternative potentially feasible (from economic, environmental, legal, social, and technological standpoints)?
- Does the alternative avoid or substantially lessen any significant effects of the Proposed Plan, including consideration of whether the alternative itself could create significant effects greater than those of the Proposed Plan?

This PEIR evaluates three development alternatives for the Proposed Plan that were derived from land use scenarios developed and analyzed using the Integrated Land Use Tool that informed the Proposed Plan process. Those land use scenarios evaluated various levels of future development within the Long Beach Harbor District (Harbor District) and assessed the ability of each scenario to meet the Proposed Plan objectives (Section 1.6, Plan Objectives) and maintain consistency with the Port's legal mandates under the CCA.

The three development alternatives evaluated in this PEIR are: Alternative 1 (No Plan Alternative); Alternative 2 (No Terminal Development); and Alternative 3 (Reduced Terminal Development). Additional details on the specific projects included in each alternative are provided in Sections 1.9.1.1, 1.9.1.2, and 1.9.1.3, respectively. The environmental impacts for each of the alternatives are analyzed coequally using the same analytical framework in Chapter 3 (Environmental Setting and Project Impacts) of this PEIR.

4.1.1 Proposed Plan

The Proposed Plan would reduce the number of planning districts and modify the boundaries of some individual planning districts to consolidate these areas based on current and projected land uses. These changes are largely administrative and would cause no impacts on the physical environment. The Proposed Plan includes 12 reasonably foreseeable projects within the Port's jurisdiction that have not already been permitted and evaluated in another CEQA document. The projects, listed in Table 4.1-1 and described in Section 1.8.4 (Proposed Plan Projects Analyzed in the PEIR), are in various planning stages and may be initiated by 2040.

TABLE 4.1-1. PROPOSED PLAN PROJECTS

Planning District	Project
2 – Northeast	Fourth Track at Ocean Boulevard[1]
	Pier B Street Support Yard
	Pier D Street Realignment
3 – Northwest	Pier S Mixed Use Development
	Pier S Shoreline Enhancement
4 – West Basin	Pier T Improvements
	Pier W Terminal Development
5 – Southeast	Administrative Building Site Support Yard (Expansion)
	Protective Boat Basin (Berth F202)
	Pier J Terminal Redevelopment
6 – Anchorage and Open Water	Outer Harbor Sediment Placement Ecosystem Restoration (OHSPER)
7 – Queensway Bay	Ocean Boulevard Bicycle Gap Closure

Note:
[1] This project is located in Planning Districts 2 and 5.

4.1.2 Alternative 1 (No Plan Alternative)

Consistent with CEQA Guidelines Section 15126.6(e)(3)(A), this alternative considers what would reasonably be expected to occur if the Port did not update the Port Master Plan (PMP). Under this alternative, the Port would continue to operate under the 1990 PMP as amended, including the continued use of the Western Anchorage Sediment Storage Site (WASSS) as currently permitted (i.e., placement and reuse of clean sediments). The Outer Harbor Sediment Placement Ecosystem Restoration (OHSPER) project would not occur under Alternative 1. Alternative 1 includes eight projects that are consistent with the 1990 PMP as amended over time, may or may not have been evaluated in a final CEQA document, and could be implemented without approval of the Proposed Plan (Table 4.1-2).

Alternative 1 does not include the Pier T Improvements, Pier W Terminal Development, Protective Boat Basin (Berth F202), Pier J Terminal Development, or OHSPER projects that are included in the Proposed Plan. However, Alternative 1 would include the Pier T Echo Support Yard project that is not included under the Proposed Plan.

The Pier T Echo Support Yard would construct a 17-acre support yard (chassis, empties, or peel-off) that would serve the Pier T container terminal. The project would require minor construction activity, including demolition and/or construction of infrastructure (e.g., paving, lighting, and buildings). Compared to the Pier T Improvements project that would occur under the Proposed Plan, the Pier T Echo Support Yard would not involve any dredge, fill, or redevelopment of the Pier T terminal.

TABLE 4.1-2. ALTERNATIVE 1 (NO PLAN ALTERNATIVE) PROJECTS

Planning District	Project
2 – Northeast	Fourth Track at Ocean Boulevard[1]
	Pier B Street Support Yard
	Pier D Street Realignment
3 – Northwest	Pier S Mixed Use Development
	Pier S Shoreline Enhancement
4 – West Basin	Pier T Echo Support Yard
5 – Southeast	Administrative Building Site Support Yard (Expansion)
7 – Queensway Bay	Ocean Boulevard Bicycle Gap Closure

Note:
[1] This project is located in Planning Districts 2 and 5.

4.1.3 Alternative 2 (No Terminal Development)

Alternative 2 includes the same reduction in and modification of planning districts and updates to the allowable land and water uses as the Proposed Plan. Alternative 2 includes all projects listed under Alternative 1 and two other projects that would need certification under the Proposed Plan, including the Protective Boat Basin (Berth F202) and OHSPER projects. This alternative differs from the Proposed Plan in that it does not include terminal development projects at Pier T, Pier W, or Pier J.

4.1.4 Alternative 3 (Reduced Terminal Development)

Alternative 3 includes the same reduction in and modification of planning districts and updates to the allowable land and water uses as the Proposed Plan. Alternative 3 includes all projects listed under Alternative 2 and adds the Pier T Improvements and Pier J Reduced Development projects. These two projects would provide the Port with additional container handling capacity, consistent with the Proposed Plan objectives of accommodating future cargo demands. Compared to the Pier J Terminal Development project that would occur under the Proposed Plan, the Pier J Reduced Development project does not include dredging and filling the 44-acre Pier J South Slip or constructing an extension of the north wharf westward (9-acre extension fill). Alternative 3 differs from the Proposed Plan in that it would involve a reduction in new container terminal development (i.e., Pier J Reduced Development project and no Pier W Terminal Development project).

4.2 COMPARISON OF THE PROPOSED PLAN AND ALTERNATIVES

The components included in the Proposed Plan and alternatives are summarized in Table 4.2-1. Table 4.2-2 summarizes the CEQA impact significance findings for each environmental resource based on information presented in Chapter 3 (Environmental Setting and Project Impacts) of this PEIR.

TABLE 4.2-1. COMPARISON OF PROPOSED PLAN AND ALTERNATIVES

	Proposed Plan	Alternative 1 (No Plan Alternative)	Alternative 2 (No Terminal Development)	Alternative 3 (Reduced Terminal Development)
Port Container Capacity[1] (million TEU/year)	16.9	14.0	14.0	15.3
New Fill Acreage	245.3	0	0.3	92.3
Port Master Plan Updates				
Changes to Land and Water Use and Planning Districts	X		X	X
Port Master Plan Projects				
Fourth Track at Ocean Boulevard	X	X	X	X
Pier B Street Support Yard	X	X	X	X
Pier D Street Realignment	X	X	X	X
Pier S Mixed Use Development	X	X	X	X
Pier S Shoreline Enhancement	X	X	X	X
Administrative Building Site Support Yard (Expansion)	X	X	X	X
Ocean Boulevard Bicycle Gap Closure	X	X	X	X
OHSPER	X		X	X
Protective Boat Basin (Berth F202)	X		X	X
Pier T Echo Support Yard		X	X	
Pier T Improvements	X			X
Pier J Reduced Development				X
Pier J Terminal Redevelopment	X			
Pier W Terminal Development	X			

Key: OHSPER = Outer Harbor Sediment Placement Ecosystem Restoration; TEU = twenty-foot equivalent unit
Note:
[1] Integrated Land Use Tool output

TABLE 4.2-2. COMPARISON OF THE CEQA SIGNIFICANCE ANALYSIS BY ALTERNATIVE

Environmental Resource Area	Proposed Plan	Alternative 1 (No Plan Alternative)	Alternative 2 (No Terminal Development)	Alternative 3 (Reduced Terminal Development)
Aesthetics/Visual Resources	iii/D	iii/**A**	iii/B	iii/C
Air Quality and Health Risk	i/C	i/**A**	i/**A**	i/B
Biota and Habitats	ii/D	ii/**A**	ii/B	ii/C
Cultural Resources	ii/D	ii/**A**	ii/B	ii/C
Geology, Soils, and Seismic Conditions	ii/D	ii/**A**	ii/B	ii/C
Hazards and Hazardous Materials	ii/D	ii/**A**	ii/B	ii/C
Hydrology and Water Quality	iii/D	iii/**A**	iii/B	iii/C
Land Use	iii/**A**	iii/C	iii/B	iii/B
Noise	i/N	i/N	i/N	i/N
Population and Housing	iii/D	iii/**A**	iii/B	iii/C
Public Services and Safety	iii/D	iii/**A**	iii/B	iii/C
Recreation	iii/D	iii/**A**	iii/B	iii/C
Ground Transportation	i/C	i/**A**	i/**A**	i/B
Vessel Transportation	iii/D	iii/**A**	iii/B	iii/C
Utilities, Service Systems, and Energy Conservation	iii/D	iii/**A**	iii/B	iii/C
Global Climate Change	i/C	i/**A**	i/**A**	i/B

Notes:
i = Unavoidable significant impacts
ii = Significant but mitigable impacts
iii = Less than significant impacts
A = Fewest environmental impacts
B = More environmental impacts than Category A
C = More environmental impacts than Category B
D = More environmental impacts than Category C
N = No difference
Two or more alternatives with the same letter would have approximately the same level of impacts.

Based on the impact classifications (i.e., i through iii), determined from a programmatic level of assessment, impacts on the environmental resources would be similar for the Proposed Plan and three alternatives, including the No Plan Alternative (Alternative 1):

- Impacts on aesthetics, hydrology and water quality, land use, public housing, utilities, recreation, vessel transportation, and public services would be less than significant for both construction and operations phases;
- Impacts on biological resources, cultural resources, geology and paleontological resources, and hazards and hazardous materials would be significant but mitigable, where occurring for construction and operations phases;
- Impacts on air quality and human health, noise, ground transportation, and global climate change would be significant and unavoidable.

As discussed in Section 3.2 (Air Quality and Health Risk), construction and operation of the Proposed Plan projects as well as Alternatives 1, 2, and 3 would result in multiple significant and unavoidable impacts on air quality and human health. These impacts include:

- Mitigated construction emissions from the projects would be significant for volatile organic compounds (VOCs), carbon monoxide (CO), nitrogen oxides (NO_x), particulate matter less than 10 microns in diameter (PM_{10}), and particulate matter less than 2.5 microns in diameter ($PM_{2.5}$).
- Maximum ambient pollutant concentrations associated with construction of the projects would be significant for nitrogen dioxide (NO_2), PM_{10}, and $PM_{2.5}$.
- Mitigated emissions would potentially remain above the South Coast Air Quality Management District (SCAQMD) daily emission thresholds for VOCs, CO, PM_{10}, and $PM_{2.5}$.
- Mitigated operations would produce significant local 1-hour and annual NO_2 and 24-hour PM_{10} and $PM_{2.5}$ concentrations that would potentially remain above the SCAQMD ambient concentration threshold.
- Construction and operation would potentially contribute to regional adverse health effects associated with exposure to ozone (O_3), PM_{10}, and $PM_{2.5}$ in the South Coast Air Basin (SCAB).
- Construction and operation would potentially contribute to local adverse health effects in the Port vicinity associated with exposure to NO_2, PM_{10}, and $PM_{2.5}$.
- Mitigated operations would result in diesel particulate matter (DPM) emissions that potentially would represent a significant contribution to regional cancer risks.

With full implementation of the proposed mitigation measures, the localized health risks could likely be less than significant for all health effects categories and potentially lower than 2017 Baseline levels. However, it is uncertain how individual projects would implement the proposed mitigation measures in the future, in part because the 2017 Clean Air Action Plan (CAAP) Update emission control strategies are in various stages of planning. Therefore, specifying actual emission reductions from these measures in the interim years for sources that operate under the Proposed Plan would be too speculative for analysis in this PEIR. This is due to the uncertainty of predicting how the vehicle fleets will turn over in the future. Consequently, the localized health risks associated with construction and operation of the Proposed Plan and alternatives are identified here as potentially significant and unmitigable for individual cancer risk, cancer burden, and chronic and acute noncancer health effects.

As discussed in Section 3.9 (Noise), noise impacts from construction of projects under the Proposed Plan as well as Alternatives 1, 2, and 3 would be significant and unavoidable under certain conditions. While noise attenuation measures, such as use of noise barriers and construction procedures, may be applicable and are likely to reduce sound levels from construction, functional constraints and uncertainties as to the effectiveness of available measures or the availability of equipment with lower noise emissions may limit the effectiveness of mitigation. In addition, Proposed Plan project operations may result in novel or new ground vibration sources at the POLB. Depending on the location and type of operational vibration sources, ground vibrations at or beyond the Harbor District boundary may exceed the significance threshold. Operations-related impacts are potentially significant due to the lack of project-specific details related to potential sources of vibration. Project-specific operational noise and vibration assessments would be conducted when project details are finalized to determine significance of impacts.

As discussed in Section 3.13 (Ground Transportation), impacts on ground transportation that would result from operations of the Proposed Plan and alternative projects would be significant and unavoidable for the Proposed Plan as well as Alternatives 1, 2, and 3 due to a potential level of service (LOS) change during the afternoon period at the Henry Ford Avenue and Anaheim Street intersection, located in the City of Los Angeles. This impact could be mitigated to less than significant. However, the Port does not own, operate, or control this location and cannot unilaterally implement improvements; therefore, the impact is identified here as significant and unavoidable.

As discussed in Section 3.16 (Global Climate Change), the significant and unavoidable impacts on global climate change under the Proposed Plan and alternatives are due to unmitigated annual carbon dioxide equivalent (CO_2e) emissions generated from Port construction and operations that would exceed the SCAQMD annual greenhouse gas (GHG) emission threshold. The estimate of unmitigated GHG emissions from operations under the Proposed Plan in year 2040 is based on the assumption that Port sources would operate in compliance with all applicable current regulations and most source-specific control measures identified in the 2010 CAAP Update. The 2017 CAAP Update proposes strategies that will transition Port operations from fossil-fueled to near-zero and zero-emission technologies. Therefore, control strategies in the 2017 CAAP Update represent measures that would mitigate significant levels of GHG emissions from future Port operations under the Proposed Plan and alternatives, but since the exact form of mitigation is not yet clear, the impacts are identified here as significant and unmitigable.

4.3 ENVIRONMENTALLY PREFERRED ALTERNATIVE

This PEIR, which includes program-level analyses of various projects and a project-level analysis of one project, OHSPER (refer to Section 1.8.4, Proposed Plan Projects Analyzed in the PEIR), has been prepared in accordance with the requirements of CEQA (Public Resource Code [PRC] Section 21000 et seq.), CEQA Guidelines (14 California Code of Regulations [CCR] Section 15000 et seq.), and POLB Procedures for Implementation of the CEQA (Resolution No. HD-1973). According to CEQA Guidelines Section 15121(a) (CCR Title 14, Division 6, Chapter 3), the purpose of an EIR is to serve as an informational document that:

> *…will inform public agency decision-makers and the public generally of the significant environmental effect of a project, identify possible ways to minimize the significant effects, and describe reasonable alternatives to the project.*

As indicated in Table 4.2-2, the results of the CEQA significance analysis for each resource area indicate that there would not be an appreciable difference between alternatives in the overall classification of potential construction and operational impacts. However, as indicated in Table 4.2-2, the alternatives can be ranked in terms of the expected magnitude of impacts on each of the environmental resources. For all resources except land use and noise, Alternative 1 represents the least impactful alternative, while the Proposed Plan represents the most impactful alternative. The rankings of impacts for Alternatives 2 and 3 mostly are between the Proposed Plan and Alternative 1. Specifically:

- Aesthetics: Potential impacts on aesthetics would be greatest for the Proposed Plan because it would involve the most development and, consequently, would create more sources of glare, although this may be offset somewhat by improved lighting. Alternative 1 would have the least potential for impacts from creating new sources for glare. Alternatives 2 and 3 would have greater potential for impacts compared to Alternative 1, due to the more extensive construction and operational activities, but would have fewer impacts than the Proposed Plan.
- Air Quality and Human Health: Potential impacts on air quality and human health would be greatest for the Proposed Plan because it would involve the most emissions and,

consequently, a greater likelihood of exceeding air quality thresholds and resultant human health issues. Alternative 1 operations would produce lower daily and total emissions, ambient pollutant concentrations, and health impacts compared to those estimated for the Proposed Plan. The 2040 unmitigated peak day emissions estimated for operations due to Alternatives 1 and 2 would be about 11 percent lower, averaged over all pollutants, than those estimated for the Proposed Plan. Alternative 3 would have greater potential for impacts compared to Alternatives 1 and 2 due to the more extensive construction and operational activities-related emissions, but would have lesser impacts than the Proposed Plan. The 2040 unmitigated peak day emissions estimated for operations due to Alternative 3 would be about 6 percent lower, averaged over all pollutants, than those estimated for the Proposed Plan.

- Biota and Habitats: Potential impacts on biological resources would be greatest for the Proposed Plan because it would involve the most fill, which would reduce available open-water habitat. Alternative 1 would have the least potential for impacting biological resources because it would not require any fill. Alternatives 2 and 3 would have greater potential for impacts compared to Alternative 1, due to the more extensive construction and operational activities, but would have fewer impacts than the Proposed Plan.
- Historical and Tribal Cultural Resources: Potential impacts on cultural resources would be greatest for the Proposed Plan because it would involve the most development and, consequently, greater likelihood of disturbing soils or sediments containing cultural resources. Alternative 1 would have the least potential for impacting cultural resources because the extent of ground-disturbing activities would be comparatively small. Alternatives 2 and 3 would have greater potential for impacts compared to Alternative 1, due to the more extensive construction and operational activities, but would have fewer impacts than the Proposed Plan.
- Geological Resources: Potential impacts on paleontological resources would be greatest for the Proposed Plan because it would involve the most development and, consequently, the greatest likelihood of disturbing soils or sediments containing paleontological resources. Alternative 1 would have the least potential for impacting these resources because the extent of ground-disturbing activities would be comparatively small. Alternatives 2 and 3 would have greater potential for impacts compared to Alternative 1, due to the more extensive construction and operational activities, but would have fewer impacts than the Proposed Plan.
- Hazards and Hazardous Materials: Potential impacts from hazards and hazardous materials would be greatest for the Proposed Plan because it would involve the most intensive construction and operational activities with potentials for accidental spills and/or hazardous materials discharges. In contrast, Alternative 1 would have the least potential for impacts because the extent of activities representing possible sources of spills would be comparatively small. Alternatives 2 and 3 would have greater potential for impacts compared to Alternative 1, due to the more extensive construction and operational activities, but would have fewer impacts than the Proposed Plan.
- Hydrology and Water Quality: Potential impacts on hydrology and water quality would be greatest for the Proposed Plan because it would involve the greatest amount of fill, which would result in temporary and localized impacts from turbidity. Alternative 1 would have the least potential for impacting hydrology and water quality because it would not require any fill. Alternatives 2 and 3 would have greater potential for impacts compared to Alternative 1, due to the more extensive fill, but would have fewer impacts than the Proposed Plan.

- Land Use: Potential impacts on land use would be greatest for Alternative 1 because it would be less consistent with existing plans and policies compared to the Proposed Plan. While Alternatives 2 and 3 would include updates to the planning districts and allowable land and water use designations, impacts to land use would be slightly greater in magnitude compared to the Proposed Plan because they would not maximize consistency with existing plans and polices.
- Noise: The magnitude of potential noise and vibration impacts would be similar for each of the alternatives because the primary sources of noise and vibration, such as pile driving, would be common to all of the alternatives.
- Population and Housing: Neither the Proposed Plan nor any of the alternatives would induce substantial unplanned population growth, displace existing residents, or require construction of new housing because the existing workforce is considered adequate to fill the new jobs. From a programmatic perspective, Alternative 1 would likely result in less job creation than the Proposed Plan due to the reduced construction and operational activities and consequently would have less impact on population and housing. Similarly, Alternatives 2 and 3 would have greater potential for job creation compared to Alternative 1 due to the more extensive construction and operational activities, but would have less potential for impacts than the Proposed Plan.
- Public Services and Safety: Potential for impacts on public services and safety would be greatest for the Proposed Plan because it would involve the most development and, consequently, the greatest potential demand for support services and facilities. Alternative 1 would have the least potential for impacting public services and safety because the extent of construction and operational activities with the potential for requiring additional services or facilities would be comparatively smaller. Alternatives 2 and 3 would have greater potential for impacts compared to Alternative 1, due to the more extensive construction and operational activities, but would have fewer impacts than the Proposed Plan.
- Ground Transportation: Potential impacts on ground transportation would be greatest for the Proposed Plan because it would involve the largest number of total daily vehicle traffic (186,310) with the potential for affecting LOS. Alternatives 1 and 2 would have the least potential for impacting traffic because both alternatives would result in an estimated 22,351 fewer daily total vehicles than the Proposed Plan. Alternative 3 would have greater potential for impacts compared to Alternatives 1 and 2, but would have 13,299 fewer daily total vehicles than the Proposed Plan.
- Vessel Transportation: Potential impacts on vessel transportation would be greatest for the Proposed Plan because it would involve the most construction and operational activities. Alternative 1 would have the least potential for impacting vessel traffic because of the reduced construction and operational activities. Alternatives 2 and 3 would have greater potential for impacts compared to Alternative 1, but would involve less construction and operational activities with potential for interfering with vessel transportation than the Proposed Plan.
- Utilities, Service Systems, and Energy Conservation: Potential impacts on utilities, service centers, and energy conservation would be greatest for the Proposed Plan because it would involve the most development. Alternatives 1 and 2 would have the least potential for impacting utilities, service centers, and energy conservation because both alternatives would have reduced construction and operational activities. Alternative 3 would have

greater potential for impacts compared to Alternatives 1 and 2, but smaller impacts than the Proposed Plan due to the reduced terminal construction and operations.

- Global Climate Change: Potential impacts on global climate change would be greatest for the Proposed Plan because it would involve the largest emissions of GHGs and, consequently, the greatest likelihood of exceeding thresholds. The 2040 unmitigated GHG emissions estimated for Alternatives 1 and 2 would be about 13 percent lower than those estimated for the Proposed Plan. The 2040 unmitigated GHG emissions for Alternative 3 would be about 6 percent lower than those estimated for the Proposed Plan.

Therefore, Alternative 1 would be environmentally superior to all other alternatives under CEQA. However, Alternative 1 would not achieve the majority of the overall objectives under CEQA. The reduced development scenario under Alternative 1 (i.e., elimination of container terminal development on Piers T, W, and J, and the Protective Boat Basin [Berth F202]) would not fully accomplish some of the Proposed Plan's key objectives including: 1) accommodating future cargo demands and changing industry practices and trends to the maximum extent practicable; 2) optimizing use of existing and future Port land through efficient and sustainable reconfiguration and redevelopment; and 3) maximizing terminal operational efficiencies and on-dock rail systems within the Port.

As required by CEQA Guidelines Section 15126, another alternative that is most capable of reducing significant impacts must then be identified. In this case, Alternative 2 (No Terminal Development Alternative) is ranked as the environmentally preferred alternative because it has a lower overall potential for environmental impacts compared to the Proposed Plan and Alternative 3 (Reduced Terminal Alternative), and impacts for air quality, ground transportation, and global climate change would be comparable to those for Alternative 1. Alternative 2 would not avoid any of the significant impacts of the Proposed Plan, although the comparatively lesser extent of construction and operational activities would reduce the magnitude, but not the classification, of impacts on aesthetics, biota and habitats, historical and tribal cultural resources, geological resources, hazards and hazardous materials, hydrology and water quality, noise, public services and safety, and ground transportation. Therefore, Alternative 2 is considered the environmentally preferred alternative.

CHAPTER 5 OTHER REQUIRED SECTIONS

5.1 SIGNIFICANT UNAVOIDABLE IMPACTS

The Proposed Plan would result in significant, unavoidable impacts on the following resources: air quality and health, noise, ground transportation, and global climate change.

5.1.1 Air Quality and Health Risk

As discussed in Section 3.2 (Air Quality and Health Risk), construction and operation of the Proposed Plan projects would result in multiple significant and unavoidable impacts. These impacts would be as follows.

Construction activities under the Proposed Plan would generate nitrogen oxides (NO_x) emissions that exceed the South Coast Air Quality Management District (SCAQMD) daily emission threshold. Many of the combined construction activities (such as wharf construction) also would exceed the thresholds for volatile organic compounds (VOCs), carbon monoxide (CO), and particulate matter less than 2.5 microns in diameter ($PM_{2.5}$). Therefore, mitigated construction emissions from the Proposed Plan projects would be significant for VOCs, CO, NO_x, particulate matter less than 10 microns in diameter (PM_{10}), and $PM_{2.5}$.

Ambient pollutant impacts from the larger construction activities under the Proposed Plan would have the potential to exceed the SCAQMD concentration thresholds for 1-hour and annual nitrogen dioxide (NO_2) and 24-hour PM_{10}. Moreover, concurrent construction projects that are close to each other could result in overlapping impacts and lead to higher concentrations at some locations and possible exceedances of the ambient $PM_{2.5}$ threshold. Therefore, with mitigation, maximum ambient pollutant concentrations associated with construction of the Proposed Plan projects would be significant for NO_2, PM_{10}, and $PM_{2.5}$.

Mitigated operations of the Proposed Plan projects would produce significant levels of VOCs, CO, PM_{10}, and $PM_{2.5}$ emissions that would potentially remain above the SCAQMD daily emission thresholds. It is uncertain to what degree individual projects under the Proposed Plan would implement the proposed mitigation measures, in part because the 2017 Clean Air Action Plan (CAAP) Update emission reduction strategies are in various stages of planning. Therefore, specifying actual emission reductions from these measures in the interim years for sources that operate under the Proposed Plan would be too speculative for analysis in this Program Environmental Impact Report (PEIR) due to the uncertainty of predicting how the vehicle fleets will turn over in the future. Full implementation of zero-emission drayage trucks and cargo handling equipment (CHE) proposed in the 2017 CAAP Update could substantially reduce the annual unmitigated emissions estimated for the Proposed Plan in year 2040. However, based on the magnitude of the unmitigated emissions and the uncertainty of the level of future mitigation, the analysis concludes that mitigated emissions would potentially remain above the SCAQMD daily emission thresholds for VOCs, CO, PM_{10}, and $PM_{2.5}$.

Mitigated operations of the Proposed Plan projects would produce significant local 1-hour and annual NO_2 and 24-hour PM_{10} and $PM_{2.5}$ concentrations that would potentially remain above the SCAQMD ambient concentration thresholds.

Construction and operation of the Proposed Plan projects would potentially contribute to regional adverse health effects associated with exposure to ozone (O_3), PM_{10}, and $PM_{2.5}$ in the South Coast Air Basin (SCAB). The adverse health effects associated with the Proposed Plan would be small relative to the health effects associated with existing pollutant levels. The Proposed Plan would not contribute to regional adverse health effects associated with exposure to CO or NO_2.

Construction and operation of the Proposed Plan projects would potentially contribute to local adverse health effects in the Port of Long Beach (POLB or Port) vicinity associated with exposure to NO_2, PM_{10}, and $PM_{2.5}$. The Proposed Plan would not contribute to local adverse health effects associated with exposure to CO. Mitigated operations of the Proposed Plan projects would result in diesel particulate matter (DPM) emissions that would potentially remain above 2017 Baseline levels, representing a significant contribution to regional cancer risks.

With full implementation of the proposed mitigation measures, the localized health risks associated with the Proposed Plan would likely be less than significant for all health effects categories and potentially lower than 2017 Baseline levels. However, since it is uncertain how individual projects under the Proposed Plan would implement the proposed mitigation measures in the future, this PEIR conservatively retains the significance findings of the unmitigated Proposed Plan. Therefore, with mitigation, the localized health risks associated with construction and operation of the Proposed Plan would be significant for individual cancer risk, cancer burden, and chronic and acute noncancer health effects.

5.1.2 Noise

As discussed in Section 3.9 (Noise), noise levels generated by construction of the Proposed Plan projects could exceed threshold levels at distances from sensitive receptors of less than 1,300 feet for pile driving and 630 feet for general construction. While noise attenuation measures, such as use of noise barriers and construction procedures, may be applicable and would likely reduce sound levels from construction, functional constraints and uncertainties as to the effectiveness of available measures or the availability of equipment with lower noise emissions may limit the effectiveness of mitigation. In addition, even with noise attenuation devices, the noise of pile driving would exceed significance threshold levels. Because project-specific details and project-tailored mitigation measures are not known at this time, it is not possible to determine if mitigation measures would reduce noise levels to less than significant levels at sensitive noise receptors.

Only pile driving occurring within 640 feet of the Long Beach Harbor District (Harbor District) boundary would result in vibrations exceeding the City of Long Beach Municipal Code (LBMC) threshold outside of the Harbor District boundary. As all Proposed Plan projects likely requiring pile driving are located more than 640 feet from the Harbor District boundary, construction-related vibration would be within the acceptability limits. However, Proposed Plan project operations may result in novel or new ground vibration sources at the POLB. Depending on the location and type of operational vibration sources, ground vibrations at or beyond the Harbor District boundary may exceed the significance threshold. Therefore, construction-related impacts from vibration would be less than significant, whereas operations-related impacts are potentially significant due to the lack of project-specific details related to potential sources of vibration. Project-specific operational noise and vibration assessments would be conducted when project details are finalized to determine the significance of impacts.

5.1.3 Global Climate Change

As discussed in Section 3.16 (Global Climate Change), construction and operations of the Proposed Plan projects would result in significant and unavoidable impacts to global climate change due to unmitigated annual carbon dioxide equivalent (CO_2e) emissions that would exceed the SCAQMD annual greenhouse gas (GHG) emission threshold, which was the significance criterion adapted for this PEIR. SCAQMD's 10,000 metric tons (MT) per year CO_2e threshold for commercial/industrial facilities considered other state, regional, and local plans that addressed the reduction of GHG emissions over the next few years and decades. However, no regulations or requirements have been adopted by relevant public agencies to implement those plans for specific projects, within the meaning of California Environmental Quality Act (CEQA) Guidelines Section 15064.4(b)(3). CEQA Guidelines allow the lead agency discretion in how to address and evaluate significance based on these criteria. After considering CEQA Guidelines and Port-specific climate change impact issues, the Port adopted the SCAQMD annual GHG emission threshold for the purpose of determining the significance of a global climate change impact.

For analyses of unmitigated annual CO_2e emissions, this PEIR assumes implementation of current regulations that apply to the main emission source categories that operate at the Port. By year 2040, these requirements would generally equal or exceed those identified as source-specific control measures in the 2010 CAAP Update. For CEQA purposes, this PEIR conservatively assumes in the unmitigated scenarios that none of the emission control measures proposed in the 2017 CAAP Update would be implemented above existing practice or above what would be required by existing regulations. The 2017 CAAP Update adopted strategies that will transition Port operations from fossil-fueled to near-zero and zero emissions technologies. Therefore, the emission reduction strategies in the 2017 CAAP Update represent measures that could mitigate significant levels of GHG emissions from future Port operations under the Proposed Plan.

5.1.4 Ground Transportation

As discussed in Section 3.13 (Ground Transportation), operating conditions at two intersections—Henry Ford Avenue and Anaheim Street and Harbor Plaza and Pier G Avenue—would exceed the volume-to-capacity (V/C) ratio thresholds and represent a significant impact. Improvements to reduce these impacts would require traffic improvements such as, but not limited to, additional lanes, signalization, signal phasing and timing improvements, restriping, and other measures in accordance with relevant policies and procedures. The specific improvement(s) to be implemented shall be based on operational and technical feasibility and will be evaluated on a project-by-project basis (**Mitigation Measure TRANS-1)**. Since this document presents a program-level analysis, future project-specific analyses will evaluate the significance of impacts at affected locations. If and/or when deemed necessary, measures identified under **Mitigation Measure TRANS-1** would be required to reduce project impacts to a less than significant level. Therefore, traffic impacts at the affected locations would remain significant and unavoidable.

5.2 SIGNIFICANT IRREVERSIBLE IMPACTS

5.2.1 Introduction

Pursuant to CEQA Guidelines Section 15126.2(c), an Environmental Impact Report (EIR) must consider any significant irreversible environmental changes that would be caused by the project should it be implemented. Section 15126.2(c) states:

> *Uses of nonrenewable resources during the initial and continued phases of the project may be irreversible since a large commitment of such resources makes removal or nonuse thereafter unlikely. Primary impact and, particularly, secondary impacts (such as highway improvements which provide access to a previously inaccessible area) generally commit future generations to similar uses. Also, irreversible damage can result from environmental accidents associated with the project. Irretrievable commitments of resources should be evaluated to assure that such current consumption is justified.*

5.2.2 Analysis of Irreversible Changes

The Proposed Plan projects would require the use of nonrenewable resources, such as lumber, metal alloys, and aggregate resources, for the physical construction components of the projects. Further analyses of project-specific uses of nonrenewable resources will be undertaken when the anticipated projects are initiated and carried forward as part of project-level CEQA evaluations. Regardless, the projects do not represent uncommon construction projects that use an extraordinary amount of raw materials in comparison to other urban or industrial development projects of similar scope and magnitude within a port setting.

The Proposed Plan projects would develop portions of the Harbor District for Port-related activities. Resources that are committed irreversibly and irretrievably are those that would be used by a project on a long-term or permanent basis. Resources committed to these Proposed Plan projects could include water areas that would be filled for container storage areas and extension of berthing areas, fossil fuels, capital, labor, and construction materials such as rock, concrete, gravel, and soils. Fossil fuels and energy would be consumed in the form of diesel, oil, and gasoline used for equipment and vehicles during construction and operational activities. During operations, diesel, oil, and gasoline would be used by ships, terminal equipment (e.g., cargo handling), and vehicles. Electrical energy and natural gas would be consumed during construction and operations. These energy resources would be irretrievable and irreversible.

The amounts of these non-recoverable materials and energy required for construction and operations of the Proposed Plan projects would be accommodated by existing supplies. Although the increase in the amount of materials and energy used would be insignificant, they would nevertheless be unavailable for other uses. CEQA Guidelines Section 15126.2(c) requires that an EIR evaluate the irretrievable commitments of resources to assure that current consumption is justified. The irretrievable commitment of resources required by the Proposed Plan projects is justified by the objectives of the Proposed Plan, including the following: accommodating future cargo demand and changing industry practices and trends to the maximum extent practicable; optimizing use of existing and future Port land through efficient and sustainable reconfiguration and redevelopment; and maximizing terminal operational efficiencies and on-dock rail systems within the Port. In addition, the Proposed Plan would maintain permitting flexibility to support future Green Port development and promote coastal dependent development to ensure the Port remains a primary economic resource of the national maritime industry.

5.3 GROWTH INDUCEMENT

This PEIR, which includes program-level analyses of various projects and a project-level analysis of one project, Outer Harbor Sediment Placement Ecosystem Restoration (OHSPER) (refer to Section 1.8.4, Proposed Plan Projects Analyzed in the PEIR), has been prepared in accordance with the requirements of CEQA (Public Resource Code [PRC] Section 21000 et seq.), CEQA Guidelines (14 California Code of Regulations [CCR] Section 15000 et seq.), and POLB Procedures for Implementation of the CEQA (Resolution No. HD-1973). CEQA Guidelines require an EIR to discuss the ways in which a proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. This includes ways in which the proposed project would remove obstacles to population growth or trigger the construction of new community service facilities that could cause significant effects (CEQA Guidelines Section 15126.2).

5.3.1 Summary of Growth-Inducing Impacts

The analysis presented in the following subsections focuses on whether the Proposed Plan would directly or indirectly stimulate significant economic or population growth in the surrounding area.

5.3.1.1 Direct Growth-Inducing Impacts

The Proposed Plan is designed to accommodate future growth of the Port in response to cargo demand and changing industry practices and trends to the maximum extent practicable.

The Port is a major economic driver that influences population and housing needs regionally, statewide, and nationally. However, the Proposed Plan is not anticipated to trigger new residential development in the vicinity of the Harbor District for the following reasons: 1) the Proposed Plan addresses land use within the Harbor District and none of the proposed land use changes would result in the development of new housing or growth in population; and 2) the residential area in the vicinity of the Harbor District is largely built out and is currently relatively dense. Therefore, the Proposed Plan is not anticipated to trigger new residential development in the Harbor District (Section 3.10, Population and Housing).

Construction activities associated with the Proposed Plan would provide additional employment opportunities, but it is anticipated these jobs would likely be filled by the local labor force within the five-county region and, therefore, would not result in substantial direct or indirect change in population growth in the area.

The number of new jobs created by construction and operation of the Proposed Plan projects is expected to be small compared to the overall employment in the region. However, an increase in Port operations and capacity associated with the Proposed Plan projects combined with other current and reasonably foreseeable Port operations could increase the amount of commercial and retail activity that would have the potential to create new jobs in the region and maintain a strong workforce.

Regional, subarea, and local forecasts for population, households, and employment are provided by the Southern California Association of Governments (SCAG). Proposed Plan projects would likely not result in substantial unplanned population growth. This is because the SCAG forecasts take into consideration, “a combination of recent and past trends, reasonable key technical assumptions, and regional growth policies” (SCAG 2019b). Therefore, the Proposed Plan projects are not expected to result in considerable direct growth-inducing impacts.

5.3.1.2 Indirect Growth-Inducing Impacts

A project would indirectly induce growth if it would trigger the construction of new community service facilities and increase the capacity of infrastructure in an area that currently meets the community demands. An example of this type of growth would be an increase in the capacity of a sewer treatment plant or the construction or widening of a roadway beyond that which is needed to meet existing demand.

Assessments presented in this PEIR concluded that the Proposed Plan would not result in significant increases in demands for public services (Section 3.11, Public Services and Safety), recreational facilities (Section 3.12, Recreation), or utilities (Section 3.15, Utilities, Service Systems, and Energy Conservation). Some of the Proposed Plan projects could require installation of new infrastructure (e.g., power, water, sewage), but these demands would not exceed current supplies or capacities. Assessments of ground transportation concluded that operation of the Proposed Plan projects would result in a significant impact to level of service (LOS) at intersections within the Proposed Plan area of influence. These impacts could be mitigated with improvements to the current street conditions, such that the improvements and modifications are not considered to be growth-inducing.

The Proposed Plan would indirectly increase earnings to some firms and households as Proposed Plan project expenditures are realized throughout the region. The short-term indirect effects from construction would incrementally increase activity in nearby retail establishments as a result of construction workers patronizing local establishments. However, the magnitude of this effect from the Proposed Plan would be negligible relative to the size of the regional economy. Overall, the Proposed Plan would not generate significant growth-inducing impacts.

CHAPTER 6 ORGANIZATIONS AND PERSONS CONSULTED

The following organizations and persons were consulted during the preparation of this Draft Program Environmental Impact Report.

California State Lands Commission – California Shipwreck Database

- Pamela Griggs, Assistant Chief Counsel

Gabrieleño Band of Mission Indians – Kizh Nation

- Andrew Salas, Chairperson

Gabrieleno/Tongva San Gabriel Band of Mission Indians

- Anthony Morales, Chairperson

Gabrielino Tongva Indians of California Tribal Council

- Robert Dorame, Chairperson

Gabrielino/Tongva Nation

- Sandonne Goad, Chairperson

Gabrielino-Tongva Tribe

- Charles Alvarez, Chairperson

Long Beach Police Department

- Commander (William) Paul LeBaron

Long Beach Fire Department

- Carla Gregory, Operations Bureau Secretary

Los Angeles Natural History Museum

- Samuel MacLeod, Ph.D.

Marine Exchange

- Unidentified person

Native American Heritage Commission

- Steven Quinn

Port of Long Beach

- Darin Wright, Wharfinger

Soboba Band of Luiseño Indians

- Joseph Ontiveros, Cultural Resource Director

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CHAPTER 8 REFERENCES

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