4.0

CUMULATIVE ANALYSIS

4.1 Introduction

This chapter evaluates the potential for the proposed Program, together with other past, present, and reasonably foreseeable future projects, to make a cumulatively considerable contribution to a significant cumulative impact. CEQA requirements related to cumulative impact analyses and a description of the related projects are discussed in Sections 4.1.1, Requirements for Cumulative Impact Analysis, and 4.1.2, Projects Considered in the Cumulative Analysis, respectively. Cumulative impacts for the proposed Program when combined with other reasonable and foreseeable projects in the area are organized by resource topic and analyzed in Section 4.2, Cumulative Impact Analysis.

4.1.1 Requirements for Cumulative Impact Analysis

CEQA Guidelines require a reasonable analysis of the significant cumulative impacts of a proposed project. Cumulative impacts are defined by CEQA as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts" (CEQA Guidelines Section 15355). Cumulative impacts are further described as follows:

- Individual effects may be changes resulting from a single project or a number of separate projects; and,
- Cumulative impacts from several projects are the change in the environment that results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable 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 CEQA Guideline Section 15355, a "cumulative impact" consists of an impact that is created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts. An EIR should not discuss impacts which do not result in part from the project evaluated in the EIR.*

In addition, as stated in CEQA Guidelines Section 15064(h)(4):

> *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.*

Therefore, the following cumulative impact analysis focuses on whether the impacts of the proposed Program are cumulatively considerable within the context of impacts caused by other past, present, or future projects (CEQA Guidelines Section 15065[a][3]). The cumulative impact scenario considers other projects proposed within the area defined for each resource that have the potential to contribute to cumulatively considerable impacts. Program impacts determined to have "No Impact" are not considered in this cumulative analysis because they would not contribute to a cumulative impact.

An EIR may identify the cumulative impacts of related projects by presenting either 1) a list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the agency; or, 2) a summary of projections contained in an adopted general plan or related planning document, or in a prior environmental document that has been adopted or certified, which described or evaluated regional or area-wide conditions contributing to the cumulative impact (CEQA Guidelines Section 15130[b][1]).

Although the use of either method would meet CEQA requirements, both options have advantages and disadvantages with respect to use in this PEIR. A list of "related" projects is typically derived from project lists maintained by local jurisdictions and regional agencies. Although such lists can provide a basis for identifying specific impacts at specific locations, a list has a limited timeframe typically extending no more than 5 years. In contrast, adopted plans have the advantage of a longer planning horizon. However, the analysis in any adopted plan may become outdated or may be based on a planning horizon that does not correspond with the PMPU.

For this PEIR, a combination of methods was used to identify potential cumulative impacts. A list of regionally significant and closely related projects that would be constructed in the cumulative geographic scope was used to ensure that projects with the potential for cumulatively considerable impacts were analyzed and considered in the PEIR. The list of related projects is provided in Section 4.1.2, Projects Considered in the Cumulative Analysis. Some resource areas (e.g., traffic/circulation and air quality) used a projections approach based on regional plans (e.g., SCAG RTP, SCAB *2007 AQMP* and the *2008 Multiple Air Toxics Exposure Study* [MATES-II and MATES III] [SCAQMD 2000, 2007, 2008]). A combined list and projection approach was used for the cumulative noise analysis because it relies on both the annual regional growth rates utilized for traffic (e.g., traffic is an important contributor to noise impacts) and the list of related projects documented in Section 4.1.2, Projects Considered in the Cumulative Analysis.

4.1.2 Projects Considered in the Cumulative Analysis

A total of 129 present or reasonably foreseeable future projects (approved or proposed) were identified within the regional vicinity of the proposed Program that could contribute to cumulative impacts (Table 4.1-1 and Figure 4.1-1). As discussed in Section 4.1.1, Requirements for Cumulative Impact Analysis, and further in the resource-specific sections below, some resource analyses use a projection approach encompassing a larger cumulative geographic scope. For these resources a larger set of past, present, and reasonably foreseeable future projects was included for analysis of cumulative impacts.

For the purposes of this PEIR, the timeframe of the proposed appealable/fill projects extends to the year 2035, and the vicinity is defined as the area over which effects of the proposed Program could contribute to cumulative impacts. The cumulative regions of influence for individual resources are documented further in each of the resource-specific subsections in Section 4.2, Cumulative Impact Analysis.

Table 4.1-1. Related and Cumulative Projects

No. in Figure 4.1-1	*Project Title and Location*	*Project Description*	*Project Status*
		Port of Los Angeles Projects	
1	Outer Harbor Cruise Terminal and Outer Harbor Park, Port of Los Angeles	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. This project was evaluated in the San Pedro Waterfront Project EIS/EIR.	The Board certified the Final EIS/EIR and approved this project on September 29, 2009. Construction anticipated 2010-2015.
2	City Dock No. 1 Marine Research Project, Port of Los Angeles	This project includes development of a marine research center within a 28-acre area located between Berths 57-72. This project would change the break bulk areas east of East Channel (Berths 57-72) to institutional uses.	The Board certified the Final EIR and approved this project on October 18, 2012. Construction anticipated 2012-2017.
3	Ports O'Call Redevelopment, Port of Los Angeles	This project includes redevelopment of the 30-acre Ports O'Call Village with up to 300,000 square feet of visitor-serving commercial uses and up to a 75,000 square feet conference center. This project would involve changing the industrial uses along Harbor Boulevard to commercial. This project also includes a waterfront promenade and 3 acres of open space. This project was evaluated in the San Pedro Waterfront Project EIS/EIR.	The Board certified the Final EIS/EIR and approved this project on September 29, 2009. Construction anticipated 2010-2015.
4	Cabrillo Way Marina, Phase II, Port of Los Angeles	This project focuses on redevelopment of the old marinas in the Watchorn Basin and development of the backland areas for a variety of commercial and recreational uses.	The Board certified the Final EIR and approved this project on December 2, 2003. Construction completion anticipated in 2012.

Table 4.1-1. Related and Cumulative Projects

No. in Figure 4.1-1	*Project Title and Location*	*Project Description*	*Project Status*
5	Wilmington Waterfront Development Project, Port of Los Angeles	This project will redevelop 94 acres of land within and outside the coastal zone to include: 1) light industrial development; 2) park development; 3) Waterfront Red Car Museum; 4) pedestrian enhancements; 5) commercial development; 6) street realignments and enhancements; 7) waterfront promenade; 8) land bridge and elevated park; 9) Avalon Triangle Park; and, 10) Avalon Boulevard, Broad Avenue, and Water Street realignments. This project was evaluated in the Wilmington Waterfront Development Project EIS/EIR.	The Board certified the Final EIS/EIR and approved this project on June 18, 2009. Park construction completed, Construction of remaining elements anticipated 2012-2014.
6	Anchorage Road Soil Storage Site (ARSSS) Open Space, Port of Los Angeles	This 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.	Conceptual planning stage.
7	Berths 176-181 Break Bulk Terminal Redevelopment, Port of Los Angeles	This project would expand the break bulk terminal at Berths 176-181 by up to 8 acres, demolish an existing shed, replace an 700-foot section of wharf, and include additional wharf improvements along Berths 179-181.	Conceptual planning stage.
8	East Basin Marina Improvements, Port of Los Angeles	This project would provide enhanced marina facilities, including new slips, landside facilities, and circulation. AA new breakwater could be along Berths 204-205 to allow for large vessel berthing across the channel at Berths 206-209.	Conceptual planning stage.
9	Pier 500, Port of Los Angeles	This project would fill approximately 200 acres of the harbor south of Pier 400 to create a new container terminal. The terminal would include two container berths approximately 1,300 feet each. The new terminal would also include on-dock rail.	Conceptual planning stage.
10	Trucking Support Center, Port of Los Angeles	This project would utilize approximately 33 acres at the former Navy Reserve site to provide a new trucking support center and restaurant. The project would allow fueling for new clean-technology drayage vehicles.	Conceptual planning stage.
11	Relocation of SA Recycling, Port of Los Angeles	This project would relocate the existing 26-acre dry bulk facility currently located at Berths 210-211 eastward to a similar sized facility at Berths 206-207.	Conceptual planning stage.
12	Relocation of Jankovich Marine Fueling Station, Port of Los Angeles	This project would develop a new fueling station at Berth 240 on Terminal Island. The proposed improvements would include new storage tanks and approximately 6,400 linear feet of new wharf construction. This project was evaluated in the San Pedro Waterfront Project EIS/EIR.	The Board certified the Final EIS/EIR and approved this project on September 29, 2009. Construction anticipated 2010-2015.
13	Berths 136-147 Marine Terminal (TraPac), Port of Los Angeles	Element of the West Basin Transportation Improvement Projects. Expansion and redevelopment of the TraPac Container Terminal to 243 acres, including improvement of Harry Bridges Boulevard and a 30-acre landscaped area, relocation of an existing rail yard and construction of a new on-dock rail yard, and reconfiguration of wharves and backlands (includes filling of the Northwest Slip, dredging, and construction of new wharves).	The Board certified the EIR and approved the project on December 6, 2007. Construction started in 2009 and will be ongoing through 2012.

Table 4.1-1. Related and Cumulative Projects

No. in Figure 4.1-1	*Project Title and Location*	*Project Description*	*Project Status*
14	San Pedro Waterfront Project, Port of Los Angeles	The "San Pedro Waterfront" Project is a 5- to 7-year plan to develop along the west side of the Main Channel, from the Vincent Thomas Bridge to the 22nd Street Landing Area Parcel up to and including Crescent Avenue. Key components of the project include: construction of a North Harbor Promenade, a Downtown Harbor Promenade, a Downtown Water Feature, a Town Square at the foot of 6th Street, a 7th Street Pier, a Ports O'Call Promenade, additional cruise terminal facilities, and a Ralph J. Scott Historic Fireboat Display; enhancements to the existing John S. Gibson Park; development of California Coastal Trail along the waterfront; relocation of the SS Lane Victory; extension of the Red Car line; and, related parking improvements.	The Board certified the EIR and approved the project on September 29, 2009. Construction is anticipated from 2010-2015.
15	Channel Deepening Project, Port of Los Angeles	This project, focusing on dredging and sediment disposal, deepened the Port's Main Channel to a maximum depth of -53 feet MLLW (lesser depths are considered as project alternatives) by removing between 3.94 million and 8.5 million cubic yards of sediments. The sediments were disposed of at several sites for up to 151 acres of landfill. The EIR/EIS certified for the project identified significant biology, air, and noise impacts. A Supplemental EIS/EIR is being prepared for new fill locations. The Additional Disposal Capacity Project would provide approximately 4 million cubic yards of disposal capacity needed to complete the Channel Deepening Project and maximize beneficial use of dredged material by constructing lands for eventual terminal development and provide environmental enhancements at various locations in the Port.	The Board certified the EIR and approved the project on April 29, 2009. Construction is anticipated from 2010-2013.
16	Al Larson Boat Shop Improvement Project, Port of Los Angeles	Modernization of existing boat yard and 30-year lease extension.	The Board certified the EIR and approved the project on April 29, 2009. Construction anticipated 2013-2016.
17	Berths 226-236 (Evergreen) Container Terminal Improvements Project, Port of Los Angeles	Proposed redevelopment of existing container terminal, including improvements to wharves, adjacent backland, crane rails, lighting, utilities, new gate complex, grade crossings and modification of adjacent roadways and railroad tracks.	On hold.
18	Berths 302-306 APL Container Terminal Project, Port of Los Angeles	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.	The Board certified the EIR and approved the project on May 7, 2012. Construction anticipated 2012–2014.

Table 4.1-1. Related and Cumulative Projects

No. in Figure 4.1-1	*Project Title and Location*	*Project Description*	*Project Status*
19	International Longshore and Warehouse Union Local 13 Dispatch Hall Project, Port of Los Angeles	The project will accommodate current and anticipated needs of the International Longshore and Warehouse Union by providing a meeting space and administrative offices for dispatching longshore workers to cargo terminals within the Port and Port of Long Beach.	The Board certified the EIR and approved the project on May 19, 2011. Construction anticipated 2011–2012.
20	SSA Marine Outer Harbor Fruit Facility Relocation, Port of Los Angeles	Proposal to relocate the existing fruit import facility at 22nd and Miner to Berth 153.	On hold.
21	Crescent Warehouse Company Relocation, Port of Los Angeles	Project would relocate the operations of Crescent Warehouse Company from Port Warehouses 1, 6, 9, and 10 to an existing warehouse at Berth 153, and also relocate Catalina Freight operations from Berth 184 to same building at Berth 153.	On hold.
22	Ultramar Lease Renewal Project, Port of Los Angeles	Proposal to renew the lease between the Port and Ultramar Inc., for continued operation of the marine terminal facilities at Berths 163-164, as well as associated tank farms and pipelines. Project includes upgrades to existing facilities to increase the proposed minimum throughput to 10 million barrels per year, compared to the existing 7.5 million barrels per year minimum.	On hold.
23	Westway Decommissioning, Port of Los Angeles	Project involves decommissioning of the Westway Terminal along the Main Channel (Berths 70-71). Work includes decommissioning and removing 136 storage tanks with total capacity of 593,000 barrels.	Remedial planning underway. Decommissioning anticipated 2012.
24	Consolidated Slip Restoration Project, Port of Los Angeles	The action is for remediation of contaminated sediment at Consolidated Slip. Remediation may include capping sediment or removal/disposal to an appropriate facility. Work includes capping and/or treatment of approximately 30,000 cubic yards of contaminated sediments.	Remedial actions are being evaluated in conjunction with Los Angeles RWQCB and USEPA.
25	Berths 97-109, China Shipping Development Project, Port of Los Angeles	The project involves development of the China Shipping Terminal Phase I, II, and III including wharf construction, landfill and terminal construction, and backland development. This project includes converting vacant land to container area.	The Board certified the EIR and approved the project on December 8, 2009. Construction started in 2009 and ongoing through 2013.
26	Berths 171-181, Pasha Marine Terminal Improvements Project, Port of Los Angeles	The project would involve redevelopment of existing facilities at Berths 171-181 as an omni (multi-use) facility.	EIR on hold.
27	Wilmington Youth Sailing and Aquatic Center, Port of Los Angeles	Construction of a facility that includes a sailing center and adjacent boat dock and launch ramp at Berth 204 in Wilmington.	Mitigated Negative Declaration (MND) approved November 15, 2012. Construction anticipated 2013-2015.

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28	Berths 206-209 Interim Container Terminal Reuse Project, Port of Los Angeles	Proposal to allow interim reuse of former Matson Terminal while implementing green terminal measures.	EIR on hold.
29	San Pedro Waterfront Enhancements Project, Port of Los Angeles	Project includes improving existing and development of new pedestrian corridors along the waterfront (4 acres), landscaping, parking, increased waterfront access from upland areas, and creating 16 acres of public open space.	MND approved in April 2006. Construction underway.
30	Joint Container Inspection Facility, Port of Los Angeles and Port of Long Beach	Construction and operation of a facility to be used to search and inspect random and suspicious containers arriving at the ports.	Project on hold.
31	Southern California International Gateway Project (SCIG), Port of Los Angeles	Construction and operation of a 157-acre dock rail yard ICTF and various associated components, including the relocation of an existing rail operation.	Recirculated Draft EIR released September 2012. Construction anticipated 2013–2015.
32	South Wilmington Grade Separation, Port of Los Angeles	An elevated grade separation would be constructed along a portion of Fries Avenue or Marine Avenue, over the existing rail line tracks, to eliminate vehicular traffic delays that would otherwise be caused by trains using the existing rail line and the new ICTF rail yard. The elevated grade would include a connection onto Water Street. There would be a minimum 24.5-foot clearance for rail cars traveling under the grade separation.	Construction anticipated to start January 2013.
33	Wilmington Waterfront Master Plan (Avalon Boulevard Corridor Project)	Planned development intended to provide waterfront access and promoting development specifically along Avalon Boulevard.	The Board certified the EIR and approved the project 2009. Construction anticipated 2012-2014.
34	"C" Street/ Figueroa Street Interchange	The "C" Street/Figueroa Street interchange would be redesigned to include an elevated ramp from Harry Bridges Boulevard to the I-110 Freeway, over John S. Gibson Boulevard. There would be a minimum 15-foot clearance for vehicles traveling on John S. Gibson Boulevard. An additional extension would connect from Figueroa Street to the new elevated ramp, over Harry Bridges Boulevard.	MND adopted June 2012. Construction anticipated 2013-2016.
35	Berths 212-224 (YTI) Container Terminal Improvements Project, Port of Los Angeles	Wharf modifications at the YTI Marine Terminal Project involves wharf upgrades and backland reconfiguration, including new buildings.	EIR/EIS on hold.

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36	Berths 121-131 (Yang Ming) Container Terminal Improvements Project, Port of Los Angeles	Reconfiguration of wharves and backlands. Expansion and redevelopment of the Yang Ming Terminal.	EIR/EIS on hold.
37	John S. Gibson Boulevard /I-110 Access Ramps and SR-47/I-110 Connector Improvement Program, Port of Los Angeles	Program includes "C" Street/I-110 access ramp intersection improvements, I-110 Northbound Ramp/John S. Gibson Boulevard intersection improvements, and SR-47 On-and Off-Ramp at Front Street.	MND approved April 2012. Construction anticipated 2013-2016.
38	Inner Cabrillo Beach Water Quality Improvement Program, Port of Los Angeles	Phased improvements at Cabrillo Beach to reduce the wet and dry weather high concentrations of bacteria. Includes sewer and storm drain work, sand replacement, and bird excluders.	Bird exclusion structure to be extended in 2013.
39	Cabrillo Beach Pump Project (Tier III), Port of Los Angeles	Phased improvements at Cabrillo Beach to reduce the wet and dry weather high concentrations of bacteria circulation improvements.	On hold.
40	Fish Harbor Redevelopment, Port of Los Angeles	Redevelopment of Fish Harbor, including a new combined disposal facility.	Conceptual planning stage.
41	Terminal Island On-Dock Rail Redevelopment, Port of Los Angeles	Redevelopment and expansion of on-dock rail on Terminal Island.	Conceptual planning stage.
42	Solar Panel Installation Program, Port of Los Angeles	Installation of 10MW of solar power within the Port.	Conceptual planning stage.
43	Wallenius Wilhelmsen Logistics (WWL) Vehicle Services Cargo Terminal, Port of Los Angeles	Expansion of vehicle offloading processing, and operations, including cargo increase up to 220,000 vehicles per year and construction of two additional rail loading tracks.	MND approved April. Construction anticipated to begin 2013.
Port of Los Angeles and/or Port of Long Beach Potential Port-Wide Operational Projects			
44	Navy Way/Seaside Avenue Interchange, Port of Los Angeles and Port of Long Beach	Construction of a new flyover connector from northbound Navy Way to westbound Seaside Avenue. This improvement is part of the Port and Port of Long Beach Infrastructure Cargo Fee Program.	Conceptual planning stage.
45	Terminal Free Time, Port of Los Angeles and Port of Long Beach	Port and Port of Long Beach program to reduce container storage time and use gates at off-peak travel times.	Program in progress.

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46	Extended Terminal Gates (Pier Pass), Port of Los Angeles and Port of Long Beach	Port and Port of Long Beach program to use economic incentives to encourage cargo owners to use terminal gates during off-peak hours.	Program in progress.
47	Shuttle Train/Inland Container Yard, Port of Los Angeles and Port of Long Beach	ACTA program to encourage rail shuttle service between the on-dock rail facilities at the ports and a rail facility in Colton (in the Inland Empire). The pilot program will consist of a daily train to and from Colton. The containers will be trucked between the Colton rail facility and the beneficial cargo owners' facility.	Preliminary study in progress.
48	Origin/Destination and Toll Study, Port of Los Angeles and Port of Long Beach	Port and Port of Long Beach study to identify the origin and destination of international containers in the Los Angeles area, to determine the location of warehouses and identify the routes truck drivers use to move containers to and from the ports. The bridges serving Terminal Island (Vincent Thomas, Gerald Desmond and Heim Bridge) are not currently designed to handle the trade volumes projected at the ports. In order to identify funding mechanisms to replace/ enhance these bridges, the ports are conducting a toll study to explore potential funding sources for bridge replacement and truck driver behavior if tolls were assessed on the bridges.	Study in progress.
49	Virtual Container Yard, Port of Los Angeles and Port of Long Beach	ACTA, Port, and Port of Long Beach program to explore implementing a system that would match an empty container from an import move to one from an empty export move.	Conceptual planning phase.
50	Increased On-Dock Rail Usage, Port of Los Angeles and Port of Long Beach	ACTA, Port, and Port of Long Beach program with shipping lines and terminal operators to consolidate intermodal volume of the neighboring terminals to create larger trains to interior points, thereby reducing need for truck transportation.	Conceptual planning phase.
51	Optical Character Recognition, Port of Los Angeles and Port of Long Beach	Ports terminals have implemented Optical Character Recognition technology, which eliminates the need to type container numbers in the computer system. This expedites the passage of trucks through terminal gates.	Conceptual planning phase.
52	Truck Driver Appointment System, Port of Los Angeles and Port of Long Beach	Appointment system that provides a pre-notification to terminals regarding which containers are planned to be picked up.	Conceptual planning phase.
		ICTF Joint Powers Authority	
53	Union Pacific Railroad ICTF Modernization and Expansion Project	Union Pacific proposal to modernize existing intermodal yard 4 miles from the Port.	Project EIR under preparation. Draft EIR expected early 2013. Construction anticipated 2013-2015.

Table 4.1-1. Related and Cumulative Projects

No. in Figure 4.1-1	*Project Title and Location*	*Project Description*	*Project Status*
		Community of San Pedro Projects	
54	Pacific Corridors Redevelopment Project, San Pedro	Project involves development of commercial/retail, manufacturing, and residential components. Construction underway of four housing developments and Welcome Park.	Project underway. Estimated 2032 completion year according to Community Redevelopment Agency of Los Angeles.
55	Single Family Homes (Gaffey Street), San Pedro	Project to construct 135 single-family homes. About 2 acres. 1427 N Gaffey Street (at Basin Street), San Pedro.	Construction has not started.
56	Mixed-use development, 281 W 8th Street, San Pedro	Project to construct 72 condominiums and 7,000 square feet retail. 281 West 8th Street (near Centre Street), San Pedro.	Under construction according to City of Los Angeles Zoning Information and Map Access System (ZIMAS).
57	Palos Verdes Urban Village, San Pedro	Project to construct 251 condominiums and 4,000 square feet of retail space. 550 South Palos Verdes Street, San Pedro.	Construction has not started.
58	Temporary Little League Park, San Pedro	Project to construct temporary baseball fields for the Eastview Little League. Baseball fields will be at current location of Knoll Hill Dog Park in San Pedro.	Construction pending.
59	Centre Street Lofts, San Pedro	Project to construct 116 residential units and 20,000 square feet ground floor commercial at 285 W 6th Street, San Pedro.	Construction completed.
		Community of Wilmington Projects	
60	Distribution Center and Warehouse, Wilmington	Project to construct a 135,000-square foot distribution center and warehouse on a 240,000-square foot lot with 47 parking spaces at 755 East L Street (at McFarland Avenue) in Wilmington.	Construction has not started; lot is vacant and bare. LADOT Development Services Division has no estimated completion year.
61	Dana Strand Public Housing Redevelopment Project, Wilmington	Project to construct 413 units of mixed-income affordable housing in four phases: Phase I - 120 rental units; Phase II - 116 rental units; Phase III - 100 senior units; Phase IV - 77 single family homes. The plans also include a day care center, lifelong learning center, parks and landscaped open space.	Phases I and II have been completed and are being leased. Phases III and IV are currently under development.
		Projects in Harbor City, Lomita, and Torrance	
62	Kaiser Permanente South Bay Master Plan, Harbor City	Project to construct a 303,000-square foot medical office building, 42,500 square feet of records center/ office/warehouse, and 260 hospital beds. 25825 Vermont Street, Harbor City (at PCH).	Under construction.
63	Ponte Vista, 26900 Western Avenue (near Green Hills Park), Lomita	Project revised to include 1,135 new single-family homes, townhomes, condominiums and luxury apartments. The project consists of an alternative for 830 residential units.	Draft EIR released November 2012.
64	Warehouses, 1351 West Sepulveda Boulevard, Torrance	Project to construct warehouses with total capacity of 400,000 square feet. 1351 West Sepulveda Boulevard (at Western Avenue).	Project building permit cleared February 2007.

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No. in Figure 4.1-1	*Project Title and Location*	*Project Description*	*Project Status*
65	Sepulveda Industrial Park, Torrance	Project to construct a 154,105 square foot industrial park (6 lots). Sepulveda Industrial Park (TT65665). 1309 Sepulveda Boulevard, Torrance (near Normandie Avenue).	Construction has not started. LADOT Development Services Division has no estimated completion year.
66	Capellino & Associates 1104 Sartori Ave., Torrance	Project to construct a professional office condominium development.	Under construction.
67	Linda Francis 18900 Hawthorne Blvd., Torrance	Project for operation of new automobile sales and repair facility (MINI Cooper).	Under construction.
68	Providence Health System 5215 Torrance Blvd., Torrance	Project to construct two, 3-story medical office buildings and two, 3-story parking structures.	Construction pending.
69	Torrance Memorial Medical Center, 3330 Lomita Blvd, Torrance	Project to construct a new 7-story hospital tower and the removal of an existing medical office condominium building.	Construction pending.
70	Continental Development 2843 Lomita Boulevard, Torrance	Project to construct a 25,000 square foot medical office building to replace existing manufacturing building.	Construction pending.
71	Mark Sachs 2909 Pacific Coast Hwy. Torrance	Project to construct a new 16,978-square foot automobile dealership showroom facility.	Application received on October 2, 2009; approved on November 4, 2009.
		Port of Long Beach Projects	
72	Middle Harbor Terminal Redevelopment, Port of Long Beach	Project for consolidation of two existing container terminals into one 345-acre terminal. Construction includes approximately 55 acres of landfill, dredging, and wharf construction; construction of an intermodal rail yard; and, reconstruction of terminal buildings.	Approved project. Construction underway 2012-2019.
73	Piers G & J Terminal Redevelopment Project, Port of Long Beach	Project for redevelopment of two existing marine container terminals into one terminal. The Piers G and J redevelopment project is in the Southeast Harbor Planning District area of the Port of Long Beach. The project will develop a marine terminal of up to 315 acres by consolidating two existing terminals on Piers G and J and several surrounding parcels. Construction will occur in four phases and will include approximately 53 acres of landfills, dredging, concrete wharves, rock dikes, and road and railway improvements.	Approved project. Construction underway (2005-2015).
74	Pier A East, Port of Long Beach	Project for redevelopment of 32 acres of existing auto storage area into container terminal.	Conceptual planning phase.
75	Pier S Marine Terminal, Port of Long Beach	Project for development of a 150-acre container terminal and construction of navigational safety improvements to the Back Channel.	Draft EIS/Draft EIR released 9/2011. Construction anticipated 2013 – 2015.

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No. in Figure 4.1-1	*Project Title and Location*	*Project Description*	*Project Status*
76	Administration Building Replacement Project, Port of Long Beach	Purchase of an existing building at 4801 Airport Plaza Drive.	Purchase approved November 2012.
77	Gerald Desmond Bridge Replacement Project, Port of Long Beach and Caltrans/FHWA	Project for replacement of the existing 4-lane Gerald Desmond highway bridge over the Port of Long Beach Back Channel with a new 6- to 8-lane bridge.	Final EIR/Environmental Assessment certified. Approved project. Construction anticipated 2013.
78	Chemoil Marine Terminal, Tank Installation, Port of Long Beach	Project for construction of two petroleum storage tanks and associated relocation of utilities and reconfiguration of adjoining marine terminal uses between Berths F210 and F211 on Pier F.	EIR on hold.
79	Pier B Rail Yard Expansion (On-Dock Rail Support Facility), Port of Long Beach	Project for expansion of the existing Pier B Rail Yard in two phases, including realignment of the adjacent Pier B Street and utility relocation.	Draft EIR being prepared.
80	Mitsubishi Cement Corporation Facility Modifications, Port of Long Beach	Project for 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.	Draft EIR being prepared.
81	Eagle Rock Aggregate Terminal, Port of Long Beach	Project to construct a new marine terminal for importing construction aggregate on Pier D.	Draft EIR released July 2012.
82	Cemera Long Beach Aggregate Terminal, Port of Long Beach	Project for construction and operation of a sand, gravel, and aggregate receiving, storage, and distribution terminal on Pier D.	EIR on hold.
83	TTI Grain Export Terminal, Port of Long Beach	Project for construction of grain transloading facility on Pier T.	Draft EIR released December 12, 2011; Final EIR being prepared.
Alameda Corridor Transportation Authority and Caltrans Projects			
84	Schuyler Heim Bridge Replacement	ACTA/Caltrans project to replace the Schuyler Heim Bridge with a fixed structure.	Under construction.
85	I-710 (Long Beach Freeway) Corridor Project	Project to develop multi-modal, timely, cost-effective transportation solutions to traffic congestion and other mobility problems along approximately 18 miles of the I-710, between the San Pedro Bay ports and SR-60.	Final EIR/EIS under preparation.
86	Badger Avenue Bridge Expansion	Project for redevelopment of the existing Badger Avenue Rail Bridge.	Project on hold.
87	SR-47 Terminal Island Expressway	Project consists of a new, four-lane elevated roadway connecting the new Heim Bridge on the south end, with Alameda Street on the north end, just south of PCH.	Project on hold.

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No. in Figure 4.1-1	*Project Title and Location*	*Project Description*	*Project Status*
		City of Long Beach Projects	
88	Shoreline Gateway Project, City of Long Beach	Project for mixed-use development of a 22-story residential tower with retail, commercial, and office uses located north of Ocean Boulevard, between Atlantic Avenue and Alamitos Avenue.	EIR certified in 2006. Entitlements granted. City Planning Department has no estimated construction start and completion year.
89	West Gateway Redevelopment Project, City of Long Beach	Project to redevelop nine existing parcels, including apartments, condominiums, and retail, on Broadway between Chestnut and Maine.	Under construction.
90	2nd+PCH 6400 East Pacific Coast Highway, City of Long Beach	Project for demolition of existing onsite uses and construction of new residential, office, retail, and potential hotel uses, along with associated parking and open space.	Draft EIR was released on April 19, 2010. In process for entitlement. City Planning Department has no estimated construction start and completion year.
91	Golden Shore Master Plan, City of Long Beach	The proposed project would provide new residential, office, retail, and potential hotel uses, along with associated parking and open space.	Final EIR was released on January 2010. In process for entitlement. City Planning Department has no estimated construction start and completion year.
92	North Village Center, City of Long Beach	The proposed project involves redevelopment of an approximately 6-acre site in the City of Long Beach with a mixed-use "village center" project.	Final EIR was released in November 2009. In process for entitlement. City Planning Department has no estimated construction start and completion year.
93	Kroc Community Center, City of Long Beach	The project involves reformation of up to 19 acres of land designated by the Salvation Army, through a grant from the Kroc Foundation, for the location of a new recreation and community center.	Final EIR was released in June 2009. Entitlements granted. City Planning Department has no estimated construction start and completion year.
94	Hotel Sierra, 290 Bay St., City of Long Beach	This project consists of a new 5-story 125-room hotel with approximately 15,000 square feet of ground floor retail space.	EIR Addendum was released in May 2009. City Planning Department has no estimated construction start and completion year.
95	1235 Long Beach Blvd Mixed-Use Project, City of Long Beach	The project would include demolition of existing onsite uses and construction of a mixed-use (transit-oriented) development that includes the construction of 3 buildings consisting of 170 residential condominium units, 186 senior (age-restricted) apartment units, and 42,000 square feet of retail/restaurant floor area.	EIR Addendum was released in January 2008. Entitlements granted. City Planning Department has no estimated construction start and completion year.
96	Douglas Park Rezone Project, City of Long Beach	The project consists of development of 1,400 residential units along with 3.3 million square feet of mixed commercial and light industrial development (which included a maximum of 200,000 square feet of retail uses), 400 hotel rooms, and 10.5 acres of park space, with an additional 2.5 acres for view corridors/ pedestrian easements and bicycle paths.	Construction is underway. Entitlements granted.

Table 4.1-1. Related and Cumulative Projects

No. in Figure 4.1-1	*Project Title and Location*	*Project Description*	*Project Status*
97	Drake/Chavez Park Expansion, City of Long Beach	Project for developing new and expanding existing open space opportunities in the Drake/Chavez Park.	Project in progress.
98	15th Street and Alamitos Avenue Open Space Development and Intersection Improvements, City of Long Beach	Project for a passive park to include pedestrian hardscape, landscape lighting, light poles and planting areas.	Construction underway.
99	CityPlace Lofts, 4th Street and Elm Avenue, City of Long Beach	Project for 72-unit condominium/loft project.	Construction completed.
100	Lyon West Gateway Residential Development, Broadway at Magnolia Avenue and 3rd Street, City of Long Beach	Mixed-use project consisting of 291 rental apartments (265 market rate and 26 affordable) and 15,000 square feet of commercial space.	Construction underway.
101	Pine – Pacific, bounded by Pine and Pacific Avenues, and 3rd and 4th Streets, City of Long Beach	Phase 1 will consist of a 5-story residential project with 175 living units and 7,280 square feet of retail space. Phase 2 is slated as a 12-story mid-rise residential development with 186 units and 18,670 square feet of retail.	Approved project. Construction pending.
102	Lofts at 3rd and Promenade, City of Long Beach	Project for mixed-use development that consists of 104 rental homes and 13,550 square feet of first-floor retail space.	Construction underway.
103	Broadway Block Development, Broadway, Long Beach Boulevard, 3rd Street, and Elm Avenue, City of Long Beach	Mixed-use project consisting of an art center, residential units and commercial space.	Conceptual project phase.
104	Hotel Esterel, Promenade at Broadway, City of Long Beach	Project for a 7-story, 165-room hotel with 8,875 square feet of retail space and 3,000 square feet of meeting space.	Construction underway.
105	Promenade Master Plan, between Shoreline Drive and 5th Street, City of Long Beach	Project for improvement, expansion and redesign of The Promenade. The Master Plan encompasses the gateways, hardscape, landscape, furniture, lighting and public art plazas along the three blocks between Ocean Boulevard and 3rd Street, as well as renovation of the amphitheater.	Construction underway.

Table 4.1-1. Related and Cumulative Projects

No. in Figure 4.1-1	*Project Title and Location*	*Project Description*	*Project Status*
106	Admiral Kidd Park Expansion Site, Santa Fe at Willard, City of Long Beach	Project for the Admiral Kidd Park Expansion Site consists of the acquisition and development of industrial property for a 120,000-square foot park expansion.	The site has been acquired and cleared. Construction underway.
107	Everbright Paper Recycling Center, City of Long Beach	Project for development of a bulk paper recycling and processing center.	Construction start date was anticipated to be in 3rd Quarter 2008, and completion date was expected to be in 2nd Quarter 2009. Construction status unknown.
108	Westside Storm Drain Improvement Project, City of Long Beach	The Agency, along with developer DMJM Harris/ AECOM plans to improve and update existing storm drains in an effort to remedy street flooding.	Construction start date was anticipated to be in 1st Quarter 2006, and completion date is to be determined. Construction status unknown.
109	495 The Promenade North, City of Long Beach	Project for construction of 35,000 square foot, 5-story mixed-use development including 6,000 square feet of ground floor commercial area and 21 residential units.	In process for entitlement. City Planning Department has no estimated construction start and completion year.
110	100 Aquarium Way, City of Long Beach	Project for a 23,300-square foot expansion to the Aquarium of the Pacific.	In process for entitlement. City Planning Department has no estimated construction start and completion year.
111	2010 Ocean Blvd., City of Long Beach	Project for construction of 56 residential condominium units with 40 hotel rooms.	Entitlements granted. City Planning Department has no estimated construction start and completion year.
112	600 E Broadway, City of Long Beach	Project for a 48,000-square foot Vons Market with 128 rooftop parking spaces development.	Under construction.
		Wilmington/Carson	
113	BP Carson Refinery Safety, Compliance and Optimization Project, City of Carson	The proposed project will involve physical changes and additions to multiple process units and operations as well as operational and functional improvements within the confines of the existing refinery.	Construction scheduled from 2006 through 2009. Project is largely complete.
114	Kinder Morgan Terminal Expansion, City of Carson	The project involves construction of 18 new, 80,000-barrel product storage tanks and one new, 30,000-barrel transmix storage tank with related piping, pumps, and control systems on the southwestern portion of the existing Carson Terminal facility.	Construction activities for the KMEP project are anticipated to occur over a 10-year period.
115	Chemoil Terminals Corporation, City of Carson	The proposed project includes constructing five 50,000-barrel tanks and two 20,000-barrel tanks for the storage of organic liquids such as ethanol, crude oil, gasoline, naphtha, cycle oils, marine and non-marine diesel oils, and residual fuel oils.	The project is currently under construction and will be ongoing for several years.

Table 4.1-1. Related and Cumulative Projects

No. in Figure 4.1-1	*Project Title and Location*	*Project Description*	*Project Status*
116	ConocoPhillips Refinery Tank Replacement Project, City of Carson	ConocoPhillips operators are in the process of removing seven existing petroleum storage tanks and replacing them with six new tanks, four at the Carson Plant and two new tanks at the Wilmington Plant.	A Negative Declaration has been prepared for this project.
117	BP Logistics Project, City of Carson	The project involves the construction and operation of two 260-foot diameter covered external floating roof crude oil storage tanks. The two crude oil storage tanks have a capacity of 500,000 barrels each, and will require related piping and process control systems.	Final EIR has been prepared and certified by City of Carson. Project on-hold.
118	Ultramar Inc., Olympic Tank Farm, City of Wilmington	The project will relocate the entire operations from the Ultramar Marine Tank Farm in the Port to the Olympic Tank Farm.	Construction of the proposed project is anticipated to begin in 2013.
119	WesPac Smart Energy Transport System Project, City of Carson	WesPac is proposing to construct a jet fuel pipeline system to support airport operations at LAX and other airports in the western U.S.	Phase 1 is proposed to begin on resolution of court case.
120	Tesoro Reliability Improvement and Regulatory Compliance Project, City of Wilmington	The project involves physical changes and additions to multiple process units and operations as well as operational and functional improvements within the confines of the existing Refinery, including replacing an existing cogeneration system with a new cogeneration system and replacing multiple, existing steam boilers with new equipment.	EIR certified April 10, 2009. Construction activities scheduled 2010 through 2012.
121	Warren Oil WTU Central Facility and New Equipment Project 625 E Anaheim St, City of Wilmington	Proposed project would make modifications to an existing oil production facility to remove and replace an existing flare, add a heater-treater, and add microturbines to generate electricity onsite.	Negative Declaration released April 15, 2009. Final Negative Declaration under preparation. Construction anticipated 3rd quarter 2010 through 2013.
		City of Carson Projects	
122	20945 S Wilmington Ave Conditional Use Permit (CUP) 430-95, City of Carson	Project for modification to existing CUP for chemical distribution plant. Proposal to increase the daily truck usage at the Carson terminal of the Shell Oil Company (refer to 20915 S Wilmington Ave.).	Project approved.
123	770 E Del Amo Blvd Design Overlay Review (DOR) 831-03, City of Carson	Project for Transit Center at South Bay Pavilion. The transit center includes five bus turnout bays, seven bus shelters, scrolling passenger information displays, security surveillance cameras and an office building for route supervisors and bus drivers.	File closed.
124	1950 E 220th St DOR 1324-09, City of Carson	Project for modernization of a 59,000-square foot concrete tilt-up industrial building on 3.8 acres. Facade and Site Improvements only.	Under construction.
125	418 W 223rd St DOR 893-05, City of Carson	Project for modification to convert a 6-unit condominium project into apartment units. The development includes three detached buildings with two units in each building. The modification will modify or delete any condition of approval that specifically addresses condominium units.	File closed.

Table 4.1-1. Related and Cumulative Projects

No. in Figure 4.1-1	*Project Title and Location*	*Project Description*	*Project Status*
126	22309 S Main St DOR 1305-09, City of Carson	Phase II Enhanced Vapor Recovery Program - Install new clean air separator tank with enclosure; provide additional landscape to interior lot lines and around enclosure for additional screening; add two new parking spaces to westerly parking area.	Project approved.
127	2000 E Carson St DOR 1300-08, City of Carson	Project for modernization of a 294,590-square foot concrete tilt up industrial building on an approximately 13 acres. The project will entail building facade and site upgrades, and new offices. Project is described in further detail in the submittal binder containing application.	In progress.
128	2000 E Sepulveda Blvd CUP 529-02, City of Carson	Project for one 60,000-barrel, petroleum storage tank to meet E10 (i.e., gasoline containing up to 10 percent ethanol) requirement.	In progress.
129	20331 S Main St GPA 86-08 ZCC 160-08 DOR 1294-08, City of Carson	Project for residential apartment community proposed to be built in three phases, in three buildings of 61, 62 & 64 units for a total of 187 units. Parking will be in an on grade podium. Community & pool amenities provided.	In progress.

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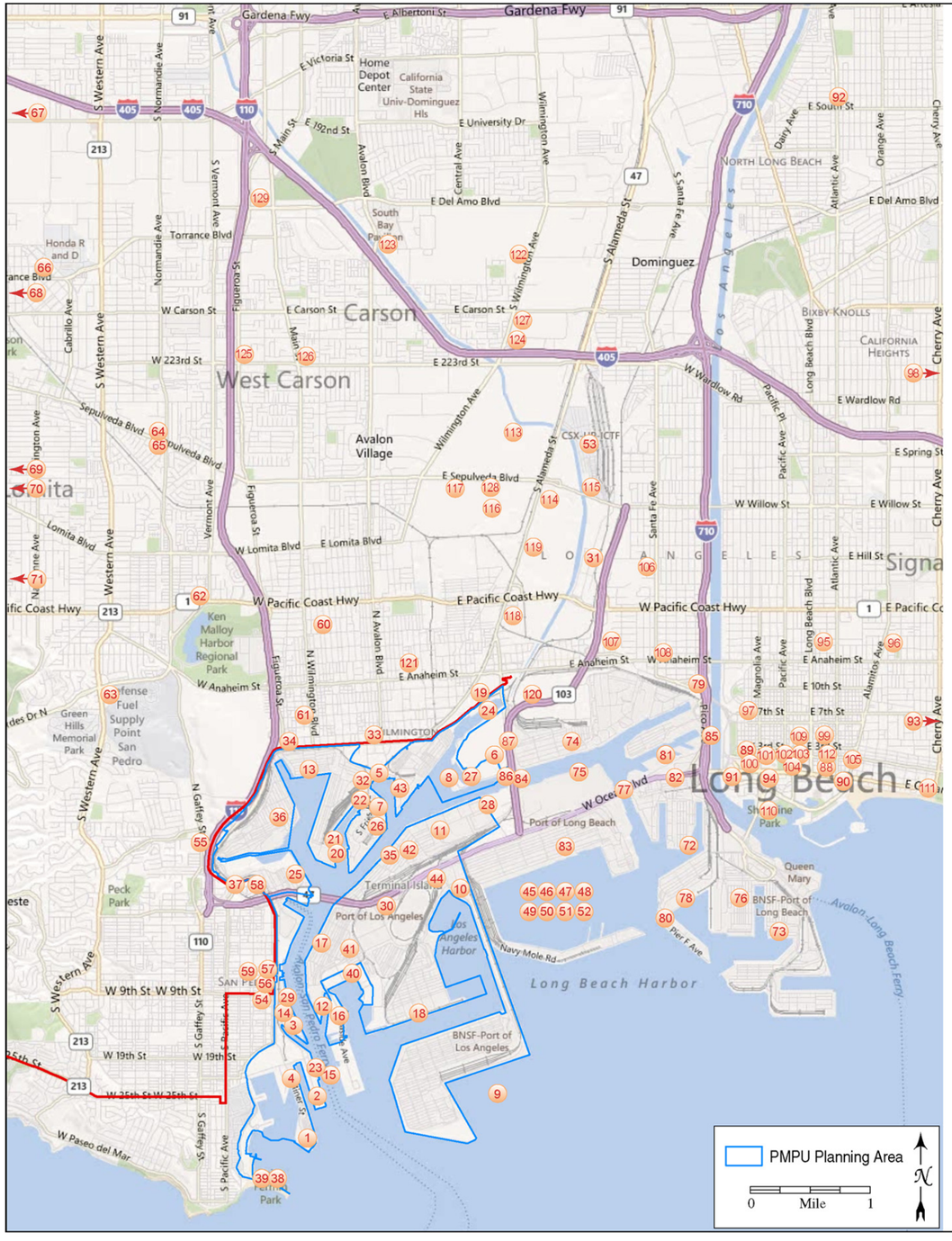

LEGEND

Port of Los Angeles Projects

1. Outer Harbor Cruise Terminal and Outer Harbor Park
2. City Dock No. 1 Marine Research Project
3. Ports O' Call Redevelopment
4. Cabrillo Way Marina, Phase II
5. Wilmington Waterfront Development Project
6. Anchorage Road Soil Storage Site (ARSSS) Open Space
7. Berths 176-181 Break Bulk Terminal Redevelopment
8. East Basin Marina Improvements
9. Pier 500
10. Trucking Support Center
11. Relocation of SA Recycling
12. Relocation of Jankovich Marine Fueling Station
13. Berths 136-147 Marine Terminal (TraPac)
14. San Pedro Waterfront Project
15. Channel Deepening Project
16. Al Larson Boat Shop Improvement Project
17. Berths 226-236 (Evergreen) Container Terminal Improvements Project
18. Berths 302-306 APL Container Terminal Project
19. ILWU Local 13 Dispatch Hall Project
20. SSA Marine Outer Harbor Fruit Facility Relocation
21. Crescent Warehouse Company Relocation
22. Ultramar Lease Renewal Project
23. Westway Decommissioning
24. Consolidated Slip Restoration Project
25. Berths 97-109, China Shipping Development Project
26. Berths 171-181, Pasha Marine Terminal Improvements Project
27. Wilmington Youth Sailing and Aquatic Center
28. Berths 206-209 Interim Container Terminal Reuse Project
29. San Pedro Waterfront Enhancements Project
30. Joint Container Inspection Facility
31. Southern California International Gateway Project (SCIG)
32. South Wilmington Grade Separation
33. Wilmington Waterfront Master Plan (Avalon Boulevard Corridor Project)
34. "C" Street/Figueroa Street Interchange
35. Berths 212-224 (YTI) Container Terminal Improvements Project
36. Berths 121-131 (Yang Ming) Container Terminal Improvements Project
37. John S. Gibson Blvd/I-110 Access Ramps and SR-47/I-110 Connector Improvement Program
38. Inner Cabrillo Beach Water Quality Improvement Program
39. Cabrillo Beach Pump Project (Tier III)
40. Fish Harbor Redevelopment
41. Terminal Island On-Dock Rail Redevelopment
42. Solar Panel Installation Program
43. WWL Vehicle Services Cargo Terminal

POLA and/or POLB Potential Port-Wide Operational Projects

44. Navy Way/Seaside Avenue Interchange
45. Terminal Free Time
46. Extended Terminal Gates (Pier Pass)
47. Shuttle Train/Inland Container Yard
48. Origin/Destination and Toll Study
49. Virtual Container Yard
50. Increased On-Dock Rail Usage
51. Optical Character Recognition
52. Truck Driver Appointment System

ICTF Joint Powers Authority

53. Union Pacific Railroad ICTF Modernization Project

Community Projects San Pedro

54. Pacific Corridors Redevelopment Project
55. Single Family Homes (Gaffey Street)
58. Mixed-Use Development, 281 W. 8th Street
59. Palos Verdes Urban Village
58. Temporary Little League Park
59. Centre Street Lofts

Community of Wilmington Projects

60. Distribution Center and Warehouse
61. Dana Strand Public Housing Development Project

Projects in Harbor City, Lomita, and Torrance

62. Kaiser Permanente South Bay Master Plan
63. Ponte Vista, 26900 Western Avenue (near Green Hills Park)
64. Warehouses, 1351 W. Sepulveda Blvd.
65. Sepulveda Industrial Park
66. Capellino & Associates 1104 Sartori Ave.

Projects in Harbor City, Lomita, and Torrance (continued)

67. Linda Francis 18900 Hawthorne Blvd.
68. Providence Health System 5215 Torrance Blvd.
69. Torrence Memorial Medical Center 3330 Lomita Blvd.
70. Continental Development 2843 Lomina Blvd.
71. Mark Sachs 2909 PCH

Port of Long Beach Projects

72. Middle Harbor Terminal Redevelopment
73. Piers G & J Terminal Redevelopment Project
74. Pier A East
75. Pier S Marine Terminal
76. Administration Building & Maintenance Facility Replacement Project
77. Gerald Desmond Bridge Replacement Project
78. Chemoil Marine Terminal, Tank Installation
79. Pier B Rail Yard Expansion
80. Mitsubishi Cement Corporation Facility Modifications
81. Eagle Rock Construction Aggregate Terminal Development
82. Cemera Long Beach Aggregate Terminal
83. TTI Grain Export Terminal Installation Project

Alameda Corridor Transportation Authority and Caltrans Projects

84. Schuyler Heim Bridge Replacement
85. I-710 (Long Beach Freeway) Corridor Project
86. Badger Avenue Bridge Expansion
87. SR-47 Expressway

City of Long Beach Projects

88. Shoreline Gateway Project
89. West Gateway Redevelopment Project
90. 2nd+PCH 6400 Pacific Coast Highway
91. Golden Shore Master Plan
92. North Village Center
93. Kroc Community Center
94. Hotel Sierra, 290 Bay Street
95. 1235 Long Beach Blvd., Mixed-Use Project
96. Douglas Park Rezone Project
97. Drake Chavez Park Expansion
98. 15th St. & Alamitos Ave. Open Space Development Intersection Improvements
99. City Place Lofts, 4th Street and Elm Avenue
100. Lyon West Gateway Residential Development, Broadway at Magnolia Ave. & 3rd St.
101. Pine-Pacific, bounded by Pine & Pacific Avenues, and 3rd & 4th Streets
102. Lofts at 3rd & Promenade
103. Broadway Block Development, Broadway
104. Hotel Esterel, Promenade at Broadway
105. Promenade Master Plan, between Shoreline Dr. & 5th Street
106. Admiral Kidd Park Expansion Site, Santa Fe at Willard
107. Everbright Paper Recycling Center
108. Westside Storm Drain Improvement Project
109. 495 Promenade North
110. 100 Aquarium Way
111. 2010 Ocean Blvd.
112. 600 E. Broadway

Wilmington/Carson Projects

113. BP Carson Refinery Safety, Compliance, and Optimization Project
114. Kinder Morgan Terminal Expansion
115. Chemoil Terminals Corporation
118. ConocoPhillips Refinery Tank Replacement Project
117. BP Logistics Project
118. Ultramar Inc., Olympic Tank Farm
119. WesPac Smart Energy Transport System Project
120. Tesoro Reliability Improvements and Regulatory Compliance Project
121. Warren Oil WTU Central Facility and New Equipment Project, 625 E. Anaheim St., Wilmington

City of Carson Projects

122. 20945 S. Wilmington Ave., CUP430-95
123. 770 E. Del Amo Blvd., DOR 831-03
124. 1950 E. 220th St., DOR 1324-09
125. 418 E. 223rd St., DOR 893-05
126. 22309 S. Main St., DOR 1305-09
127. 2000 E. Carson St., DOR 1300-08
128. 2000 E. Sepulveda Blvd., CUP 529-02
129. 20331 S. Main St., GPA 86-08; ZCC 160-08; DOR 1294-08

Figure 4.1-1. Location of Cumulative Projects

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4.2 Cumulative Impact Analysis

The following sections consider: 1) whether there are any significant cumulative impacts that can be identified at this first-tier stage of review; 2) if so, whether the proposed Program's contribution to each significant cumulative impact is "cumulatively considerable;" and, 3) if so, whether there are reasonable, feasible options for mitigating or avoiding the proposed Program's contribution to each significant cumulative impact. Where available, information was used from existing environmental documents on the projects considered in this cumulative assessment.

4.2.1 Aesthetics/Visual Resources

Construction and operation of the proposed appealable/fill projects and land use changes under the PMPU would have no impacts on scenic vistas, scenic resources (e.g., trees, rocks, and historic buildings) within view from a scenic highway, the existing visual character or quality of a site and its surroundings, shadow-sensitive land uses, or create inconsistencies with applicable rules and regulations. Because the proposed appealable/fill projects and land use changes would have no impact on aesthetics/visual resources, the proposed Program would not contribute to cumulative impacts on aesthetics/visual resources.

4.2.2 Air Quality and Greenhouse Gases

4.2.2.1 Scope of Analysis

The region of analysis for cumulative effects on air quality is the SCAB for Cumulative Impacts AQ-1 through AQ-8, and globally for Cumulative Impacts GHG-1 and GHG-2. However, cumulative impacts would be greatest within the communities adjacent to the proposed Program, including San Pedro, Wilmington, and Long Beach.

4.2.2.2 Cumulative Impact Analysis

Cumulative Impact AQ-1: Construction activities associated with the proposed Program would produce emissions that exceed a SCAQMD Daily Emission Threshold – Cumulatively Considerable and Unavoidable

Cumulative Impact AQ-1 addresses the potential for construction activities associated with the proposed Program along with other cumulative projects to produce a cumulatively significant increase in criteria pollutant emissions for which the proposed Program region is in nonattainment under a national or state ambient air quality standard or for which the SCAQMD has set daily emission thresholds.

Impacts of Past, Present, and Reasonably Foreseeable Future Projects

Due to the substantial number of emission sources and topographical/meteorological conditions that inhibit atmospheric dispersion, the SCAB is an "extreme" nonattainment area for 8-hour O_3, a "serious" nonattainment area for PM_{10}, and a nonattainment area for lead and $PM_{2.5}$ in regard to the NAAQS. The SCAB is in attainment of the NAAQS for CO, SO_2, and NO_2. In regard to the CAAQS, the SCAB is presently in nonattainment for O_3, PM_{10}, $PM_{2.5}$, NO_2 and lead, but is in attainment for SO_2, CO, and sulfates, and is unclassified for hydrogen sulfide and visibility-reducing particles. These pollutant nonattainment conditions within the proposed Program region are therefore cumulatively considerable. In the foreseeable future, a number of large construction projects would occur at the Port and the Port of Long Beach and surrounding areas (Table 4.1-1) that would overlap and contribute to cumulatively considerable construction impacts. Some of the larger projects within close proximity to the PMPU Area include the Outer Harbor Cruise Terminal and Park (#1), Ports O'Call Redevelopment (#3), Wilmington Waterfront Development Project (#5), Berths 136-147 Marine Terminal (TraPac) (#13), Berths 302-306 APL Container Terminal Project (#18), Berths 97-109 China Shipping Development Project (#25), and the John S. Gibson Blvd/I-110 Access Ramps and SR-47/I-110 Connector Improvements Project (#37).

The 2007 AQMP predicts attainment of all NAAQS within the SCAB, including $PM_{2.5}$ by 2015 and O_3 by 2024 (SCAQMD et al. 2007). However, the predictions for $PM_{2.5}$ and O_3 attainment are speculative at this time. The SCAQMD has updated these attainment planning milestones in the Final 2012 AQMP (SCAQMD 2012).

The construction impacts of the related projects would be cumulatively significant since their combined construction emissions in addition to the proposed appealable/fill projects would exceed SCAQMD daily emission thresholds for construction. Since this would be the case for most if not all analyzed criteria pollutants and precursors (i.e., VOCs, CO, NO_x, SO_x, PM_{10}, and $PM_{2.5}$), the related projects would result in significant cumulative impacts to criteria pollutant levels.

Contribution of the Proposed Program (Prior to Mitigation)

Construction activities associated with the proposed appealable/fill projects would generate emissions of VOCs, CO, NO_x, SO_x, PM_{10}, and $PM_{2.5}$. It is expected that the emission increases from future construction activities would exceed daily emission significance thresholds set by the SCAQMD. These emission increases would combine with emissions from other construction projects, which would already be cumulatively considerable. As a result, without mitigation, emissions from construction of the proposed appealable/fill projects would make cumulatively considerable contributions to significant cumulative impacts for VOCs, CO, NO_x, PM_{10}, and $PM_{2.5}$ emissions.

Mitigation Measures and Residual Cumulative Impacts

After mitigation, construction emissions from the proposed appealable/fill projects would exceed the SCAQMD daily emission significance thresholds for VOCs, CO, NO_x, PM_{10}, and $PM_{2.5}$. Therefore, mitigated construction activities from the proposed

Program would make cumulatively considerable and unavoidable contributions to significant cumulative impacts for VOCs, CO, NO_x, PM_{10}, and $PM_{2.5}$ emissions.

Cumulative Impact AQ-2: Construction activities associated with the PMPU would result in offsite ambient air pollutant concentrations that exceed a SCAQMD threshold of significance – Cumulatively Considerable and Unavoidable

Cumulative Impact AQ-2 addresses the potential for construction activities associated with the proposed Program and other cumulative projects to produce ambient pollutant concentrations that exceed an ambient air quality standard or substantially contribute to an existing or projected air quality standard violation.

Impacts of Past, Present, and Reasonably Foreseeable Future Projects

The past, present, and reasonably foreseeable future projects for Cumulative Impact AQ-2 would result in significant cumulative impacts if their combined ambient pollutant concentrations from construction exceed a SCAQMD ambient pollutant threshold for construction. Although there is no way to be certain if a cumulative exceedance of a threshold would happen for any pollutant without performing dispersion modeling of the other projects, it is highly likely that cumulative air quality impacts would exceed the significance thresholds for NO_2, PM_{10}, and $PM_{2.5}$, whereas it is unlikely that cumulative air quality impacts would exceed the significance threshold for CO. Consequently, construction of the related projects, such as the Outer Harbor Cruise Terminal and Park (#1), Ports O'Call Redevelopment (#3), Wilmington Waterfront Development Project (#5), Berths 136-147 Marine Terminal (TraPac) (#13), Berths 302-306 APL Container Terminal Project (#18), Berths 97-109 China Shipping Development Project (#25), and the John S. Gibson Blvd/I-110 Access Ramps and SR-47/I-110 Connector Improvements Project (#37),would result in a significant cumulative air quality impact related to exceedances of ambient significance thresholds for NO_2, PM_{10}, and $PM_{2.5}$.

Contribution of the Proposed Program (Prior to Mitigation)

The SCAQMD has established ambient pollutant thresholds that define significant increases in criteria pollutant concentrations. Based on a review of recent analyses for a representative Port container terminal project (Berths 302-306 [APL] Container Terminal Project [Berths 302-306 Project]), emissions from proposed appealable/fill project construction activities would be expected to produce impacts that would exceed the SCAQMD ambient thresholds for 1) state 1-hour NO_2, 2) state annual NO_2, 3) 24-hour PM_{10}, and 4) annual PM_{10}. Any concurrent emissions-generating activity that occurs near the PMPU area would add additional air emission burdens to these significant levels. As a result, without mitigation, emissions from the proposed appealable/fill project construction activities would be expected to result in cumulatively considerable contributions to significant cumulative impacts related to ambient NO_2 and PM_{10} levels.

Mitigation Measures and Residual Cumulative Impacts

With mitigation, impacts from the proposed appealable/fill project construction activities would be expected to exceed the SCAQMD thresholds for state 1-hour NO_2 and annual PM_{10}. Construction emissions would be expected to make cumulatively considerable and unavoidable contributions to significant impacts relative to ambient NO_2 and PM_{10} levels from concurrent related project construction.

Cumulative Impact AQ-3: Operations associated with the proposed Program would result in emissions that exceed a SCAQMD daily emission threshold – Cumulatively Considerable and Unavoidable

Cumulative Impact AQ-3 addresses the potential for operation of the proposed Program along with other cumulative projects to produce a cumulatively considerable increase in criteria pollutant emissions for which the project region is in nonattainment under a national or state ambient air quality standard or for which the SCAQMD has set a daily emission threshold.

Impacts of Past, Present, and Reasonably Foreseeable Future Projects

The past, present, and reasonably foreseeable future projects for Cumulative Impact AQ-3 would be cumulatively significant if their combined operational emissions would exceed a SCAQMD daily emission threshold for operations. Since this would be the case for most, if not all, analyzed criteria pollutants and precursors (i.e., VOCs, CO, NO_x, SO_x, PM_{10}, and $PM_{2.5}$), the related projects, such as the Outer Harbor Cruise Terminal and Park (#1), Berths 136-147 Marine Terminal (TraPac) (#13), Berths 302-306 APL Container Terminal Project (#18), and Berths 97-109 China Shipping Development Project (#25), would result in significant cumulative air quality impacts to criteria pollutant levels.

Contribution of the Proposed Program (Prior to Mitigation)

Unmitigated emissions from operation of the proposed appealable/fill projects and land use changes during a peak day would exceed all SCAQMD daily emission significance thresholds. As a result, without mitigation, emissions from operations of the proposed appealable/fill projects and land use changes would make cumulatively considerable contributions to significant cumulative impacts for VOCs, CO, NO_x, SO_x, PM_{10}, and $PM_{2.5}$.

Mitigation Measures and Residual Cumulative Impacts

Impacts from the proposed Program after mitigation would remain cumulatively considerable for all criteria pollutants (VOCs, CO, NO_x, SO_x, PM_{10}, and $PM_{2.5}$).

Cumulative Impact AQ-4: Operations associated with the proposed Program would result in ambient air pollutant concentrations that exceed a SCAQMD threshold of significance – Cumulatively Considerable and Unavoidable

The SCAQMD has set ambient pollutant thresholds that define significant increases in concentrations of criteria pollutants. Cumulative Impact AQ-4 addresses the potential for operations of the proposed Program along with other cumulative projects to produce ambient concentrations that exceed an ambient air quality standard or substantially contribute to an existing or projected air quality standard violation.

Impacts of Past, Present, and Reasonably Foreseeable Future Projects

The related projects would result in significant cumulative impacts if their combined ambient concentrations during operations would exceed a SCAQMD ambient pollutant threshold for operations. Although there is no way to be certain if a cumulative exceedance of a threshold would happen for any pollutant without performing dispersion modeling of the other projects, based on the magnitude of the operations, it is anticipated that the cumulative air quality impacts are likely to exceed the thresholds for NO_2, may exceed the thresholds for PM_{10} and $PM_{2.5}$, and are unlikely to exceed the thresholds for CO. Consequently, operations of the related projects, such as the Berths 136-147 Marine Terminal (TraPac) (#13), Berths 302-306 APL Container Terminal Project (#18), and Berths 97-109 China Shipping Development Project (#25), could result in significant cumulative air quality impacts related to exceedances of the significance thresholds for NO_2, PM_{10}, and $PM_{2.5}$.

Contribution of the Proposed Program (Prior to Mitigation)

Based on a review of recent analyses for a similar Port project (the Berths 302-306 Project), operational emissions associated with the proposed appealable/fill projects and land use changes would be expected to produce impacts that would exceed the SCAQMD ambient thresholds for the 1) state and national 1-hour NO_2, 2) state annual NO_2, 3) 24-hour PM_{10}, 4) annual PM_{10}, and 5) 24-hour $PM_{2.5}$. Any concurrent emissions-generating activity that occurs near the proposed appealable/fill project sites would add additional air emission burdens to these significant levels. As a result, without mitigation, emissions from operations associated with the proposed appealable/fill projects and land use changes would result in cumulatively considerable contributions to significant cumulative impacts relative to ambient NO_2, PM_{10}, and $PM_{2.5}$ levels.

Mitigation Measures and Residual Cumulative Impacts

With mitigation, ambient impacts from operation of the proposed appealable/fill projects and land use changes would exceed the 1) state and national 1-hour NO_2, 2) state annual NO_2, 3) 24-hour PM_{10}, 4) annual PM_{10}, and 5) 24-hour $PM_{2.5}$ SCAQMD ambient thresholds. As a result, emissions from operation of the proposed appealable/fill projects and land use changes would make cumulatively considerable

and unavoidable contributions to significant cumulative impacts relative to ambient NO_2, PM_{10}, and $PM_{2.5}$ levels.

Cumulative Impact AQ-5: The proposed Program would not generate on-road traffic that would contribute to an exceedance of the 1-hour or 8-hour CO standards – Less than Cumulatively Considerable

Cumulative Impact AQ-5 addresses the potential for operation of the proposed Program along with other cumulative projects to create on-road traffic that would contribute to an exceedance of the 1-hour or 8-hour CO standards.

Impacts of Past, Present, and Reasonably Foreseeable Future Projects

The related projects would result in significant cumulative impacts to air quality if they would generate traffic levels that cause an exceedance of a CO ambient air quality standard near roadways and intersections. However, this is unlikely to occur since current vehicle fleets have relatively low CO emission rates and the SCAQMD demonstrates attainment of the CO ambient air quality standards for the foreseeable future in the SCAB. Therefore, CO impacts of past, present, and reasonably foreseeable projects, such as the Outer Harbor Cruise Terminal and Park (#1), Ports O'Call Redevelopment (#3), Wilmington Waterfront Development Project (#5), Berths 136-147 Marine Terminal (TraPac) (#13), Berths 302-306 APL Container Terminal Project (#20), and Berths 97-109 China Shipping Development Project (#25), would be less than cumulatively considerable.

Contribution of the Proposed Program (Prior to Mitigation)

Based on a CO hotspot modeling analysis conducted for a similar Port project, which included cumulative growth in traffic levels (the Berths 302-306 Project), traffic from operations of the proposed appealable/fill projects and land use changes would not contribute to an exceedance of a CO ambient air quality standard. As a result, without mitigation, proposed appealable/fill project operations would not result in a cumulatively considerable contribution to a significant cumulative CO hot spot impact within the PMPU region.

Mitigation Measures and Residual Cumulative Impacts

The proposed Program would not make a cumulatively considerable contribution to a significant cumulative impact. Therefore, no mitigation is required.

Cumulative Impact AQ-6: Operations associated with the proposed Program would not create objectionable odors at the nearest sensitive receptor – Less than Cumulatively Considerable

Cumulative Impact AQ-6 addresses the potential for operation of the proposed Program with other cumulative projects to create objectionable odors at the nearest sensitive receptor.

Impacts of Past, Present, and Reasonably Foreseeable Future Projects

There are temporary and semi-permanent sources of odors within the Port region, including mobile sources powered by diesel and residual fuels and stationary industrial sources, such as petroleum storage tanks. Some individuals may find that diesel combustion emissions are objectionable in nature, although quantifying the odorous impacts of these emissions to the public is difficult. Due to an adequate distance between residents (including sensitive receptors) and Port operations and the minimal stationary industrial sources related to past, present, and reasonably foreseeable projects, such as the Relocation of Jankovich Marine Fueling Station (#12), Berths 136-147 Marine Terminal (TraPac) (#13), Berths 302-306 APL Container Terminal Project (#18), and Berths 97-109 China Shipping Development Project (#25), odorous emissions in the Port region would be less than cumulatively significant for odor impacts.

Contribution of the Proposed Program (Prior to Mitigation)

Operation of the proposed appealable/fill projects and land use changes would increase diesel emissions within the Port. However, the distance between proposed emission sources and the nearest residents would be far enough to allow for adequate dispersion of these emissions to below objectionable odor levels and would not be considered significant from a cumulative analysis. As a result, without mitigation, operation of the proposed appealable/fill projects and land use changes would not make a cumulatively considerable contribution to a significant cumulative impact relative to odor impacts within the PMPU region.

Mitigation Measures and Residual Cumulative Impacts

The proposed Program would not make a cumulatively considerable contribution to a significant cumulative impact. Therefore, no mitigation is required.

Cumulative Impact AQ-7: The proposed Program would expose receptors to significant levels of TACs – Cumulatively Considerable and Unavoidable

Cumulative Impact AQ-7 addresses the potential for the proposed Program along with other cumulative projects to produce TACs that would exceed an acceptable public health risk criterion.

Impacts of Past, Present, and Reasonably Foreseeable Future Projects

The MATES-III conducted by the SCAQMD in 2008 estimated the existing cancer risk from TACs in the SCAB to be 1,200 in 1 million (SCAQMD 2008). In MATES III, the existing cancer risk from TACs was estimated at a maximum of 1,000 to 2,000 per million in the San Pedro and Wilmington areas. In the *Diesel Particulate Matter Exposure Assessment Study* for the Port and Port of Long Beach, the CARB estimated that elevated levels of cancer risks due to operational emissions from the ports occur within and in proximity to the two ports (CARB 2006). Based on this

information, airborne cancer and non-cancer conditions within the PMPU region are cumulatively significant.

LAHD has approved Port-wide air pollution control measures through their *San Pedro Bay Ports CAAP 2010 Update* (Port and Port of Long Beach 2010). Implementation of these measures would reduce the health risk impacts from the proposed Program and future projects, such as the Berths 136-147 Marine Terminal (TraPac) (#13), Berths 302-306 APL Container Terminal Project (#18), and Berths 97-109 China Shipping Development Project (#25), at the Port. The San Pedro Bay Ports Baywide Health Risk Assessment (Port and Port of Long Beach 2009) projects reductions in residential cancer health risk from port-related DPM emissions as a result of the implementation of the CAAP and the various DPM emission reduction measures within the CAAP. Currently adopted regulations and future rules proposed by CARB and USEPA would further reduce air emissions and associated cumulative health impacts from Port operations. However, because future proposed measures (other than CAAP measures) and rules have not been adopted, they cannot be accounted for in the emission calculations for the proposed appealable/fill projects and land use changes. In addition, it is unknown how these future measures would reduce cumulative health risk impacts within the Port area. Consequently, future airborne cancer and non-cancer impacts within the Port region are expected to be cumulatively significant.

Contribution of the Proposed Program (Prior to Mitigation)

Based on the review of recent health risk analyses for similar Port projects (i.e., Berths 136-147 Marine Terminal (TraPac) (#13), Berths 302-306 APL Container Terminal Project (#18), and Berths 97-109 China Shipping Development Project (#25), unmitigated construction and operational emissions of TACs from the proposed appealable/fill projects and land use changes would be expected to produce cancer risks to all receptor types that would exceed the significance threshold of 10 in 1 million (10 x 10-6). In addition, unmitigated construction and operational TAC emissions from the proposed appealable/fill projects and land use changes also would produce acute non-cancer effects to all receptor types that would exceed the health hazard index threshold of 1.0. Any concurrent emissions-generating activity that occurs near proposed appealable/fill project and land use change sites would add additional airborne health burdens to these significant levels. As a result, without mitigation, construction and operational emissions of TACs from the proposed appealable/fill projects and land use changes would be expected to result in cumulatively considerable contributions to significant impacts relative to airborne cancer and acute non-cancer effects within the PMPU area.

Emissions of TACs from construction and operation of the proposed appealable/fill projects and land use changes would increase chronic non-cancer health effects to all receptor types within the PMPU area. The incremental contribution of these health effects is less than significant. However, this increase in health effects in the region would result in a cumulatively considerable contribution to chronic non-cancer effects in the PMPU area.

Mitigation Measures and Residual Cumulative Impacts

With mitigation, construction and operational emissions of TACs from the proposed appealable/fill projects and land use changes would produce cancer risks to all receptor types that would exceed the significance threshold of 10 in 1 million and acute non-cancer effects to all receptor types that would exceed the health hazard index threshold value of 1.0. As a result, mitigated emissions of TACs from the proposed appealable/fill projects and land use changes would produce cumulatively considerable contributions to significant cumulative impacts relative to cancer risks and chronic and acute non-cancer effects within the PMPU area.

Levels of TAC emissions from Port facilities and Port-related trucks traveling along adjacent streets will diminish in future years with the implementation of the recently approved 2010 CAAP Update and current and future rules adopted by the CARB and USEPA. Specifically, Port-related DPM emissions are expected to decrease by approximately 72 percent by 2014 and 77 percent by 2023, compared to 2005 levels (Port and Port of Long Beach 2010). It is unknown at this time whether these future emission reductions would reduce the cumulative health impacts in the Port region to less than significant levels. However, the Port and the Port of Long Beach have developed a "health risk reduction standard" that aims to lower residential cancer risks due to DPM emissions by 85 percent by 2020 in the port regions and communities adjacent to the two ports.

Cumulative Impact AQ-8: The proposed Program would not conflict with or obstruct implementation of an applicable AQMP or the CAAP – Less than Cumulatively Considerable

Cumulative Impact AQ-8 addresses the potential for the proposed Program along with other cumulative projects to conflict with or obstruct implementation of an applicable AQMP or the CAAP.

Impacts of Past, Present, and Reasonably Foreseeable Future Projects

The related projects would result in significant cumulative air quality impacts if they result in population growth or operational emissions that exceed the assumptions in the 2012 AQMP. The related projects, such as the Outer Harbor Cruise Terminal and Park (#1), Ports O'Call Redevelopment (#3), Wilmington Waterfront Development Project (#5), Berths 136-147 Marine Terminal (TraPac) (#13), Berths 302-306 APL Container Terminal Project (#18), and Berths 97-109 China Shipping Development Project (#25), would be subject to regional planning efforts and applicable land use plans (such as the *City of Los Angeles General Plan*, Community Plans, or the Particulate Measurement Program) or transportation plans such as the SCAG RTP and Regional Transportation Improvement Program. Since the 2012 AQMP accounts for population projections that were developed by the SCAG, and accounts for planned land use and transportation infrastructure growth, the related projects would be consistent with the latest AQMP. As a result, the related projects would not result in significant cumulative impacts that would obstruct implementation of the AQMP.

The related projects would result in significant cumulative air quality impacts if they do not comply with applicable project-specific and source-specific performance

standards found in the CAAP. Through the CEQA process and lease agreements, any related project within jurisdiction of the Port and Port of Long Beach that undergoes re-development is required to comply with these CAAP standards. Therefore, these related projects would comply with the CAAP would not result in significant cumulative impacts that would obstruct implementation of the CAAP.

Contribution of the Proposed Program (Prior to Mitigation)

The proposed appealable/fill projects and land use changes would produce emissions of nonattainment pollutants. The 2012 AQMP proposes mobile source control measures and clean fuel programs that are designed to bring the SCAB into attainment of the NAAQS and CAAQS. Many of these AQMP control measures are adopted as SCAQMD rules and regulations, which are then used to regulate sources of air pollution in the region. Proposed sources would have to comply with all applicable SCAQMD rules and regulations and in this manner. Therefore, the proposed Program would not conflict with or obstruct implementation of the AQMP.

The LAHD provided cargo forecasts that were used by SCAG to simulate future growth and emission scenarios in the 2012 AQMP. These cargo forecasts encompass the operational activities associated with the proposed Program. Activities associated with the proposed appealable/fill projects and land use changes would not exceed the future emission growth projections in the 2012 AQMP. As a result, without mitigation, the proposed Program 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.

Through the CEQA process and lease agreements, any proposed appealable/fill project or land use change under the proposed Program that results in re-development at the Port would have to comply with the applicable project-specific and source-specific performance CAAP standards. Therefore, without mitigation, the proposed Program would not result in a cumulatively considerable contribution to a significant cumulative impact in terms of conflicting with or obstructing implementation of the CAAP.

Mitigation Measures and Residual Cumulative Impacts

The proposed Program would not make a cumulatively considerable contribution to a significant cumulative impact. Therefore, no mitigation is required.

Cumulative Impact GHG-1: The proposed Program would produce GHG emissions that would exceed a CEQA threshold – Cumulatively Considerable and Unavoidable

Cumulative Impact GHG-1 addresses the potential for the proposed Program along with other cumulative projects to contribute to global climate change.

Impacts of Past, Present, and Reasonably Foreseeable Future Projects

Scientific evidence indicates a trend of warming global surface temperatures over the past century due at least partly to the generation of GHG emissions from human

activities, as further discussed in Section 3.2, Air Quality and Greenhouse Gases. Some observed changes include shrinking glaciers, thawing permafrost, and shifts in plant and animal ranges. Credible predictions of long-term impacts from increasing GHG levels in the atmosphere include sea level rise, changes to weather patterns, changes to local and regional ecosystems including the potential loss of species, and significant reductions in winter snow packs. These and other effects would have environmental, economic, and social consequences on a global scale. Major sources of anthropogenic emissions of GHGs include industrial/manufacturing, utility, transportation, residential, and agricultural sectors (California Energy Commission 2009). Therefore, the cumulative global emissions of GHGs contributing to global climate change can be attributed to every nation, region, and city, and virtually every individual on Earth. According to the Intergovernmental Panel on Climate Change's *Climate Change 2007 Synthesis Report* (Intergovernmental Panel on Climate Change 2007), global anthropogenic emissions of GHGs in 2004 were 49.0 gigatonnes of CO_2e. In California, CO_2e emissions totaled approximately 0.5 gigatonnes in 2004 (CARB 2010). Based on this information, past, current, and future global GHG emissions, including emissions from related projects (Table 4.1-1) and elsewhere in California, are cumulatively significant.

Contribution of the Proposed Program (Prior to Mitigation)

The challenge in assessing the significance of an individual project's contribution to global GHG emissions and associated global climate change impacts is to determine whether a project's GHG emissions, which are at a micro-scale relative to global emissions, make a cumulatively considerable incremental contribution to a macro-scale impact. As noted above, CO_2e emissions in California totaled approximately 0.5 gigatonnes in 2004 (CARB 2010). As shown in Tables 3.2-27 through 3.2-29, full build-out of the proposed Program would produce GHG emissions that would exceed the threshold of 10,000 metric tons per year of $CO2e$ that the LAHD uses to determine the significance of proposed GHGs for CEQA purposes. Any concurrent emissions-generating activity that occurs global-wide would contribute additional GHG emission burdens to these significant levels, which could further exacerbate environmental effects as discussed above. Therefore, without mitigation, emissions of GHGs from construction and operation of the proposed appealable/fill projects and land use changes would result in a cumulatively considerable contribution to a significant cumulative impact relative to global climate change.

Mitigation Measures and Residual Cumulative Impacts

As shown in Tables 3.2-31 and 3.2-32, with mitigation, full build-out of the proposed Program would exceed the threshold of 10,000 metric tons per year of $CO2e$ that the LAHD uses to determine the significance of proposed GHGs for CEQA purposes. The way in which GHG emissions associated with the proposed Program might or might not influence actual physical effects of global climate change cannot be determined. For these reasons, it is uncertain whether emissions from the proposed Program would make a cumulatively considerable contribution to a significant cumulative impact relative to global climate change when considered with all GHGs generated by human activity. Nevertheless, as discussed in Section 3.2, Air Quality and Greenhouse Gases, existing GHG levels are projected to result in changes to the climate of the world, with significant warming seen in some areas. These changes, in turn, will have numerous indirect effects on the environment and humans. Therefore,

mitigated emissions of GHGs from construction and operation of the proposed appealable/fill projects and land use changes would make a cumulatively considerable and unavoidable contribution to a significant impact on global climate change.

Cumulative Impact GHG-2: The proposed Program would not conflict with an applicable plan, policy or regulation adopted for the purpose of reducing emissions of greenhouse gases – Less than Cumulatively Considerable

Cumulative Impact GHG-2 represents the potential of the proposed Program, when combined with past, present, and reasonably foreseeable future projects, to conflict with or obstruct implementation of an applicable GHG plan, policy, or regulation.

Impacts of Past, Present, and Reasonably Foreseeable Future Projects

Past, present, and reasonably foreseeable future projects in the area (Table 4.1-1) have generated, and will continue to generate, GHGs from the combustion of fossil fuels and the use of products that emit GHGs. Current and future projects will incorporate a variety of GHG reduction measures in response to federal, state, and local mandates and initiatives, and these measures are expected to reduce GHG emissions from future projects.

AB 32, signed by Governor Arnold Schwarzenegger in 2006, directs the State of California to reduce statewide GHG emissions to 1990 levels by the year 2020. In accordance with AB 32, the CARB developed the Climate Change Scoping Plan (Scoping Plan), which outlines how the state will achieve the necessary GHG emission reductions to achieve this goal (CARB 2008). Many of the GHG emission reduction strategies in the Scoping Plan and the resulting regulatory framework stipulate measures enforced at the state level and imposed on equipment manufacturers and fuel suppliers (such as clean fuels and clean equipment measures). Two of these actions also would apply directly to Port and PMPU operations: 1) ship electrification at ports (equal to AMP); and, 2) goods movement efficiency measures.

Regarding local GHG emission reduction plans, the City of Los Angeles implements the Green LA Plan, which is a citywide framework to confront global climate change and create a cleaner, greener, sustainable Los Angeles. The LAHD implements the Climate Action Plan, which includes specific actions that will be taken for energy audits, green building policies, onsite photovoltaic solar energy, green energy procurement, tree planting, water conservation, alternative fuel vehicles, increased recycling, and green procurement. The LAHD also implements a Green Building Policy for new buildings that would be 7,500 square feet or larger in size.

Related projects that comply with the Scoping Plan and local GHG emission reduction plans and resulting regulations would not conflict with or obstruct implementation of an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions. However, it cannot be reasonably expected that all past, present and reasonably foreseeable future projects will be consistent with all of these plans and policies and therefore these projects are considered to produce a significant cumulative impact.

Contribution of the Proposed Program (Prior to Mitigation)

Construction and operational activities associated with the proposed appealable/fill projects and land use changes would utilize stationary and mobile equipment that would comply with federal and state GHG emission requirements. In addition, the proposed Program would comply with all of the above-mentioned plans, policies, and regulations, adopted to reduce GHG emissions. Many of the GHG control measures considered in these initiatives are proposed as measures to mitigate GHGs from the proposed Program. These include **MM AQ-9, MM AQ-10, MM AQ-16 and MM GHG-1 through MM GHG-6**. As a result, the proposed Program would not conflict with or obstruct implementation of plans, policies, or regulations adopted for the purpose of reducing GHG emissions. Therefore, the proposed Program would not result in a cumulatively considerable contribution to a significant cumulative impact in terms of conflicting with an applicable plan, policy or regulation adopted for the purpose of reducing GHG emissions.

Mitigation Measures and Residual Cumulative Impacts

The proposed Program would not make a cumulatively considerable contribution to a significant cumulative impact. Therefore, no mitigation is required.

4.2.3 Biological Resources

4.2.3.1 Scope of Analysis

The geographic scope of analysis for cumulative impacts to biological resources varies by type of resource. Assessments of aquatic biological resources consider the overall port complex because the basins, channels, and open water areas are hydrologically and ecologically connected. Assessments of program-related impacts to marine mammals and sea turtles also consider the nearshore region within the precautionary zone and shipping lanes within 40 nm of the Port entrance. Assessments of terrestrial biological resources consider lands within the Port, with the exception of marine-associated birds, which may forage or nest in suitable habitat throughout the port complex.

Past, present, and reasonably foreseeable future development that could contribute to cumulative impacts on aquatic resources are projects that include an in-water component. Aquatic organisms can be affected by activities such as dredging, filling, wharf demolition and construction, vessel traffic, or vessel calls that result in introductions of invasive species. Development that could contribute to cumulative impacts on terrestrial resources are those projects that involve ground disturbance such as grading, paving, construction or demolition of structures, landscaping, and related noise and traffic impacts. Marine birds can be affected by projects with either in-water or land disturbance elements. Noise, traffic stormwater runoff, and other operational activities, as well as accidental leaks or spills, also could contribute to cumulative impacts on biological resources.

The significance criteria used for the cumulative analysis are the same as those used to evaluate proposed Program impacts in Section 3.3, Biological Resources.

4.2.3.2 Cumulative Impact Analysis

Cumulative Impact BIO-1: The proposed Program would not result in the loss of individuals, or the reduction of existing habitat, of a state- or federally-listed endangered, threatened, rare, protected, or candidate species, or a Species of Special Concern or the loss of federally-listed critical habitat – Less than Cumulatively Considerable with Mitigation

Cumulative Impact BIO-1 addresses the potential for the proposed Program when combined with past, present, and reasonably foreseeable future projects to cause a loss of individuals, or the reduction of existing habitat or quality, of a state- or federally-listed endangered, threatened, rare, protected, or candidate species, or a SSC, or result in the loss of critical habitat. No critical habitat for any federally-listed species is present in the Port, and thus, no cumulative impacts to critical habitat would occur.

Impacts of Past, Present, and Reasonably Foreseeable Future Projects

Port development has reduced the amount of marine surface waters, but also has added lands and structures supporting bird nesting and resting as well as hard substrate supporting diverse riprap and dock/piling communities. The breakwaters provide roosting and nesting areas for sensitive wildlife, such as the fully-protected brown pelican, nesting sites for MBTA-covered black oystercatchers, and haul out areas for harbor seals and sea lions. The cumulative impacts associated with conversion of soft-bottom to hard-bottom breakwaters or other structures have not resulted in a cumulatively considerable impact to special status species, partly because the hard structures represent a small amount of acreage compared to open water, and resting or nesting areas are provided that offset some of the historical habitat losses associated with creation of the port complex and urbanization of surrounding coastal cities. Terrestrial biological communities in the PMPU area and surrounding vicinity have been cumulatively modified by historical Port, industrial, and residential development.

Construction and Operations

California Least Tern and Other Special Status Species

Construction of Terminal Island, Pier 300, and Pier 400 provided new nesting sites for the endangered California least tern, and the Pier 400 site is still being used for nesting by this species and other birds, including SSCs (e.g., black skimmer, loggerhead shrike) and nesting birds covered under the MBTA (e.g., Caspian tern, elegant tern). The Pier 500 (#9) and Terminal Island On-Dock Rail Redevelopment (#41) projects have the potential to disturb special status species on Pier 400 during the nesting season, if present. However, impacts would be expected to be cumulatively less than significant because project-specific mitigation measures would be employed as required during construction, projects would be constructed at different times, and operations would not result in changes to the designated nest site on Pier 400. In-water construction activities would occur in the Outer Harbor,

including the following projects: Outer Harbor Cruise Terminal and Park (#1), City Dock No. 1 Marine Research Project (#2), Pier 500 (#9), Relocation of Jankovich Marine Fueling Station (#12), Berths 136-147 Marine Terminal (TraPac) (#13), San Pedro Waterfront Project (#14), Channel Deepening Project (#15), Fish Harbor Redevelopment (#40), Middle Harbor Terminal Redevelopment (#72), and Piers G & J Terminal Redevelopment Project (#73). In-water construction has the potential to temporarily increase turbidity and reduce quality of foraging habitat for California least tern and other fish-eating special status birds (e.g., black skimmer, brown pelican). Cumulative impacts would be less than significant because California least tern, black skimmers, and brown pelicans forage throughout the port complex and nearshore area, project locations and schedules would differ, and compliance requirements with USACE permits and RWQCB 401 certifications or WDRs would limit the extent of turbidity effects that could reduce the quality of foraging habitat. Break Bulk Terminal Redevelopment (#7), East Basin Marina Improvements (#8), Berths 226-236 (Evergreen) Container Improvements Project (#17), Berths 97-109 China Shipping Development Project (#25), Wilmington Youth Sailing and Aquatic Center (#27), Berths 212-224 (YTI) Container Terminal Improvements Project (#35), Berths 121-131 (Yang Ming) Container Terminal Improvements Project (#36), Pier S Marine Terminal (#75), Gerald Desmond Bridge Replacement Project (#77), and TTI Grain Export Terminal (#83), would be at distances of 2 or more miles from the California least tern nesting area; therefore, foraging areas closest to the nest site would not be affected during construction. Most land-based construction projects listed in Table 4.1-1 would occur more than 1 mile from the California least tern nesting site. Therefore, cumulative impacts associated with noise and activity disturbance would not result in cumulatively considerable significant impacts on California least tern or other special status species that nest on Pier 400.

Other Special Status Bird Species

Peregrine falcons, which may nest on bridges in the port complex, have the potential to be impacted, if present, by the Gerald Desmond Bridge Replacement Project (#77). Peregrine falcons and loggerhead shrikes prey on other birds, and general construction or demolition activities associated with many of the projects listed on Table 4.1-1 have the potential to temporarily disturb foraging area. Potential impacts to peregrine falcon nesting sites could be feasibly mitigated by conducting nest site surveys to confirm presence/absence and either scheduling construction outside the nesting season or establishing buffer distances of 500 feet or more until nesting is complete. Disturbance of foraging areas would be temporary and cumulatively less than significant because peregrine falcons have a foraging range of several miles, forage throughout the port complex, and construction activities would differ in location and schedule.

Several projects have the potential to impact nesting sites of water-associated or upland birds covered under the MBTA and Fish and Game Code. Because projects would occur at different times, the potential to impact a substantial number of bird nesting sites at any one time in the port complex is unlikely. Additionally, impacts to nesting sites could be feasibly mitigated by conducting nest site surveys of any large trees or structures within 300 feet during the nesting season and establishing distance buffers, as applicable. Therefore, cumulative project impacts on other bird species would not be cumulatively considerable at the population level and would be less than significant.

A small (e.g., up to 238 barrel) or larger oil spill within the Port, even though associated with a low probability of occurrence, could result in impacts to the endangered California least tern, fully protected California brown pelican, other special-status birds, and marine mammals. Specific effects would depend on the type and size of the, the timing (both season and time of day relative to tidal cycle), and the effectiveness of emergency response efforts to contain and clean up the spill. Accidental spills are considered unlikely due to the use of Port Pilots to navigate the Port, slow vessel speeds, and use of tugs to slowly guide vessels to and from berths, and should spills occur, containment and clean up would be rapid due to the long-established oil spill response system, overseen by the USCG and CDFG'S OSPR (Section 3.14, Water Quality, Sediments, and Oceanography). Because accidental spills of a magnitude or frequency that could significantly impact populations are considered remote, impacts would be expected to be cumulatively less than significant.

Marine Mammals and Sea Turtles

In-water construction activities, and particularly pile driving, would result in underwater sound pressure waves that could affect marine mammals. Projects involving in-water construction activities that would generate underwater noise are listed above for water-associated birds. Marine mammals could avoid the disturbance area by moving to other areas within the port complex. The potential to adversely affect marine mammals may be feasibly mitigated by using measures during pile driving (soft start, mammal safety zone, sound abatement techniques) that permit time for marine mammals to exit the area before injury and reduce disturbance harassment. Because projects would occur in different areas of the port complex, and only a few would overlap in time, cumulative impacts to marine mammals would be less than significant.

Past projects have increased vessel traffic and underwater sound in the Port and in the ocean from the vessel traffic lanes to Angels Gate. Ongoing and future terminal upgrade and expansion projects would incrementally increase vessel traffic and the associated underwater sound in the port complex, including the Outer Harbor Cruise Terminal and Park (#1), City Dock No. 1 Marine Research Project (#2), Pier 500 (#9), Berths 136-147 Marine Terminal (TraPac) (#13), San Pedro Waterfront Project (#14), Berths 226-236 (Evergreen) Container Terminal Improvements Project (#17), Ultramar Lease Renewal Project (#22), Berths 97-109 China Shipping Development Project (#25), Berths 212-224 (YTI) Container Terminal Improvements Project (#35), Berths 121-131 (Yang Ming) Container Terminal Improvements (#36), Middle Harbor Terminal Redevelopment (#72), Piers G & J Terminal Redevelopment Project (#73), and Pier S Marine Terminal (#75). The frequency of vessel sound events would increase and contribute to an incremental increase in the average underwater sound level within the port complex; however, the increase would be below injury levels. Also, cumulatively significant impacts would not be expected because the port complex primarily supports California sea lions, which do not breed within the port complex and are relatively tolerant of noise. Additionally, the number of vessels in transit at any one time within the Port is controlled by the design capacity of the channels and basins, and vessel speeds are slow in the port complex.

Vessel traffic has the potential to result in collisions with marine mammals and sea turtles which, although uncommon, have been documented and are potentially significant. Future increases in vessel traffic related to Port expansion has the potential to incrementally increase the risk of collision with marine mammals and sea turtles.

Vessel speed is a primary factor related to the severity of injury or mortality with whales, and NOAA recommends maritime vessel speed reduction in the range of 10 to 13 knots to reduce risk of serious injury. Cumulative impacts of vessel strikes on whales may be unavoidable, but the probability of risk is mitigated to the extent feasible with the Port's VSRP, which promotes vessel speeds of 12 knots or less within 20 to 40 nm of Point Fermin. Because sea turtles have a very low potential to occur within the Port and are sparse offshore, no cumulatively significant impacts to sea turtles would be expected with past, present, or foreseeable future projects.

Contribution of the Proposed Program (Prior to Mitigation)

As discussed in Section 3.3, Biological Resources, construction activities for the proposed appealable/fill projects would have less than significant impacts on the fully protected peregrine falcon. The endangered California least tern and SSCs (e.g., black skimmer) could be disturbed by construction noise and activities during wharf construction on Pier 400, if construction is scheduled during the nesting season (April 15 to September 15). Other construction projects would be more than a mile away and would not be expected to disturb nesting activities of California least tern or black skimmer.

Other birds covered under the MBTA or Fish and Game Code have the potential to be impacted by land-based construction, particularly when construction occurs near large trees or undeveloped vacant lands that may support protected nesting areas. Therefore, the proposed Program would have a considerable contribution (prior to mitigation) to a cumulatively significant impact for special status bird species.

Impacts on marine mammals generally would be less than significant. However, sea lions and seals could be at risk of acoustic injury (Level A harassment) if in close proximity to in-water pile driving using an impact hammer during construction of the proposed appealable/fill projects and land use changes, and such impacts if they were to occur would be significant. However, injury from acoustic effects would not occur to seals or sea lions while hauled out on land, or with lower noise levels associated with vibratory pile driving, pile removal, or general construction activities, although temporary disturbance (Level B harassment) may occur. Therefore, the proposed Program has the potential to result in a considerable contribution (prior to mitigation) to a cumulatively significant impact for marine mammals.

Mitigation Measures and Cumulative Residual Impacts

Several mitigation measures are identified for the proposed Program to avoid and minimize impacts to special status species, as follows: **MM BIO-1** (Avoid Marine Mammals); **MM BIO-2** (Minimize In-Water Pile Driving Noise); **MM BIO 3** (Avoid and Minimize Impacts to California Least Tern) and **MM BIO-4** (Conduct Nest Site Surveys). These measures would reduce impacts for the proposed appealable/fill projects and land use changes to less than significant levels.

No additional feasible mitigation measures are available to eliminate the potential for vessel collisions with marine mammals or accidental oil spills. The probability for either occurrence within the Port is low due to slow vessel speeds and the Port's oil spill response system. The probability of vessel collisions with marine mammals offshore is low off southern California and the Port's VSRP further reduces the

potential for serious injury or mortality consistent with speed reduction recommendations by NOAA.

Cumulative Impact BIO-2: The proposed Program would not result in a substantial reduction or alteration of a state-, federally-, or locally-designated natural habitat, special aquatic site, or plant community, including wetlands – Less than Cumulatively Considerable with Mitigation

Cumulative Impact BIO-2 addresses the potential for the proposed Program combined with past, present, and reasonably foreseeable future projects to substantially reduce or alter state-,federally-, or locally-designated natural habitats, special aquatic sites, or plant communities, including wetlands.

Impacts of Past, Present, and Reasonably Foreseeable Future Projects

In-Water Construction and Operations

Historical losses of marine habitat prior to implementation of agreements among the ports and regulatory agencies were not mitigated, and represented a significant cumulative impact. More recent, present, and foreseeable future habitat losses have been mitigated with compensatory mitigation and application of mitigation bank credits from creation of shallow water and salt marsh habitat within the Outer Harbor and offsite wetlands restoration projects.

EFH has been and will be lost due to past, present, and future fill projects in the Port and Port of Long Beach (Figure 4.1-1), including the Pier 400 Project in the early 1990s, Pier 500 (#9), Berths 136-147 Marine Terminal (TraPac) (#13), Berths 97-109 China Shipping Development Project (#25), Middle Harbor Terminal Redevelopment (#72), Piers G & J Terminal Redevelopment Project (#73), and Pier S Marine Terminal (#75). Over 200 acres of fill could occur with foreseeable future projects. Loss of EFH has and will be mitigated to a less than significant level by use of compensatory mitigation.

Past projects have contributed to the current physical configuration of the port complex, reduced circulation, and a generally reduced quality of EFH in Inner Harbor basins and channels compared to the Outer Harbor. Other projects have contributed to a cumulative reduction in quality of EFH from shading of open water by overwater structures (e.g., bridges, docks/slips, piers). Historical runoff and discharges contributed to contamination in certain areas of the Port, resulting in degraded EFH that is cumulatively significant. There has been substantial improvement in EFH quality of Inner Harbor habitats compared to historical conditions based on improved control of non-point source runoff and contaminant reduction in point-source discharges in response to environmental regulations. Nevertheless, impacts on EFH quality within the Inner Harbor have and continue to be cumulatively significant. Several planned and future projects include elements to further control non-point source discharges into the Port (e.g., Inner Cabrillo Beach Water Quality Improvement Program, #38) or address legacy contamination issues (e.g., Consolidated Slip Restoration Project, #24).

Conversion of EFH from soft-bottom to hard bottom has occurred with many past projects that included dock and wharf construction, pile and riprap placement, rock dike containment, and breakwater construction. One of the potential future projects (East Basin Marina Improvements, #8) includes a new breakwater along Berths 204-205. Biological baseline surveys in the port complex suggest that conversion of soft-bottom to more diverse hard-bottom habitat has not resulted in a cumulatively significant impact to EFH.

Temporary impacts to EFH from dredging, cuts and fills, or other in-water construction, including elevated turbidity, sedimentation, noise, lighting, and bottom disturbance will occur during present and foreseeable future in-water construction activities from cumulative projects, such as the Outer Harbor Cruise Terminal and Park (#1), City Dock No. 1 Marine Research (#2), Berths 176-181 Break Bulk Terminal Redevelopment (#7), East Basin Marina Improvements (#8), Pier 500 (#9), Relocation of Jankovich Marine Fueling Station (#12), Berths 136-147 Marine Terminal (TraPac) (#13), San Pedro Waterfront Project (#14), Channel Deepening Project (#15), Berths 226-236 (Evergreen) Container Improvements Project (#17), Berths 97-109 China Shipping Development Project (#25), Wilmington Youth Sailing and Aquatic Center (#27), Berths 212-224 (YTI) Container Terminal Improvements Project (#35), Berths 121-131 (Yang Ming) Container Terminal Improvements Project (#36), Fish Harbor Redevelopment (#40), Middle Harbor Terminal Redevelopment (#72), Piers G & J Terminal Redevelopment Project (#73), Pier S Marine Terminal (#75), Gerald Desmond Bridge Replacement Project (#77), and TTI Grain Export Terminal Installation Project (#83). Generally, fish temporarily move away from areas of disturbance and return when conditions improve. Fish covered under FMPs have the potential for acoustic injury during pile driving. However, long-term effects on populations of FMP species would be unlikely either because some species are uncommon and other species are common and widespread in the port complex, as well as the temporary nature of construction activities.

Recovery of benthic invertebrate prey species after dredging generally takes 1 to 3 years depending on existing conditions. Water quality impacts are limited to the construction period, which may span days to months for individual projects, and are controlled and monitored to ensure compliance with water quality regulations. Given the size of the Port and number of projects, it is likely that several projects could occur at the same time; however, the potential for cumulative effects may be limited because projects are distributed over a large area, thereby making it unlikely that a substantial portion of the port complex would be impacted at the same time. Therefore, cumulative effects of concurrent in-water construction disturbance would not result in significant cumulative impacts to EFH.

Natural habitats, including special aquatic sites (e.g., eelgrass beds, mudflats, or wetlands), have a limited distribution in the port complex. Prior to agreements to preserve natural habitats such as the mitigation credit systems, losses of eelgrass, mudflats, and saltmarsh from early landfill projects were not documented, but likely occurred due to the physical changes to the port complex. Therefore, cumulative impacts of past construction activities to natural habitats are considered significant and unavoidable. Impacts to natural habitats as a result of present or future projects would require to full mitigation. For example, the San Pedro Waterfront Project (#14) resulted in a small loss of mudflat, and the Southwest Slip Fill in the West Basin as

part of the Channel Deepening Project (#15) resulted in a small loss of saltmarsh, both of which were mitigated.

Eelgrass has developed within certain shallow-water areas in the Port as a result of focused planting efforts. Kelp also has developed on hard bottom riprap, breakwater, and rock dike substrates in the Outer Harbor as a result of a limited focused planting effort. The establishment of these vegetated EFH-HAPC has resulted in a cumulatively and significant beneficial impact on habitat quality. Impacts to eelgrass, which also is a designated special aquatic site, would require mitigation consistent with the Southern California Eelgrass Mitigation Policy to be less than significant. Loss of kelp habitat would require compensatory mitigation to be less than significant. None of the projects identified in Table 4.1-1 would contribute to cumulatively significant impacts to vegetated EFH-HAPC.

Similar to the discussion for Cumulative Impact BIO-1, accidental oil spills within the Port are considered unlikely due to the use of Port Pilots to navigate the Port, slow vessel speeds, and use of tugs to slowly guide vessels to and from berths, and should spills occur, containment and clean up would be rapid due to the long-established oil spill response system, overseen by the USCG and CDFG'S OSPR (Section 3.14.4.3, Water Quality, Sediments, and Oceanography). Because accidental spills of a magnitude or frequency that could significantly impact populations are considered remote, impacts to sensitive habitats would be expected to be cumulatively less than significant.

Backlands Construction and Operations

Terrestrial biological communities in the PMPU area and surrounding vicinity have been modified by historical Port, industrial, and residential development. Construction and operation of Port facilities would not result in cumulatively significant impacts to natural habitats because none are present in the vicinity of present or future foreseeable projects. Operations associated with current and foreseeable projects would have limited, if any, effect on designated natural habitat, special aquatic sites, or plant communities. There would be no discharges other than stormwater runoff, and facilities would be operated in accordance with SWPPPs to ensure that stormwater quality complies with permit conditions (Section 3.14.4.3, Water Quality, Sediments, and Oceanography).

Contribution of the Proposed Program (Prior to Mitigation)

Construction of the proposed appealable/fill projects would result in loss of EFH. Specifically, the proposed appealable/fill projects would result in a cumulative loss of 37 acres of open water, which would have a considerable contribution (prior to mitigation) to a cumulatively significant loss of marine habitat and EFH for the proposed Program, and in combination with other past and present projects. The proposed appealable/fill projects and land use changes would not contribute a cumulatively considerable impact on eelgrass beds, kelp beds, mudflats, or wetlands. Potential shading from the proposed appealable/fill projects and land use changes would not contribute a cumulatively considerable impact to EFH, HAPC habitats, or other protected habitats (mudflats, wetlands) or SEAs. No impacts would occur to the Pier 400 SEA from the change in the land use designation to open space.

Mitigation Measures and Cumulative Residual Impacts

MM BIO-5 requires application of 18.5 credits available in a mitigation bank that is compliant with the 2008 Compensatory Mitigation Rule to reduce the cumulative loss of EFH from the proposed Program or foreseeable future projects to less than significant levels. As a result, present and foreseeable future projects, including the proposed appealable/fill projects under the proposed Program, would not result in additional significant cumulative impacts related to loss of EFH. Although cumulatively significant impacts to fish as a result of in-water construction activities would be unlikely, **MM-BIO 2**, which would minimize pile driving noise, also would minimize effects on fish.

Cumulative Impact BIO-3: The proposed Program would not result in interference with wildlife movement/migration that may diminish the long-term survival of a species – Less than Cumulatively Considerable

Cumulative Impact BIO-3 addresses the potential for the proposed Program when combined with past, present, and reasonably foreseeable future projects to interfere with wildlife migration or movement corridors.

Impacts of Past, Present, and Reasonably Foreseeable Future Projects

In-Water Construction and Operations

The Port area does not contain wildlife migration corridors or specific migratory routes, although several species of migratory birds may forage, nest, or rest within the port complex. Some species of fish move into and out of the port complex during different parts of their life cycle or seasonally, but no identifiable corridors for this movement are known. Construction activities or operations in the Port do not substantially interfere with these activities. Migratory water-associated birds can fly above or around disturbance.

Because the area in which marine mammals can migrate is large, and the cargo vessels and cruise ships generally use designated shipping lanes, the probability of interference with migrations is low. Therefore, construction and operation of port facilities would not have a cumulatively significant impact on migrating species.

Backlands Construction and Operations

The Port is heavily industrialized and surrounded by urbanized land. Similar to the above discussion, no cumulatively significant impact would occur to wildlife migration corridors since none are present. Upland birds that migrate to and from the port complex can fly over or around construction activities. Therefore, the probability of interference with migrations is low. Accordingly, construction and operation of port facilities would not have a cumulatively significant impact on migrating species.

Contribution of the Proposed Program (Prior to Mitigation)

The proposed appealable/fill projects and land use changes under the proposed Program would not affect any migration or movement corridors within the Port or along the coast. No migration corridors would be blocked or measurably restricted. Accordingly, the proposed Program's contribution to cumulative impacts to fish and wildlife migration or movement corridors would be less than cumulatively considerable.

Mitigation Measures and Residual Cumulative Impacts

The proposed Program would not make a cumulatively considerable contribution to a significant cumulative impact. Therefore, no mitigation is required. However, implementation of **MM BIO-2** would reduce impacts of pile driving on wildlife movement, including fish and marine mammals.

Cumulative Impact BIO-4: The proposed Program would result in a substantial disruption of local biological communities – Cumulatively Considerable and Unavoidable

Cumulative Impact BIO-4 addresses the potential for the proposed Program when combined with past, present, and future projects, to cause a cumulatively substantial disruption of local biological communities (e.g., from the introduction of noise, light, or invasive species).

Impacts of Past, Present, and Reasonably Foreseeable Future Projects

In-Water Construction and Operations

As noted above for Impact BIO-3, several related projects, listed in Table 4.1-1, would include in-water construction.

Sediment disturbance may result in temporary turbidity and removal of benthic invertebrates. Such effects, along with elevated noise and vibration, may disturb birds, fish, or marine mammals. Generally, impacts are temporary and do not result in substantial disruption of biological communities. Because construction activities only affect a small portion of the port complex at any given time, and benthic invertebrates recolonize disturbed sediments, cumulative impacts may be considerable, but past, present, and reasonably foreseeable future projects, generally have not resulted in long-term disruption of benthic invertebrate or fish communities (MEC 2002; SAIC 2010).

In-water construction activities pose some risk of introducing or spreading non-native invasive species within the port complex. Although the invasive species *Caulerpa taxifolia* has not been reported from the port complex, a pre-construction survey for *Caulerpa* is required for all projects subject to the USACE's 404 permit program that involve disturbance of bottom sediments, such as with dredging, filling, and pile driving or removal, between Morro Bay and the U.S./Mexico border. If no *Caulerpa* is found, construction may proceed as permitted. If *Caulerpa* is found, no in-water construction may be conducted until the infestation has been isolated, treated, and the

risk of spread eliminated. Therefore, the proposed appealable/fill projects in combination with cumulative projects would not be expected to contribute to a cumulatively significant impact on natural communities from in-water construction activities.

Ongoing and future terminal upgrade and expansion projects that would result in a cumulative increase in vessel calls in the port complex include the Outer Harbor Cruise Terminal and Park (#1), City Dock No. 1 Marine Research (#2), Pier 500 (#9), Berths 136-147 Marine Terminal (TraPac) (#13), San Pedro Waterfront Project (#14), Berths 226-236 (Evergreen) Container Terminal Improvements Project (#17), Ultramar Lease Renewal Project (#22), Berths 97-109 China Shipping Development Project (#25), Berths 212-224 (YTI) Container Terminal Improvements Project (#35), Berths 121-131 (Yang Ming) Container Terminal Improvements Project (#36), Middle Harbor Terminal Redevelopment (#72), Piers G & J Terminal Redevelopment Project (#73), and Pier S Marine Terminal (#75).

Vessels have introduced non-native species into the port complex through ballast water discharges and via their hulls. Approximately 15 percent of the invertebrate species in the port complex are estimated as being non-native or of uncertain origin (MEC 2002; SAIC 2010). Although the potential for introduction of non-native species has been reduced by legislation and vessel hull husbandry practices, the risk has not been eliminated. Because both federal and state regulations include a phased schedule for vessel compliance with ballast water performance standards through 2014 or 2016, depending on size and date of vessel construction, it is not possible to fully avoid the potential for invasive species introductions to disrupt marine biological communities, at least through 2016. Therefore, increases in vessel traffic could incrementally contribute to an increase in risk of introducing non-native invasive species within the port complex that has the potential to be cumulatively considerable and significant over the next several years. The low probability risk would be further reduced in the future as more vessels comply with ballast water treatment standards.

Backland Construction and Operations

Terrestrial biological communities in the PMPU area and surrounding vicinity have been modified by historical Port, industrial, and residential development. Projects in Table 4.1-1 that could affect terrestrial biological resources within the port complex include: Berths 136-147 Marine Terminal (TraPac) (#13), Berths 226-236 (Evergreen) Container Terminal Improvements Project (#17), SSA Marine Outer Harbor Fruit Facility Relocation (#20), Crescent Warehouse Company Relocation (#21), Ultramar Lease Renewal Project (#22), Westway Decommissioning (#23), Berths 97-109 China Shipping Development Project (#25), Berths 171-181, Pasha Marine Terminal Improvements (#26), Berths 206-209 Interim Container Terminal Reuse Project (#28), San Pedro Waterfront Enhancements Project (#29), Joint Container Inspection Facility (#30), South Wilmington Grade Separation (#32), Pier A East (#74), Pier S Marine Terminal (#75), Gerald Desmond Bridge Replacement Project (#77), TTI Grain Export Terminal Installation Project (#83), and Schuyler Heim Bridge Replacement & SR 47 Terminal Island Expressway (#84). Construction and operation of these projects would not substantially disrupt terrestrial biological communities because no well-developed communities are present and species that are present are adapted to an urbanized environment. Furthermore, potential impacts to nesting sites of birds covered under the MBTA could be feasibly mitigated by

conducting nest site surveys of any large trees or structures on vacant lands within 300 feet during the nesting season and establishing distance buffers, as applicable (Cumulative Impact BIO-1). Therefore, impacts on terrestrial biological resources would not be cumulatively considerable at the population level and would be expected to be less than significant.

Runoff from construction sites would add to ongoing runoff from operation of existing projects in the port complex. For past, present, and future projects, the duration and location of such runoff would vary over time. Control measures and BMPs such as berms, silt curtains, and sedimentation basins are used to prevent or minimize runoff from construction. Runoff from past construction projects (e.g., turbidity and any pollutants) has dissipated shortly after construction was completed.

Construction runoff would only occur during construction activities so that projects that are not concurrent would not have cumulative effects. Concentration of pollutants in runoff from construction sites that comply with permit limits would be below thresholds that could measurably affect marine biota. Biological baseline surveys in the port complex (MEC 1988, 2002; SAIC 2010) have not indicated substantial disruption of current biological communities. Effects of runoff from construction activities and operations would not substantially disrupt local biological communities in the Port and, as a consequence, past, present, and reasonably foreseeable future projects would not result in significant cumulative impacts to the local biological community.

Contribution of the Proposed Program (Prior to Mitigation)

Construction and operation of most proposed appealable/fill projects and land use changes would have limited effect on the overall marine communities of the Port as a result of installation or renovation of wharves and piers or waterfront improvements.

Increased vessel calls could increase the risk of introducing non-native invasive species. However, federal and state regulations substantially reduce the risk of invasive species introductions by requiring seagoing vessels entering the harbor from beyond the EEZ or that take on and discharge ballast water in more than one port to comply with ballast water management, marine biofouling, and sediment management requirements. While more vessels will be required to comply with these requirements through 2016, treatment system technologies have yet to be proven 100 percent effective. Consequently, it is not possible to ensure that no non-native species are introduced to the harbor environment, nor is it possible to ensure that introduced species are not invasive. Accordingly, it is not possible to fully avoid the potential for invasive species introductions to disrupt marine biological communities. Accordingly, the proposed Program would contribute to a cumulatively significant impact related to introduction of non-native and potentially invasive species.

Mitigation Measures and Cumulative Residual Impacts

Implementation of **MM BIO-2** would reduce impacts of pile driving on fish and marine mammals. Implementation of **MM BIO-4** would reduce potential impacts on nesting birds protected under the MBTA and/or similar provisions of the California Fish and Game Code. No feasible mitigation is currently available to totally prevent

introduction of invasive species due to lack of proven technologies. Therefore, residual impacts would be cumulatively considerable and unavoidable.

Cumulative Impact BIO-5: The proposed Program would not result in a permanent loss of marine habitat – Less than Cumulatively Considerable with Mitigation

Cumulative Impact BIO-5 addresses the potential for the proposed Program when combined with past, present, and reasonably foreseeable future projects to result in a permanent loss of marine habitat.

Impacts of Past, Present, and Reasonably Foreseeable Future Projects

Historical losses of marine habitat prior to implementation of agreements with the regulatory agencies were not mitigated, and represent a significant cumulative impact. More recent, present, and foreseeable future habitat losses have been mitigated with compensatory mitigation and application of mitigation bank credits from creation of shallow water and salt marsh habitat within the Outer Harbor and offsite wetlands restoration projects.

Marine habitat will be lost due to recent past, present, and future fill projects in the port complex (Figure 4.1-1), including Pier 500 (#9), Berths 136-147 Marine Terminal (TraPac) (#13), Berths 97-109 China Shipping Development Project (#25), Middle Harbor Terminal Redevelopment (#72), Piers G & J Terminal Redevelopment Project (#73), and Pier S Marine Terminal (#75). Loss of marine habitat from recent and foreseeable future projects has and will be mitigated to a less than significant by use of compensatory mitigation.

Contribution of the Proposed Program (Prior to Mitigation)

Development of the proposed appealable/fill projects and land use changes under the proposed Program would result in cumulative loss of 37 acres of marine habitat, which in combination with other past and present projects is cumulatively significant.

Mitigation Measures and Cumulative Residual Impacts

MM BIO-5 requires the application of 18.5 credits available in a mitigation bank that is compliant with the 2008 Compensatory Mitigation Rule to reduce the cumulative loss of marine habitat to less than significant levels. As a result, present and foreseeable future projects, combined with the proposed Program, would not result in significant cumulative impacts related to loss of marine habitat. There would be no residual cumulative impact of the proposed Program to loss of marine habitat.

Cumulative Impact BIO-6: The proposed Program would not conflict with local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance – Less than Cumulatively Considerable

Impacts of Past, Present, and Reasonably Foreseeable Future Projects

Terrestrial biological communities in the PMPU area and surrounding vicinity have been modified by historical Port, industrial, and residential development.

Contribution of the Proposed Program (Prior to Mitigation)

Construction or demolition of facilities associated with appealable/fill projects and land use changes of the proposed Program would have minimal effects on terrestrial vegetation because plant cover is generally sparse or dominated by non-native species. Removal of native trees is not expected; however, if that were to occur, the removal would be in compliance with the City of Los Angeles native tree protection and relocation ordinance. Accordingly, the proposed Program's contribution to a cumulative impact on native biological resources protected by local policies or ordinances would not be cumulatively considerable.

Mitigation Measures and Residual Cumulative Impacts

The proposed Program would not make a cumulatively considerable contribution to a significant cumulative impact. Therefore, no mitigation is required.

4.2.4 Cultural Resources

4.2.4.1 Scope of Analysis

The geographic region of analysis for cumulative impacts on archaeological, ethnographic, architectural, and paleontological resources related to the proposed Program consists of the areas at the Port and in the immediate vicinity within natural landforms (i.e., excluding modern Port in-fill development). Thus, past, present, planned and foreseeable future development that would contribute to cumulative impacts on archaeological and ethnographic resources includes projects that would have the potential for ground disturbance in this region of analysis. Those projects on land that have the potential to modify and/or demolish structures over 50 years of age have the potential to contribute to cumulative impacts on historical architectural resources. Projects that involve grading of intact, natural landforms (i.e., not imported/modem fill material) have the potential to contribute to cumulative impacts on paleontological resources.

4.2.4.2 Cumulative Impact Analysis

Cumulative Impact CR-1: The proposed Program would not disturb, damage, or degrade archaeological or ethnographic resources, and thus cause a substantial adverse change in the

significance of such resources as defined in §15064.5 – Less than Cumulatively Considerable with Mitigation

Cumulative Impact CR-1 addresses the potential for the proposed Program when combined with past, present, and reasonably foreseeable future projects to disturb, damage, or degrade listed, eligible, or otherwise unique or important known or unknown prehistoric and/or historical archaeological or ethnographic resources.

Impacts of Past, Present, and Reasonably Foreseeable Future Projects

Archaeologists estimate that past and present projects within urban areas including the PMPU area have destroyed over 80 percent of all prehistoric sites without proper assessment and systematic collection of information beforehand. As prehistoric sites are non-renewable resources, the direct and indirect impacts of these actions are cumulatively significant. Such projects have eliminated the ability to study sites that may have been likely to yield information important in prehistory, meaning the vast majority of the prehistoric record has already been lost.

Construction activities (i.e., excavation and land filling) associated with present and future Port projects would potentially disturb unknown, intact subsurface prehistoric or historical archaeological resources and potentially contribute to this impact. Present and future Port projects built on artificial fill material are less likely to impact a significant archeological or ethnographic resource because fill materials have little likelihood of containing intact archaeological deposits. However, there is the potential for upland Port projects to disturb unknown subsurface archaeological or ethnographic resources. Other projects under the PMPU that could disturb resources include the Ports O'Call Redevelopment (#3), Wilmington Waterfront Development Project (#5), and Berths 176-181 Break Bulk Terminal Redevelopment (#7). The likelihood that the present and future projects would encounter archaeological and ethnographic resources is remote, as most of the area has already been developed, but because prehistoric sites are non-renewable resources, the cumulative impacts of these actions are considered significant.

Contribution of the Proposed Program (Prior to Mitigation)

As discussed in Section 3.4.4.3 (Impacts and Mitigation, Impact CR-1), potential impacts from land-based ground disturbance associated with any of the proposed appealable/fill projects and land use changes would depend on whether such activities occur within artificial fill materials (low likelihood of impact) or intact soil deposits (higher likelihood of impact). If project-related construction activities disturbed, damaged, or degraded intact archaeological or ethnographic resources, this would result in significant impacts to resources that may be eligible for listing in the NRHP or CRHR. Buried resources, including human remains, could be inadvertently unearthed during ground-disturbing activities that could result in demolition of or substantial damage to significant archeological or ethnographic resources, thus creating a significant impact. As noted, proposed appealable/fill projects built on artificial fill material are less likely to impact a significant archaeological or ethnographic resource because fill materials have little likelihood of containing intact archaeological deposits. Therefore, construction of proposed appealable/fill projects and land use changes under the proposed Program would make a cumulatively

considerable contribution to a significant cumulative impact on archaeological and ethnographic resources. In contrast, operations of the proposed appealable/fill projects and land use changes associated with the proposed Program would result in less than significant impacts on archaeological or ethnographic resources because it is unlikely that operations would involve ground disturbing activities with the greatest potential for damaging resources.

Mitigation Measures and Cumulative Residual Impacts

Because the PMPU area has recorded archaeological sites and the potential to contain unknown buried or otherwise obscured archaeological or ethnographic resources, mitigation is required for construction activities. **MM CR-1** (Cultural Resource Assessment) and **MM CR-2** (Unanticipated Discovery Procedures) would be implemented, as applicable, for the proposed appealable/fill projects and land use changes under the proposed Program. With the implementation of **MM CR-1 and MM CR-2**, the proposed Program would not constitute a cumulatively considerable contribution to a significant cumulative impact on archaeological and ethnographic resources.

Cumulative Impact CR-2: The proposed Program would not cause a substantial adverse change in the significance of a historical resource as defined in §15064.5 – Less than Cumulatively Considerable with Mitigation

Cumulative Impact CR-2 addresses the potential for the proposed Program when combined with past, present, and reasonably foreseeable future projects to disturb, damage, or demolish significant historical resources.

Impacts of Past, Present, and Reasonably Foreseeable Future Projects

Redevelopment of the intensively developed Port region in the course of past, present, and reasonably foreseeable future projects, such as Ports O'Call Redevelopment (#3), Wilmington Waterfront Development Project (#5), San Pedro Waterfront Project (#14), and Al Larson Boat Shop Improvement Project (#16), have required and are anticipated to require the demolition of structures over 45 years of age. While individual projects mitigate the loss of historic structures through such means as archival documentation, interpretive displays, and salvage or adaptive re-use of key elements, the net effect is a continued decrease in the number and variety of older structures in the region. Accordingly, the effects of the related projects on historic resources are a significant cumulative impact.

Contribution of the Proposed Program (Prior to Mitigation)

As discussed in Section 3.4.4.3 (Impacts and Mitigation, Impact CR-2), historical resources occur within the PMPU area that are listed or eligible for listing in a federal, state, or local register. Therefore, construction associated with the proposed appealable/fill projects and land use changes could disturb, damage, or demolish 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 of nearby resources. Potential impacts might also be associated with changes made to previously unevaluated historical resources or resources that would achieve significance within the next 30 years. These types of impacts would result in a substantial adverse change in the significance of a historical resource. Therefore, the proposed appealable/fill projects and land use changes under the proposed Program would make a cumulatively considerable contribution to a significant cumulative impact on historical resources.

The proposed Program would not result in any operations-related impacts on historical resources within the PMPU area because no ground disturbances or structural modifications are expected to occur during operations associated with the proposed appealable/fill projects or land use changes.

Mitigation Measures and Cumulative Residual Impacts

MM CR-3 (Historical Resource Assessment) would be implemented, as applicable, for the proposed appealable/fill projects and land use changes under the proposed Program. If projects involving the relocation, conversion, rehabilitation, or alteration of a historical resource, or alterations to the immediate surroundings of a historical resource, conform with the Secretary's Standards, then any impact on historical resources would be mitigated to be less than significant. With implementation of **MM CR-3**, the proposed appealable/fill projects and land use changes under the proposed Program would not constitute a cumulatively considerable contribution to a significant cumulative impact on historical resources.

Cumulative Impact CR-3: The proposed Program would not disturb, destroy, or eliminate access to unknown unique paleontological resources – Less than Cumulatively Considerable with Mitigation

Cumulative Impact CR-3 addresses the potential for the proposed Program when combined with past, present, and reasonably foreseeable future projects to result in the permanent loss of, or loss of access to, a paleontological resource of regional or statewide significance.

Impacts of Past, Present, and Reasonably Foreseeable Future Projects

Upland areas and the periphery of Port projects may encompass geological formations in which important terrestrial vertebrate fossils may be found. However, many of these sediments have been substantially disturbed by urban development without systematic analysis by a professional paleontologist. Many fossils encountered during past construction may have been in poor condition or have been redundant examples of species previously recognized and characterized. There is the potential, however, for unusual (i.e., because of their age, size, and/or condition) or previously unrecorded fossil species to be encountered within an urban project area. Past excavation and construction projects undertaken prior to legislation requiring expert assessment of encountered fossils have likely resulted in a substantial number

of significant resources being destroyed without analysis. Their destruction without proper assessment has reduced the ability to reconstruct the region's fossil record.

Construction activities (i.e., excavation, dredging, and land filling) associated with present and future Port projects, such as Pier 500 (#9), Channel Deepening Project (#15), Berths 97-109 China Shipping Development Project (#25), and Berths 212-224 (YTI) Container Terminal Improvements Project (#35), would have the potential to disturb a paleontological resource of regional or statewide significance. The likelihood that the present and future projects would encounter such a resource is remote, as most of the area has already been developed, but because paleontological resources of regional or statewide significance are non-renewable resources, the cumulative impacts of these actions are considered significant.

Contribution of the Proposed Program (Prior to Mitigation)

As discussed in Section 3.4.4.3 (Impacts and Mitigation, Impact CR-3), recorded paleontological resources occur within or adjacent to the PMPU area, and other unknown and unrecorded unique paleontological resources could be located within and adjacent to the PMPU area. Therefore, any construction activities that entail ground disturbance could impact previously unidentified paleontological resources, resulting in the potential for permanent loss of or loss of access to a paleontological resource of regional or statewide significance. Grading and excavation associated with construction activities would potentially expose subsurface paleontological resources. Any vertebrate fossils exposed by grading without appropriate professional, systematic recovery would be destroyed, and their ability to be preserved for future study would be lost. Therefore, construction of the proposed appealable/fill projects and land use changes under the proposed Program would make a cumulatively considerable contribution to a significant cumulative impact on paleontological resources.

Mitigation Measures and Cumulative Residual Impacts

Because the PMPU area has the potential to contain unknown buried or otherwise obscured paleontological resources, mitigation is required. **MM CR-4** (Paleontological Assessment) and **MM CR-5** (Unanticipated Discovery Procedures) would be implemented, as applicable, for construction of the proposed appealable/fill projects and land use changes under the proposed Program. With the implementation of **MM CR-4 and MM CR-5**, the proposed appealable/fill projects and land use changes under the proposed Program would not constitute a cumulatively considerable contribution to a significant cumulative impact on paleontological resources.

4.2.5 Geology

4.2.5.1 Scope of Analysis

The geographic scope for cumulative impacts varies for geological resources, depending on the geologic issue. The geographic scope with respect to seismicity (Impact GEO-1) is the Port and Port of Long Beach, and the communities of San Pedro and Wilmington, as an earthquake capable of creating substantial damage or

injury within the PMPU area could similarly cause substantial damage or injury throughout this area of man-made fill, which is prone to liquefaction and differential settlement. The geographic scope with respect to tsunamis/seiches (Impact GEO-2) is the area of potential inundation due to a large tsunami, which could extend throughout the low-lying coastal areas of Los Angeles and Orange counties. The geographic scope with respect to subsidence/settlement (Impact GEO-3), expansive soils (Impact GEO-4), and unstable soil conditions (Impact GEO-6) would be confined to the PMPU area, as these impacts are site-specific and relate primarily to construction techniques. The geographic scope with respect to landslides and mudflows (Impact GEO-5) also would be confined to the PMPU area; however, the port complex is generally flat and not subject to slope instability. Modification or destruction of topography or unique geologic features (Impact GEO-7) would not occur because the port complex contains no unique geologic or topographic features. The geographic scope with respect to mineral resources (Impact GEO-8) is the Wilmington Oil Field, which traverses the northern portion of the PMPU area and extends to the northwest and southeast, as mineral resource impacts relate primarily to potential loss of petroleum reserves in the Wilmington Oil Field. The geographic scope with respect to rise in sea level (Impact GEO-9) is global, as this potential condition affects most low-lying, coastal areas.

Past, present, and reasonably foreseeable future developments that could contribute to cumulative impacts associated with geologic resources are those that involve the addition of new land area, infrastructure, and personnel that would be subject to earthquakes and tsunamis, or would preclude additional development of the Wilmington Oil Field.

All projects located in the port complex are subject to severe seismically-induced ground shaking due to an earthquake on a local or regional fault. Structural damage and risk of injury as a result of such an earthquake are possible for cumulative projects listed in Table 4.1-1, as these projects involve existing or proposed structural engineering or onsite personnel.

The significance criteria used for the cumulative analysis are the same as those specified for the proposed Program in Section 3.5, Geology.

4.2.5.2 Cumulative Impact Analysis

Cumulative Impact GEO-1: The proposed Program would not contribute to substantial damage or exposure of people and structures to substantial risk of injury from fault rupture, seismic ground shaking, liquefaction, or other seismically induced ground failure – Less than Cumulatively Considerable

Cumulative Impact GEO-1 addresses the degree to which the proposed Program, along with other cumulative projects, place structures and/or infrastructure in danger of substantial damage or expose people to substantial risk following a seismic event.

Southern California is recognized as one of the most seismically active areas in the U.S. The region has been subjected to at least 52 major earthquakes (i.e., of M6 or greater) since 1796. Great earthquakes, like the 1857 San Andreas Fault earthquake,

are quite rare in southern California. Earthquakes of M7.8 or greater occur at the rate of about two or three per 1,000 years, corresponding to a 6 to 9 percent probability in 30 years. However, the probability of a M6.7 or greater earthquake in southern California in 30 years is 97 percent (Working Group on California Earthquake Probabilities 2008). Therefore, it is reasonable to expect a strong ground motion seismic event during the lifetime of any proposed project in the region.

Seismic ground shaking is capable of providing the mechanism for liquefaction, usually in fine-grained, loose to medium dense, saturated sands and silts. The effects of liquefaction may be excessive if total and/or differential settlement of structures occurs on liquefiable soils or bearing capacity is compromised by the sudden loss of frictional resistance beneath the foundation.

Impacts of Past, Present, and Reasonably Foreseeable Future Projects

Past, present, and reasonably foreseeable future projects would not change the risk of seismic ground shaking. However, past projects have resulted in the backfilling of natural drainages at Port berths with various undocumented fill materials. In addition, dredged materials from the Port area were spread across lower Wilmington from 1905 until 1910 or 1911 (Ludwig 1927). In combination with natural soil and groundwater conditions in the area (i.e., unconsolidated, soft, and saturated natural alluvial deposits and naturally occurring shallow groundwater), backfilling of natural drainages and spreading of dredged materials associated with past development at the Port has resulted in conditions with increased potential for liquefaction following seismic ground shaking.

In addition, past development has increased the amount of infrastructure, structural improvements, and the number of people working onsite in the Port (i.e., the cumulative geographic scope). This past development has placed commercial, industrial, and residential structures and their occupants in areas that are susceptible to seismic ground shaking. Thus, these developments have had the effect of increasing the potential for seismic ground shaking to result in injury to people and damage to property.

All of the present and reasonably foreseeable future projects listed in Table 4.1-1 that would result in increased infrastructure, structures, and numbers of people working on site in the cumulative geographic scope would potentially contribute to this impact because those projects would expose workers to seismic hazards. Other projects under the PMPU likely to include new construction or fill placement, which would be subject to potential seismically induced ground failure, include but are not limited to the Outer Harbor Cruise Terminal and Park (#1), City Dock No. 1 Marine Research Project (#2), Ports O'Call Redevelopment (#3), Wilmington Waterfront Development Project (#5), Berths 176-181 Break Bulk Terminal Redevelopment (#7), East Basin Marina Improvements (#8), Pier 500 (200-acre fill) (#9), Trucking Support Center (#10), Relocation of SA Recycling (#11), Relocation of Jankovich Marine Fueling Station (#12), and Terminal Island On-Dock Rail Redevelopment (#41). Implementation of appropriate engineering standards would minimize impacts and combined impacts would not result in significant cumulative impacts.

Contribution of the Proposed Program (Prior to Mitigation)

As discussed in Section 3.5, Geology, the proposed appealable/fill projects and land use changes would result in less than significant impacts relative to Impact GEO-1 with incorporation of modern construction engineering and safety standards. Because the PMPU area is in a region where large earthquakes are likely, is underlain by strands of the active Palos Verdes Fault and liquefaction prone soils, there is a substantial risk of seismic impacts. Although the proposed appealable/fill projects and land use changes under the PMPU would not increase the risk of seismic ground shaking, the proposed Program would marginally contribute to the potential for seismically-induced fault rupture and/or ground shaking to result in injury to people and damage to structures because it would increase the amount of structures and people working within the Port. The LAHD uses a combination of seismic hazard assessments for seismic design, prior to any construction projects, to account for the probable high levels of ground shaking. Structures and infrastructure associated with the proposed appealable/fill projects that occur in areas with high liquefaction potential and fault rupture potential would comply with applicable regulations and building codes to ensure proper construction and consideration for associated hazards. Therefore, the contribution of the proposed Program would not be cumulatively considerable.

Mitigation Measures and Cumulative Residual Impacts

The proposed Program would not make a cumulatively considerable contribution to a significant cumulative impact. Therefore, no mitigation is required.

Cumulative Impact GEO-2: The proposed Program would not expose people and structures to substantial risk involving tsunamis or seiches – Less than Cumulatively Considerable with Mitigation

Cumulative Impact GEO-2 addresses the degree to which proposed Program, along with other cumulative projects, would expose people and structures to substantial risk from tsunamis or seiches.

As has been shown historically, the potential loss of human life following a seismic event can be great if a large submarine earthquake or landslide occurs that causes a tsunami or seiche that affects a populated area. Tsunamis have reportedly caused damage to moored vessels within the Outer Harbor. Gasoline from damaged boats has spilled in the Outer Harbor waters and created a fire hazard following a seiche. Currents up to 8 knots and a 6-foot rise of water in a few minutes have been observed in the West Basin in response to historical seiches.

For onsite personnel, the risk of tsunamis or seiches is a part of any ocean-shore interface and, hence, personnel working in the cumulative effects area cannot avoid some risk of exposure. Similarly, berth infrastructure, cargo/containers, and tanker vessels are subject to some risk of damage as well. Designing new facilities based on existing building codes and incorporation of emergency planning in accordance with current state and city regulations would prevent substantial injury to personnel and damage to structures from coastal flooding. In addition, the Port commissioned a detailed *Tsunami Hazard Assessment for the Port Complex* (Moffatt and Nichol

2007) that concluded tsunami-generating earthquakes and landslides are very infrequent. The report noted that the most likely, worst-case, tsunami scenario was based partially on a M7.6 earthquake on the offshore Santa Catalina Fault. The recurrence interval for a M7.5 earthquake along an offshore fault in the Southern California Continental Borderland is about 10,000 years. In addition, there is no certainty that an earthquake of this magnitude would result in a tsunami, since only about 10 percent of earthquakes worldwide result in a tsunami. In addition, available evidence indicates that tsunamigenic landslides would be extremely infrequent and occur less often than large earthquakes. This suggests recurrence intervals for such landslide events would be longer than the 10,000-year recurrence interval estimated for a M7.5 earthquake. Based on this assessment, the chances of a large tsunami occurring during the PMPU planning period (through 2035) are very low.

Impacts of Past, Present, and Reasonably Foreseeable Future Projects

Past, present, and reasonably foreseeable future projects would not change the frequency of or 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 onsite in the 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, based on maps depicting the highest anticipated tsunami runup in the port complex, most of the related projects listed in Table 4.1-1, within the areas of highest anticipated tsunami runup, do not include new engineered structures (Moffatt and Nichol 2007). Such projects include but are not limited to the Outer Harbor Cruise Terminal and Park (#1), City Dock No. 1 Marine Research Project (#2), Ports O'Call Redevelopment (#3), Channel Deepening Project (#15), Westway Decommissioning (#23), the Inner Cabrillo Beach Water Quality Improvement Project (#38), and the Cabrillo Beach Pump Project (Tier III) (#39).

Based on the tsunami runup maps, future projects may be susceptible to tsunami-induced flooding. A project-specific analysis would more definitively determine the likelihood that future projects would be susceptible to inundation by tsunamis or seiches. Due to the limited number of past, present, and reasonably foreseeable future projects that appear to be susceptible to maximum anticipated runup in the Port, impacts would not be cumulatively significant.

Contribution of the Proposed Program (Prior to Mitigation)

As discussed in Section 3.5, Geology, tsunamis and seiches are typical for the entire California coastline, and the risks of such events occurring would not be increased by construction or operation of the proposed appealable/fill projects and land use changes. Although the likelihood of a major tsunami inflicting damage on the Port during the planning period of the PMPU is very low, there is a substantial risk of flooding at the existing Pier 400 as a result of such a tsunami. In addition, there is a moderate risk of flooding along the southern portion of Pier 300 and the entrance to Fish Harbor. As a result, impacts have the potential to be significant for projects located in those areas. The additional infrastructure, structural improvements, and

onsite personnel associated with these proposed appealable/fill projects would contribute to the potential for damage to infrastructure and harm to people. Therefore, the proposed appealable/fill projects and other land use changes would make a cumulatively considerable contribution to significant cumulative impacts related to tsunamis.

Mitigation Measures and Residual Cumulative Impacts

Incorporation of emergency planning in accordance with current state and city regulations and implementation of **MM GEO-1** would help reduce injuries to onsite personnel during a tsunami. In addition, designing new facilities based on existing building codes in accordance with current state and city regulations would prevent substantial damage to structures from tsunami inundation. Therefore, impacts associated with the proposed Program would be less than cumulatively considerable.

Cumulative Impact GEO-3: The proposed Program would not result in substantial damage to structures or infrastructure or expose people to substantial risk of injury from subsidence/settlement – Less than Cumulatively Considerable

Cumulative Impact GEO-3 addresses the degree to which the proposed Program, along with other cumulative projects, would result in substantial damage to structures or infrastructure or expose people to substantial risk of injury as a result of subsidence or soil settlement. In the absence of proper engineering, new structures could be cracked and warped as a result of saturated, unconsolidated/compressible sediments.

Impacts of Past, Present, and Reasonably Foreseeable Future Projects

Subsidence in the Port area, due to previous oil extraction from the Wilmington Oil Field, has been mitigated and is not anticipated to adversely impact past, present, and reasonably foreseeable future projects. Soil settlement in the Port generally occurs subsequent to creation of hydraulically filled land. These landfill areas are designed such that settlement is initially high, but substantially less prior to overlying construction. Other PMPU projects and future projects likely to include new construction or fill placement, which would be subject to potential subsidence/settlement, include but are not limited to the Outer Harbor Cruise Terminal and Park (#1), City Dock No. 1 Marine Research Project (#2), Ports O'Call Redevelopment (#3), Wilmington Waterfront Development Project (#5), Berths 176-181 Break Bulk Terminal Redevelopment (#7), East Basin Marina Improvements (#8), Pier 500 (200-acre fill) (#9), Trucking Support Center (#10), Relocation of SA Recycling (#11), Relocation of Jankovich Marine Fueling Station (#12), and the Terminal Island On-Dock Rail Redevelopment (#41). During the design phase of individual projects, the project engineer would evaluate the settlement potential in all areas where structures are proposed and design the structures to withstand anticipated settlement, as necessary. As a result, construction of past, present, and reasonably foreseeable future projects would not result in substantial damage to structures or infrastructure, or expose people to substantial risk of injury.

Contribution of the Proposed Program (Prior to Mitigation)

Settlement impacts related to construction of the proposed appealable/fill projects and land use changes would be less than significant, as these projects would be designed and constructed in compliance with the recommendations of a geotechnical engineer, consistent with Sections 91.000 through 91.7016 of the LAMC, and in conjunction with criteria established by LAHD and Caltrans. Accordingly, the proposed appealable/fill projects would not result in substantial damage to structures or infrastructure, or expose people to substantial risk of injury. Therefore, construction and operation of the proposed appealable/fill projects and land use changes would not make a cumulatively considerable contribution to a significant cumulative impact.

Mitigation Measures and Residual Cumulative Impacts

The proposed Program would not make a cumulatively considerable contribution to a significant cumulative impact. Therefore, no mitigation is required.

Cumulative Impact GEO-4: The proposed Program would not result in substantial damage to structures or infrastructure, or expose people to substantial risk of injury from expansive soils – Less than Cumulatively Considerable

Cumulative Impact GEO-4 addresses the degree to which the proposed Program along with other cumulative projects, would result in substantial damage to structures or infrastructure or expose people to substantial risk of injury as a result of expansive soils. Expansive soil may be present in dredged or imported soils used for grading. Expansive soils beneath a structure could result in cracking, warping, and distress of the foundation.

Impacts of Past, Present, and Reasonably Foreseeable Future Projects

Past projects in the Port have contributed to fill and, therefore, the risk of expansive soils. However, impacts are site-specific and would not cumulatively contribute to other projects. Past and reasonably foreseeable projects would be designed and constructed in compliance with the recommendations of a geotechnical engineer, and in accordance with City and LAHD regulations. Such engineering and construction regulations would apply to the other anticipated projects under the PMPU and future projects, including but not limited to the Outer Harbor Cruise Terminal and Park (#1), City Dock No. 1 Marine Research (#2), Ports O'Call Redevelopment (#3), Wilmington Waterfront Development (#5), Berths 176-181 Break Bulk Terminal Redevelopment (#7), East Basin Marina Improvements (#8), Pier 500 (200-acre fill) (#9), Trucking Support Center (#10), Relocation of SA Recycling (#11), Relocation of Jankovich Marine Fueling Station (#12), and Terminal Island On-Dock Rail Redevelopment (#41). As a result, past, present, and reasonably foreseeable future projects would not contribute, along with the proposed Program, to cumulative impacts and impacts would not be cumulatively significant.

Contribution of the Proposed Program (Prior to Mitigation)

Expansive soil impacts for the proposed appealable/fill projects and land use changes would be less than significant, as projects constructed under the proposed Program would be designed and constructed in compliance with the recommendations of a geotechnical engineer, consistent with implementation of Sections 91.000 through 91.7016 of the LAMC, and in conjunction with criteria established by LAHD. These regulations would ensure that future development would not result in substantial damage to structures or infrastructure, or expose people to substantial risk of injury. Therefore, proposed appealable/fill projects and land use changes under the proposed Program would not result in a cumulatively considerable contribution to a significant cumulative impact.

Mitigation Measures and Residual Cumulative Impacts

The proposed Program would not make a cumulatively considerable contribution to a significant cumulative impact. Therefore, no mitigation is required.

Cumulative Impact GEO-5: The proposed Program would not result in or expose people or property to a substantial risk of landslides or mudflows – No Impact

Cumulative Impact GEO-5 addresses the degree to which the proposed Program along with other cumulative projects, expose people or property to a substantial risk of landslides or mudslides.

Because the topography in the geographic area and the PMPU area is flat and not subject to landslides or mudflows, proposed appealable/fill projects and land use changes under the PMPU would not expose places, structures, or people to substantial damage or substantial risk of harm. As there would be no Program-specific impact, the proposed Program would not make a cumulatively considerable contribution to a significant cumulative impact related to landslides or mudflows.

Cumulative Impact GEO-6: The proposed Program would not result in substantial damage to structures or infrastructure, or expose people to cumulatively considerable risks of injury from unstable soil conditions from excavation, grading, or fill – Less than Cumulatively Considerable

Cumulative Impact GEO-6 addresses the degree to which the proposed Program along with other cumulative projects, results in substantial damage to structures or infrastructure or exposes people to substantial risk of injury as a result of collapsible or unstable soils.

Impacts of Past, Present, and Reasonably Foreseeable Future Projects

Excavations that occur in natural alluvial and estuarine deposits, as well as artificial fill consisting of dredged deposits or imported soils, may encounter relatively fluid materials near and below the shallow groundwater table. In the absence of proper

engineering, new structures could be cracked and warped as a result of saturated, unstable, or collapsible soils. However, impacts are project site-specific and would not cumulatively contribute to other projects. As a result, past, present, and reasonably foreseeable future projects, including the other projects under the PMPU that would result in new construction or fill placement, such as Wilmington Waterfront Development (#5), Berths 176-181 Break Bulk Terminal Redevelopment (#7), East Basin Marina Improvements (#8), and Pier 500 [200-acre fill] (#9), would not contribute to cumulative impacts and impacts would not be cumulatively significant.

Contribution of the Proposed Program (Prior to Mitigation)

Proposed appealable/fill projects likely to include new construction or fill placement, that would be subject to potentially collapsible soils, include the Berths 187-189 Liquid Bulk Relocation, Yang Ming Terminal Redevelopment (Berths 120-127), China Shipping Fill, Berth 300 Development, Tri Marine Expansion, 338 Cannery Street Adaptive Reuse, and the Al Larson Marina. Similarly, new projects constructed as a result of land use changes would be subject to potential collapsible soils. Based on implementation of standard engineering practices, people and structures at the proposed appealable/fill project sites would not be exposed to substantial adverse effects and impacts associated with collapsible soils would be less than significant. Therefore, the proposed Program would not result in a cumulatively considerable contribution to a significant cumulative impact.

Mitigation Measures and Cumulative Residual Impacts

The proposed Program would not make a cumulatively considerable contribution to a significant cumulative impact. Therefore, no mitigation is required.

Cumulative Impact GEO-7: The proposed Program would not result in one or more distinct and prominent geologic or topographic features being destroyed, permanently covered, or materially and adversely modified – No Impact

Cumulative Impact GEO-7 addresses the degree to which the proposed Program, along with other cumulative projects, would result in one or more distinct and prominent geologic or topographical features being destroyed, permanently covered, or materially and adversely modified. Such features could include hilltops, ridges, hill slopes, canyons, ravines, rock outcrops, water bodies, streambeds, and wetlands.

Because the PMPU area is relatively flat and paved, with no prominent geologic or topographic features, construction and operations of the proposed appealable/fill projects, including the Berths 187-189 Liquid Bulk Relocation, Yang Ming Terminal Redevelopment (Berths 120-127), China Shipping Fill, Berth 300 Development, Tri Marine Expansion, 338 Cannery Street Adaptive Reuse, and the Al Larson Marina, would not result in any distinct and prominent geologic or topographic features being destroyed, permanently covered, or materially and adversely modified. Therefore, the proposed Program would not contribute to any cumulatively significant impact.

Cumulative Impact GEO-8: The proposed Program within the limits of the oil field would not result in the permanent loss of availability of any mineral resource of regional, statewide, or local significance – Less than Cumulatively Considerable

Cumulative Impact GEO-8 addresses the degree to which the proposed appealable/fill projects and land use changes, along with other cumulative projects, would result in permanent loss of availability of a known mineral resource that would be of future value to the region and the residents of the state.

The PMPU area is located in an area where no significant aggregate mineral deposits are present and where little likelihood exists for their presence. However, with respect to petroleum resources, the northern portion of the PMPU area is located within the Wilmington Oil Field, the sixth largest producing oil field in the state. Numerous oil wells formerly present in the PMPU area have been abandoned in accordance with California Department of Conservation Division of Oil Gas and Geothermal Resources specifications.

Impacts of Past, Present, and Reasonably Foreseeable Future Projects

There are no past, present, or reasonably foreseeable aggregate mining projects in the Port area. However, past projects have resulted in displacement of oil wells that produced oil from the underlying Wilmington Oil Field. With increasing commercial and industrial development, oil extraction has increasingly occurred from clustered development wells, rather than the relatively widely-spaced wells drilled prior to extensive Port development. Modern directional drilling techniques have allowed access to oil reserves from remote (i.e., clustered) locations; therefore, past industrial and commercial development have not substantially reduced access to oil reserves of the Wilmington Oil Field. Similarly, present and reasonably foreseeable future projects (e.g., Wilmington Waterfront Development Project (#5), Berths 136-147 Marine Terminal (TraPac) (#13), South Wilmington Grade Separation (#32), Wilmington Waterfront Master Plan (#33), and Berths 121-131 (Yang Ming) Container Terminal Improvements Project (#36)) will not preclude continued development of the Wilmington Oil Field as these project sites could be accessed from remote locations (including onshore or offshore), using directional (or slant) drilling techniques. Therefore, past, present, and reasonably foreseeable future projects would be not be cumulatively significant.

Contribution of the Proposed Program (Prior to Mitigation)

As discussed in Section 3.5.4.3.1, operation of the proposed appealable/fill projects and land use changes would preclude oil and gas drilling from within the PMPU area; however, petroleum reserves beneath these project sites could be accessed from remote locations using directional drilling techniques. Therefore, the proposed appealable/fill projects under the PMPU, including the including the Berths 187-189 Liquid Bulk Relocation, Yang Ming Terminal Redevelopment (Berths 120-127), China Shipping Fill, Berth 300 Development, Tri Marine Expansion, 338 Cannery Street Adaptive Reuse, and the Al Larson Marina, would not result in the permanent loss of availability of a known mineral resource that would be of future value to the

region and the residents of the state. Similarly, other projects completed as a result of the proposed land use changes would not result in the permanent loss of availability of a known mineral resource that would be of future value to the region and the residents of the state. Because of modern oil and gas drilling techniques (i.e., directional drilling), the contribution of the proposed Program to a loss of mineral resources is inconsequential and is not cumulatively significant. Therefore, the proposed appealable/fill projects and land use change s under the proposed Program would not result in a cumulatively considerable contribution to a significant cumulative impact.

Mitigation Measures and Residual Cumulative Impacts

The proposed Program would not make a cumulatively considerable contribution to a significant cumulative impact. Therefore, no mitigation is required.

Cumulative Impact GEO-9: The proposed Program would not result in substantial damage to structures or infrastructure or expose people to substantial risk of injury from sea level rise – Less than Cumulatively Considerable

Cumulative Impact GEO-9 addresses the degree to which the proposed Program along with other cumulative projects, expose people and structures to substantial risk from sea level rise. Models suggest that sea levels along the California coast could rise substantially over the next century as a result of climate change. While this issue has not historically been a concern, LAHD has begun planning for and implementing strategies to address predicted sea level rise to minimize potential future adverse effects on Port operations and access.

Impacts of Past, Present, and Reasonably Foreseeable Future Projects

Past, present, and reasonably foreseeable future projects (e.g., Outer Harbor Cruise Terminal and Park (#1), City Dock No. 1 Marine Research Project (#2), Pier 500 (#9), Berths 302-306 APL Container Terminal Project (#18), and Terminal Island On-Dock Rail Redevelopment (#41)) would not change the risk of sea level rise and therefore would not contribute to a significant cumulative impact. However, past projects have resulted in the backfilling of natural drainages and creation of new low-lying land areas, which could be subject to future sea level rise. In addition, past development has increased the amount of infrastructure, structural improvements, and the number of people working onsite in the port complex area. With increased sea level rise potential in the future, past development has placed commercial and industrial structures and their occupants in areas that may be susceptible to rising seas, depending on the extent to which levels rise over time.

Contribution of the Proposed Program (Prior to Mitigation)

The potential risk of damage from sea level rise pertains to the entire California coastline, and the risks of such events occurring would not be increased by construction or operation of the proposed appealable/fill projects and land use changes. Predicted sea level rise in the Port through 2050 varies from 10 to 17 inches,

with an average of 14 inches. Such an increase in itself would not likely inundate existing berths, which range in height from about 7.5 to 12 feet above MSL. However, sea level rise when combined with storm surge or tsunami run-up could increase risks to structures and/or people. Regardless, the proposed appealable/fill projects and land use changes under the proposed Program would not expose people or property to substantial risk or injuries related to sea level rise individually or cumulatively. Therefore, the proposed Program would not make a cumulatively considerable contribution to a significant cumulative impact.

Mitigation Measures and Residual Cumulative Impacts

The proposed Program would not make a cumulatively considerable contribution to a significant cumulative impact. Therefore, no mitigation is required.

4.2.6 Groundwater and Soils

4.2.6.1 Scope of Analysis

The geographic scope for cumulative impacts on groundwater and soils varies, depending on the impact. The geographic scope with respect to contaminated soils would be confined to the proposed appealable/fill project sites because these impacts are site-specific and relate primarily to potential exposure of contaminants to onsite personnel during construction and operation activities. There is no geographic scope with respect to change in potable water levels and potential violation of regulatory water quality standards at an existing production well because there are no potable water resources in the Port. Similarly, there is no geographic scope with respect to potential reduction in groundwater recharge because the PMPU area is not used for groundwater recharge. The LADWP is responsible for supplying water to the PMPU area and vicinity; local groundwater would not be utilized as a potable water supply.

Past, present, and reasonably foreseeable future developments that could contribute to cumulative impacts associated with groundwater and soil contamination are limited to projects that would encounter historical onsite contamination, reduce potential groundwater recharge by site paving (for either site development or for encapsulation of contaminated soil), or introduce contaminants to the soil or groundwater.

Most of the cumulative area of influence has been disturbed in the past, may contain buried contaminated soils, and is covered in non-permeable surfaces. The cumulative area of influence reflects legacy spills of petroleum products and hazardous substances due to long-term industrial land use in the area that have resulted in contamination of some onshore soils and shallow groundwater.

The significance criteria used for the cumulative analysis are the same as those used for the proposed Program in Section 3.6, Groundwater and Soils. The proposed Program would not result in impacts with respect to changes in potable water levels, reduction in potable groundwater capacity, or potential violation of regulatory water quality standards at an existing production well (refer to Section 3.6, Groundwater and Soils). Therefore, the proposed Program would not contribute to cumulative impacts to groundwater recharge capacity or potable water levels, and these issues are not carried forward for detailed cumulative analysis.

4.2.6.2 Cumulative Impact Analysis

Cumulative Impact GW-1: The proposed Program would expose soils containing toxic substances and petroleum hydrocarbons, associated with prior operations, resulting in exposure to construction and operation personnel. The exposure would not be deleterious to humans, based on regulatory standards established by the lead agency for the site – Less than Cumulatively Considerable

Cumulative Impact GW-1 addresses the degree to which the proposed Program when combined with past, present, and reasonably foreseeable future projects, would result in exposure to soils containing toxic substances and petroleum hydrocarbons, which would be deleterious to humans. Exposure to contaminants associated with historical uses of the PMPU area could result in short-term effects (duration of construction) to onsite personnel and/or long-term impacts to future site occupants.

Impacts of Past, Present, and Reasonably Foreseeable Future Projects

Past and present projects at the Port have contributed to soil and groundwater contamination. Areas of the Port are in various stages of site characterization and remediation; however, contaminated soils are still present. Disturbances of contaminated soil could occur during construction activities, which could pose a risk of exposure to construction workers. However, each project listed in Table 4.1-1 (e.g., Pier 500 (#9), Berths 136-147 Marine Terminal (TraPac) (#13), Berths 97-109 China Shipping Development Project (#25), and Inner Cabrillo Beach Water Quality Improvement Program (#38)) is subject to regulatory standards that must be achieved during construction and demolition activities, including compliance with Los Angeles RWQCB, DTSC, and LAFD regulations governing handling and cleanup of hazardous materials and CalEPA worker safety requirements, all of which would reduce potential impacts associated with soil contamination. Further, as described above, the effects of soil contamination and groundwater are generally site-specific and thus not subject to Port-wide cumulative effects. Therefore, the related projects would not result in a significant cumulative impact related to exposing soil contamination.

Contribution of the Proposed Program (Prior to Mitigation)

Construction of the proposed appealable projects could disturb contaminated soils and potentially expose construction workers, operations personnel, or future occupants of the site to contaminated soil and groundwater. However, contaminated soil or groundwater encountered during construction of the proposed appealable/fill projects under the PMPU would be handled, transported, remediated, and/or disposed of in accordance with all applicable federal, state, and local laws and regulations, the regulatory lead agency's (e.g., DTSC or Los Angeles RWQCB) requirements, and LAHD leasing requirements (e.g., preparation of a contamination contingency plan) related to hazardous materials, hazardous wastes, and regulatory compliance. Therefore, the proposed Program would not contribute to significant cumulative

impacts with regard to exposure to soil contamination, and when combined with past, present, and future projects, the impacts would not be cumulatively considerable.

Mitigation Measures and Cumulative Residual Impacts

The proposed Program would not make a cumulatively considerable contribution to a significant cumulative impact. Therefore, no mitigation is required.

Cumulative Impact GW-2: The proposed Program would not result in changes in the rate or direction of movement of existing contaminants; expansion of the area affected by contaminants; or increases in the level of groundwater contamination, which would increase risk of harm to humans – Less than Cumulatively Considerable

Cumulative Impact GW-2 addresses the degree to which the proposed Program when combined with past, present, and reasonably foreseeable future projects would change the rate or direction of movement of existing contaminants, expand the area affected by contaminants, or increase the level of groundwater contamination, which would increase the risk of harm to humans. Excavation and grading activities in contaminated soils would potentially result in inadvertent spreading of such contamination to areas that were previously unaffected by spills of petroleum products or hazardous substances, thus potentially exposing construction and operations personnel and future occupants of the site to contaminants. The cumulative geographic scope is the same as the proposed appealable/fill project sites within the PMPU area because the effects of soil contamination typically are site-specific.

Impacts of Past, Present, and Reasonably Foreseeable Future Projects

Past uses could have contributed to soil and/or groundwater contamination at the proposed appealable/fill project sites. With the exception of the proposed appealable/fill projects, present and reasonably foreseeable future projects would have no effect on soil contamination onsite because these related projects would not be located at these sites. Consequently, the related projects would not result in significant cumulative impacts relative to the expansion of the area affected by movement, expansion, or increase in existing contaminants.

Contribution of the Proposed Program (Prior to Mitigation)

As discussed in Section 3.6, Groundwater and Soils, the proposed appealable/fill projects and land use changes under the PMPU are not expected to change the rate or direction of movement, or extent of existing soil and/or groundwater contamination. Remediation of some of areas of the Port has occurred, but some contamination remains within the PMPU area. Excavation and grading activities in these areas and other areas with unknown contamination could encounter contaminated soil and/or groundwater. If contaminated soil and/or groundwater are encountered during construction it would be remediated in compliance with federal, state, and local requirements. Compliance with all applicable existing regulations would prevent the

proposed appealable/fill projects and land use changes from expanding areas affected by contamination or from increasing levels of existing contamination. Therefore, the proposed Program would not make a cumulatively considerable contribution to a significant cumulative impact.

Mitigation Measures and Cumulative Residual Impacts

The proposed Program would not make a cumulatively considerable contribution to a significant cumulative impact. Therefore, no mitigation is required.

4.2.7 Hazards and Hazardous Materials

4.2.7.1 Scope of Analysis

The geographic scope for cumulative impacts associated with accidental spills, releases, or explosions of hazardous materials encompasses the 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 that could contribute to these cumulative impacts include those projects that transport, store, or use hazardous materials in the vicinity of the Port.

The significance criteria used for the cumulative analysis are the same as those used for the proposed Program in Section 3.7, Hazards and Hazardous Materials.

4.2.7.2 Cumulative Impact Analysis

Cumulative Impact HAZ-1: The proposed Program would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials – Less than Cumulatively Considerable

Cumulative Impact HAZ-1 addresses the potential for the proposed Program along with other cumulative projects to substantially increase the risk to the public and environment from the routine transport, use, or disposal of hazardous materials. In general, the risk to the public arises in the event of an accident resulting in the release of hazardous materials. Potential releases of hazardous materials involving accidents are addressed under Cumulative Impact HAZ-2 below.

Impacts of Past, Present, and Reasonably Foreseeable Future Projects

There are typically minimal impacts to the public or the environment from routine transport, use, or disposal of hazardous materials. An unforeseen circumstance resulting in a release is usually required before there is a public safety impact. There is a possibility of hazardous material emissions from smokestacks, vehicle, and vessel emissions. The potential for vehicle and vessel emissions is addressed in Section 3.2, Air Quality and Greenhouse Gases. None of the projects listed in Table 4.1-1 involve industrial or power generation facilities that are likely to emit

hazardous material through stationary smoke stacks. The region surrounding the Port contains a number of oil and natural gas fields and refineries that may emit small 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.

Contribution of the Proposed Program (Prior to Mitigation)

The proposed appealable/fill projects and land use changes under the PMPU would not be expected to emit hazardous materials unless an upset condition occurred. None of these projects would involve routine emissions through stationary smokestacks or other means. Therefore, the proposed Program would not make a cumulatively considerable contribution to a significant cumulative impact.

Mitigation Measures and Cumulative Residual Impacts

The proposed Program would not make a cumulatively considerable contribution to a significant cumulative impact. Therefore, no mitigation is required.

Cumulative Impact HAZ-2: The proposed Program would not create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment – Less than Cumulatively Considerable with Mitigation

Cumulative Impact HAZ-2 addresses the potential for the proposed Program along with other cumulative projects to substantially increase the frequency and severity of consequences of upset conditions to people or property as a result of a potential accidental release or explosion of a hazardous substance.

Impacts of Past, Present, and Reasonably Foreseeable Future Projects

Virtually all of the projects listed in Table 4.1-1, including but not limited to Pier 500 (#9), Berths 136-147 Marine Terminal (TraPac) (#13), Berths 97-109 China Shipping Development Project (#25), and Wilmington Youth Sailing and Aquatic Center (#27), have the potential to contribute to the risk of hazardous materials during construction. Lubricants, fuels, and hydraulic fuels 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 (although at a much lower magnitude than OGVs since they are much smaller). 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, 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 considered less than significant.

Release of hazardous materials is also possible during facility operations. Such releases can occur during transportation, use, or storage operations. All present and reasonably foreseeable projects that would involve the handling of hazardous materials would be subject to the same BMPs and would be constructed in accordance with the LAMC (Chapter 6.5, Section 57, Division 4 and 5; Chapter 6, Article 4). Quantities of hazardous materials that exceed the thresholds provided in Chapter 6.95 of the California Health and Safety Code would be subject to a RRP and a HMI. Implementation of increased inventory accountability and spill prevention controls associated with this RRP and HMI, such as limiting the types of materials stored and size of packages containing hazardous materials, would limit both the frequency and severity of potential releases of hazardous materials, thus minimizing potential health hazards. These measures reduce the frequency and consequences of spills by requiring proper packaging for the material being shipped, limits on package size, and thus potential spill size, as well as proper response measures for the materials being handled. Implementation of these preventative measures would minimize the potential for spills to impact the public and limit the adverse impacts of contamination to a relatively small area.

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. The MOTEMS regulations are extensive and detailed, requiring regular inspections and the correction of deficiencies on a timely basis, along with periodic audit reports.

The region surrounding the Port contains a number of oil and natural gas fields. Development and use of these natural resources have been ongoing in the area for nearly a century. As a result, there are a variety of oil production and refining facilities scattered throughout the area (Figure 3.7-1) and connected by various pipelines. The presence and operation of these oil and gas facilities, especially those close to other Port operations, currently present some risk to the public and environment. Although oil and gas facilities and pipelines in the area are engineered safely and 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 pose risks to people, the environment, and property in the vicinity. Upsets are possible even under normal operating conditions for oil pipelines and oil facilities, and they therefore pose an ever-present risk of exposing the surrounding population to accidental releases of materials. It is likely that any new liquid bulk terminal constructed in the Port would require new pipelines to transport the liquid product. This would involve some additional pipeline risk. However, pipelines are closely regulated by USDOT and the California State Fire Marshall and are subject to stringent design and operational requirements as well as periodic testing. In addition, new pipelines would generally be constructed to more stringent standards than older existing lines.

Portions of the City of Los Angeles and the Port have been designated as potentially having methane contaminated soils (Methane Zones or Methane Buffer Zones), as associated with previous oil development and industrial activities. Methane Zones have been identified by the city and specific measures are required for development

within Methane Zones or Buffer Zones. All developments within a Methane Buffer Zone are first subjected to a methane level assessment. Any property within the Methane Buffer Zone that is found to be free of methane may proceed without any additional methane mitigation plans. However, if the assessment testing shows that methane is present the methane level is determined and a mitigation plan is designed to keep methane from entering the building. Developments within a Methane Zone itself are more stringent. All development within the Methane Zone require the same assessment testing as the Buffer Zone, but require a minimum Mitigation Plan regardless of the methane levels discovered. The minimum plan required consists of a below grade passive venting network, complete with risers and an impervious membrane just below the slab and behind any below grade walls.

Many of the facilities listed in Table 4.1-1 transport hazardous material by rail or truck. Both truck and rail transportation of hazardous materials are closely regulated by USDOT. Such transporters are required to have emergency response plans and proper training to respond to releases and other accidents.

Adherence to federal, state, and local regulations and implementation of standard control measures would ensure that operation of related projects would not constitute a cumulatively significant public safety impact.

Contribution of the Proposed Program (Prior to Mitigation)

The proposed appealable/fill projects and land use changes under the PMPU would be subject to applicable federal, state, and local laws and regulations governing spill prevention, storage, use, and transport of hazardous materials, as well as emergency response to hazardous material spills, thus minimizing the potential for adverse health and safety impacts. All marine oil terminals are required to comply with MOTEMS regulations, which are extensive and detailed and require regular inspections and the correction of deficiencies on a timely basis, along with periodic audit reports. In addition, the Port's RMP governs the siting of new hazardous liquid bulk facilities and modification to existing facilities that precludes such facilities from being located near vulnerable resources that could be impacted. 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.

Construction, demolition, and onshore operations associated with the proposed appealable/fill projects and land use changes under the PMPU would not substantially increase the frequency and severity of consequences to people or property as a result of an accidental release or explosion of a hazardous substance (Section 3.7, Hazards and Hazardous Materials). Hazardous materials releases to harbor waters from accident or upset conditions are very unlikely, but in the event that they occurred, impacts could be significant if response and clean-up systems and procedures were not sufficient to prevent exposure of sensitive resources. Therefore, the proposed appealable/fill projects and other land use changes would make a cumulatively considerable contribution to significant cumulative impacts associated with the in-water release of hazardous materials (in particular petroleum and related products and some chemicals).

New development under the PMPU within a Methane Buffer Zone would be subjected to a methane level assessment. Any property within the Methane Buffer Zone that is found to be free of methane may proceed without any additional methane mitigation plans or, if the assessment testing shows that methane is present a mitigation plan would be designed to keep the methane from entering buildings. Any property within a Methane Zone would need the same assessment testing as the Buffer Zone, but require a minimum Mitigation Plan regardless of the methane levels discovered. The minimum plan consists of a below grade passive venting network, complete with risers and an impervious membrane just below the slab and behind any below grade walls. Therefore, new development under the PMPU would not contribute to a significant cumulative impact.

Mitigation Measures and Cumulative Residual Impacts

MM HAZ-1 (General Mitigation Measure) and **MM HAZ-2** (Hazards and Operability Studies) would be implemented, as applicable, for the proposed appealable/fill projects and land use changes under the proposed Program. With the implementation of **MM HAZ-1 and MM HAZ-2**, the proposed Program would not constitute a cumulatively considerable contribution to a significant cumulative impact on hazards and hazardous materials.

Cumulative Impact HAZ-3: The proposed Program would not emit hazardous materials or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school – Less than Cumulatively Considerable

Cumulative Impact HAZ-3 addresses the potential for the proposed Program along with other cumulative projects to substantially increase hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.

Impacts of Past, Present, and Reasonably Foreseeable Future Projects

It is likely that some of the cumulative projects (e.g., Wilmington Waterfront Development Project (#5), East Basin Marina Improvements (#8), Consolidated Slip Restoration Project (#24)), are located within one-quarter mile of a school. All proposed projects subject to CEQA that would be located with one-quarter mile of a school would be required to assess their potential impact to the school and would only be approved subject to the CEQA findings. Types of risks to be assessed include a HRA to determine the potential cancerous, noncancerous, and acute health impact. In addition, the potential risk from accidents and upsets would also be assessed. In accordance with California Department of Education and Los Angeles Unified School District a risk assessment would need to be conducted before any new school or modification to an existing school could be sited within 1,500 feet of a hazardous material pipeline or rail line, or within one-quarter mile of any facility emitting hazardous materials. Adherence to these measures would ensure the effects of related projects do not constitute a cumulatively significant impact.

Contribution of the Proposed Program (Prior to Mitigation)

Because of the regulations in place governing the transportation, storage, and use of hazardous materials during construction, and because of the small amount of hazardous materials used during construction, impacts to schools from releases or emissions of such materials would be less than significant. The development of new hazardous liquid bulk facilities, new container terminals, or expansion of existing terminals would not occur within one-quarter mile of a school. Therefore, the proposed Program would not make a cumulatively considerable contribution to a significant cumulative impact.

Mitigation Measures and Cumulative Residual Impacts

The proposed Program would not make a cumulatively considerable contribution to a significant cumulative impact. Therefore, no mitigation is required.

Cumulative Impact HAZ-4: The proposed Program would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan – Less than Cumulatively Considerable

Cumulative Impact HAZ-4 addresses the potential for the proposed Program along with other cumulative projects to substantially interfere with an existing emergency response or evacuation plan, thereby increasing risk of injury or death.

Impacts of Past, Present, and Reasonably Foreseeable Future Projects

Cumulative projects, including but not limited to the Wilmington Waterfront Development Project (#5), Pier 500 (#9), South Wilmington Grade Separation (#32), and Navy Way/Seaside Avenue Interchange (#44), that would have an impact on emergency response or evacuation plans would be subject to approval by the LAHD and City of Los Angeles. Therefore, it is anticipated that none of these projects would be approved if there was a potential to impact applicable emergency response or evacuation plans. Consequently, the related projects would not result in significant cumulative impacts related to emergency response or evacuation plans.

Contribution of the Proposed Program (Prior to Mitigation)

The proposed appealable/fill projects and land use changes under the proposed Program would be within the PMPU area away from residential and other populated areas and would not be expected to interfere with emergency responses or evacuation plans. Future construction and demolition activities would be subject to emergency response and evacuation requirements implemented by LAFD. In addition, the construction contractors would coordinate with the agencies responsible for emergency response and evacuation planning: the LAPD, LAFD, Port Police, and USCG. As such, emergency access to proposed appealable/fill project sites would not be adversely impacted during future construction/demolition activities.

Operation of the proposed appealable/fill projects and land use changes would also be subject to emergency response and evacuation systems implemented by the LAFD. LAFD would review all plans to ensure that adequate access in the vicinity of the proposed appealable/fill project sites is maintained. Operations associated with the proposed appealable/fill projects would not interfere with any existing contingency plans, because the terminal improvements and related terminal operations would be confined to the proposed appealable/fill project site. Therefore, the proposed Program would not make a cumulatively considerable contribution to a significant cumulative impact related to emergency response and evacuation plans.

Mitigation Measures and Cumulative Residual Impacts

The proposed Program would not make a cumulatively considerable contribution to a significant cumulative impact. Therefore, no mitigation is required.

4.2.8 Land Use

4.2.8.1 Scope of Analysis

Because the proposed Program has the capacity to affect the environment within the Port and surrounding communities, the region of analysis for cumulative impacts includes the Port and extends to adjacent areas, including the communities of San Pedro and Wilmington. The Wilmington and San Pedro communities are assessed in terms of their compatibility with the existing Port industrial uses.

4.2.8.2 Cumulative Impact Analysis

Cumulative Impact LU-1: The proposed Program would be consistent with the General Plan or adopted environmental goals or policies contained in other applicable plans – Less than Cumulatively Considerable

Cumulative Impact LU-1 addresses the potential for the proposed Program when combined with past, present, and reasonably foreseeable future projects to result in development that would be inconsistent with environmental objectives and policies delineated in land use plans that govern the PMPU area.

Impacts of Past, Present, and Reasonably Foreseeable Future Projects

Past and present actions within the PMPU vicinity have been subject to the objectives and policies delineated in the *Port of Los Angeles Plan*. Over the years, LAHD has developed, consistent with the *Port of Los Angeles Plan*, objectives that give priority to water-dependent developments to ensure the Port is maintained as an important local, regional, and national resource, as well coordinating development of the Port and adjacent communities as stipulated in the *Wilmington-Harbor City Community Plan* and *San Pedro Community Plan*. Similarly, projects within the proposed Program vicinity have been developed to ensure proposed developments are

consistent with Port of Los Angeles Plan, PMP, and/or applicable land use plan policies.

Construction and operations associated with past, present, and reasonably foreseeable future projects, including Berths 136-147 Marine Terminal (TraPac) (#13), San Pedro Waterfront Project (#14), Channel Deepening Project (#15), Berths 226-236 (Evergreen) Container Terminal Improvements Project (#17), Ultramar Lease Renewal Project (#22), Berths 97-109 China Shipping Development Project (#25), Wilmington Waterfront Master Plan (Avalon Boulevard Corridor Project) (#33), Berths 212-224 (YTI) Container Terminal Improvements Project (#35), and Berths 121-131 (Yang Ming) Container Terminal Improvements Project (#36), have been, or will continue to be, modified during the project review process to ensure consistency with the *Port of Los Angeles Plan*, the PMP, and applicable land use plans and policies. Similarly, the other projects under the PMPU (e.g., Outer Harbor Cruise Terminal and Park (#1), Ports O'Call Redevelopment (#3), ARSSS Open Space (#6), and East Basin Marina Improvements (#8)) would be consistent with the adopted environmental goals or policies contained in the General Plan and other applicable plans. Therefore, past, present, and reasonably foreseeable future projects have not resulted in a cumulatively significant impacts related to plan inconsistencies.

Contribution of the Proposed Program (Prior to Mitigation)

As stated in Section 3.8.4.3 (Impacts and Mitigation, Impact LU-1), the proposed appealable/fill projects and land use changes would be consistent with the adopted objectives and policies identified in the General Plan and adopted environmental goals or policies contained in other applicable plans. Therefore, when considered with past, present and reasonably foreseeable future projects, the proposed Program would not result in cumulatively considerable impacts related to plan inconsistencies.

Mitigation Measures and Cumulative Residual Impacts

The proposed Program would not make a cumulatively considerable contribution to a significant cumulative impact. Therefore, no mitigation is required.

4.2.9 Noise

4.2.9.1 Scope of Analysis

The geographic scope for cumulative noise impact includes those sensitive receptors closest to the proposed appealable/fill 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 appealable/fill projects and land use changes, along with the related projects within the geographic scope, to cause substantial increases in noise as a result of future construction and operations (e.g., onsite operations, truck traffic on local streets, and rail activity). When considering the cumulative impacts resulting from the interaction of noise due to the proposed appealable/fill projects in combination with noise that originates from other projects that would be occurring in the vicinity of the proposed appealable/fill 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.

The significance criteria used for the cumulative analysis are the same as those used for the proposed Program in Section 3.9, Noise.

4.2.9.2 Cumulative Impact Analysis

Cumulative Impact NOI-1: Daytime construction activities lasting more than 10 days in a 3-month period would produce noise levels that exceed existing ambient exterior noise levels by 5 dB(A) or more at a noise-sensitive use – Cumulatively Considerable and Unavoidable

Cumulative Impact NOI-1 addresses the potential for the proposed Program when combined with past, present, and reasonably foreseeable future projects to cause a substantial increase in ambient noise levels at sensitive receptors within the cumulative geographic scope.

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. Of these projects, those within 1 mile could result in construction noise that exceeds significance thresholds depending on the timing of construction activities. Community noise levels are measured in decibels. For a project to make a cumulatively considerable contribution to the cumulative effect, noise from construction activities associated with a project must increase the cumulative noise level by at least 5 dB(A) L_{eq}.

Impacts of Past, Present, and Reasonably Foreseeable Future Projects

Virtually all construction projects generate noise in the immediate vicinity of the construction activity. 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 5 dB(A). Construction noise resulting from reasonably foreseeable future projects (e.g., Outer Harbor Cruise Terminal and Park (#1), City Dock No. 1 Marine Research Project ($2), Ports O'Call Redevelopment (#3), Wilmington Waterfront Development Project (#5), Berths 176-181 Break Bulk Terminal Redevelopment (#7), East Basin Marina Improvements (#8), and Pier 500 [200-acre fill] (#9)), would generate localized noise levels in the PMPU area. 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 would be cumulatively significant.

Contribution of the Proposed Program (Prior to Mitigation)

The proposed appealable/fill projects under the PMPU would be constructed within the Port boundaries. This would to some extent insulate them from surrounding sensitive noise receptors by greater distance than some cumulative projects are from areas of sensitivity. Nevertheless, as described in Section 3.9, Noise, certain construction activities for the proposed appealable/fill projects, including pile driving, would potentially exceed the 5 dB(A) threshold at distances up to 1,650 feet from the source. Under these conditions, liveaboards in portions of the Port (e.g., East Basin marinas) could be exposed to short term increases in noise levels that exceeded thresholds. General construction not mentioned herein could occur within 400 feet of sensitive receptors and would potentially result in sensitive receptors being exposed to noise at Leq levels greater than 5 dB(A) above ambient. Therefore, construction activities associated with the proposed appealable/fill projects would make a cumulatively significant contribution to cumulative construction noise impacts.

Mitigation Measures and Cumulative Residual Impacts

Implementation of **MM NOI-1 through MM NOI-11** would minimize construction noise impacts. However, impacts would remain significant; therefore, the contribution of the proposed Program to existing ambient exterior noise levels would be cumulatively considerable.

Impact NOI-2: Construction activities would not produce noise levels that exceed the ambient noise level by 5 dB(A) at a noise-sensitive use between the hours of 9:00 P.M. and 7:00 A.M., Monday through Friday, before 8:00 A.M. or after 6:00 P.M. on Saturday, or at any time on Sunday – Less than Cumulatively Considerable

Cumulative Impact NOI-2 addresses the potential for the proposed Program along with other cumulative projects to cause a substantial increase in construction noise at night or on Sundays.

Impacts of Past, Present, and Reasonably Foreseeable Future Projects

Construction activities associated with past, present, and reasonably foreseeable future projects (e.g., Ports O'Call Redevelopment (#3), Pier 500 (#9), Al Larson Boat Shop Improvement Project (#16), and San Pedro Waterfront Enhancements Project (#29)) are subject to City of Los Angeles limitations on construction noise between the hours of 9:00 P.M. and 7:00 A.M. on weekdays or before 8:00 A.M. or after 6:00 P.M. on Saturday or any time on Sunday. Therefore, cumulative noise from construction as it relates to Cumulative Impact NOI-2 would less than significant.

Contribution of the Proposed Program (Prior to Mitigation)

Construction activities associated with the proposed appealable/fill projects under the PMPU would also be subject to City of Los Angeles limitations on construction noise between the hours of 9:00 P.M. and 7:00 A.M. on weekdays or before 8:00 A.M. or after 6:00 P.M. on Saturday or any time on Sunday. Therefore, these projects associated with the proposed Program would not make a cumulatively considerable contribution to cumulative after hours noise impacts.

Mitigation Measures and Cumulative Residual Impacts

The proposed Program would not make a cumulatively considerable contribution to a significant cumulative impact. Therefore, no mitigation is required.

Cumulative Impact NOI-3: Construction or operation would not expose persons to or generate excessive groundborne vibration or groundborne noise levels – Less than Cumulatively Considerable

Cumulative Impact NOI-3 addresses the potential for the proposed Program along with other cumulative projects to cause a substantial increase in groundborne noise vibration levels at sensitive receptors within the immediate area surrounding project construction sites.

Impacts of Past, Present, and Reasonably Foreseeable Future Projects

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, so impacts would not be cumulatively significant.

Contribution of the Proposed Program (Prior to Mitigation)

Because construction activities associated with the related projects listed in Table 4.1-1 would not occur close enough together and at the same time, vibration from the proposed appealable/fill projects under the PMPU would not be cumulatively considerable. Ground vibration from truck or rail traffic associated with operations of the proposed appealable/fill projects and land use changes would not exceed FTA ground-borne vibration criteria at sensitive receptor locations, and impacts would not be cumulatively considerable.

Mitigation Measures and Cumulative Residual Impacts

The proposed Program would not make a cumulatively considerable contribution to a significant cumulative impact. Therefore, no mitigation is required.

Impact NOI-4: The ambient noise level measured at the property line of affected uses would not increase by 3 dB(A) in CNEL to or

within the "normally unacceptable" or "clearly unacceptable" category, or any 5 dB(A) or greater noise increase, as defined by City thresholds – Less than Cumulatively Considerable

Cumulative Impact NOI-4 addresses the potential for the proposed Program operations along with other cumulative projects to cause substantial permanent increase in ambient noise levels at sensitive receptors within the geographic scope of the proposed Program.

Impacts of Past, Present, and Reasonably Foreseeable Future Projects

Onsite operations at the Port and roadway traffic along transportation corridors in the PMPU region, including local streets in the San Pedro and Wilmington communities, are the predominant sources of community noise. Almost all of the projects listed in Table 4.1-1 (e.g., Outer Harbor Cruise Terminal and Park (#1), Berths 136-147 Marine Terminal (TraPac) (#13), and Berths 121-131 (Yang Ming) Container Terminal Improvements Project (#36)), with the exception of, for example, some of the Port-wide operational plans and programs, would contribute to existing noise sources (e.g., traffic and terminal operations). Therefore, past, present, and reasonably foreseeable future projects would contribute to cumulatively significant impacts related to operational noise at the Port.

Contribution of the Proposed Program (Prior to Mitigation)

The proposed appealable/fill projects under the PMPU would be operated within the Port boundaries. These projects would not be located in proximity to sensitive receptors that might experience a 3 dB(A) increase CNEL. Therefore, because the proposed appealable/fill projects and land use changes would not cause an increase of 3 dB(A) in CNEL to, or within, the "normally unacceptable" or "clearly unacceptable" category, or increase in any way noise levels by 5 dB(A) or more, they would not represent a considerable contribution to noise impacts that would be cumulatively considerable.

Mitigation Measures and Cumulative Residual Impacts

The proposed Program would not make a cumulatively considerable contribution to a significant cumulative impact. Therefore, no mitigation is required.

4.2.10 Public Services

4.2.10.1 Scope of Analysis

Cumulative impacts on public services can result from the combined demand of the proposed appealable/fill projects and land use changes under the proposed Program along with past, present, and future related projects on any of the public services for which the proposed Program may have impacts (i.e., police and fire protection). The geographic scope depends on the service area of each public service and the jurisdiction within which increased demand could reduce their availability. Since proposed appealable/fill projects and land use changes under the proposed Program have the

capacity to affect the environment within the Port and surrounding communities, the region of analysis for cumulative impacts includes the Port and extends to adjacent areas, including the communities of Wilmington and San Pedro. For the Port Police, this area is localized to the Port and Port of Long Beach and neighboring harbor area communities, such as Wilmington and San Pedro. The service area of the LAPD and LAFD encompasses the City of Los Angeles; however, the police and fire stations identified as serving the proposed appealable/fill projects serve only the Port area.

4.2.10.2 Cumulative Impact Analysis

Cumulative Impact PS-1: The proposed Program would not burden existing USCG, LAPD, or Port Police staff levels and facilities such that the USCG, LAPD, or Port Police would not be able to maintain an adequate level of service without constructing additional facilities that could cause significant environmental effects – Less than Cumulatively Considerable with Mitigation

Cumulative Impact PS-1 addresses the potential for the proposed Program along with other cumulative projects to increase the demand for additional law enforcement officers and/or facilities such that the USCG, LAPD, or Port Police would not be able to maintain an adequate level of service without additional facilities.

Impacts of Past, Present, and Reasonably Foreseeable Future Projects

The LAPD is not the primary police service provider in the Port area; instead they primarily provide support to the Port Police under special circumstances. Therefore, cumulative Port development would directly affect only the Port Police. Construction and operation of past projects has created an existing demand for police protection that is adequately accommodated by the Port Police with support from LAPD. Port Police do not base staff levels on the amount of proposed commercial development or on the anticipated population growth of a given area because of the unique nature of their mission in a primarily industrial port complex. Their staff numbers are based on current HSA data and levels of security at other ports of similar size and activity (Grant 2011, personal communication).

Many of the present and reasonably foreseeable future projects listed in Table 4.1-1 involve relocation, and in some cases expansion of facilities, which could result in increased demand for public services. Several of the projects would increase the demand for local police by increasing the amount of Port land uses for operations. For example, the City Dock No. 1 Marine Research (#2), Pier 500 (#9), Berths 136-147 Marine Terminal (TraPac) (#13), Berths 226-236 (Evergreen) Container Terminal Improvements Project (#17), Berths 171-181, Pasha Marine Terminal Improvements (#26), Berths 121-131 (Yang Ming) Container Terminal Improvements Project (#36), and Middle Harbor Terminal Redevelopment (#72) would generate increased on-land terminal operations. Pursuant to the WATCH, these projects would be required to coordinate with the law enforcement agencies during construction of all roadway improvements to establish emergency vehicular access, ensuring continuous law enforcement access to surrounding areas. Additionally, these projects would be required to implement MTSA-mandated

security features, including terminal security personnel, gated entrances, perimeter fencing, terminal and backlands lighting, and camera systems, that would reduce the demand for law enforcement personnel. As discussed above, the Port Police would continue to increase staffing and facility upgrades in conjunction with HSA data and commensurate with levels of security at other ports of similar size and activity.

USCG determines response times based on the distance required to travel to the various Port facilities. Development due to the proposed appealable/fill projects and land use changes and other reasonably foreseeable projects would not affect USCG response times because projects would be located within the same operating distance of other facilities within the jurisdiction of the Port and Port of Long Beach. Therefore, response times would not increase.

Law enforcement services have developed over time in conjunction with surrounding development needs. Therefore, past, present, and reasonably foreseeable future projects would not result in significant cumulative impacts related to the demand for law enforcement. As such, impacts of past, present, and reasonably foreseeable future projects related to service levels of USCG, LAPD, or Port Police would not be cumulatively significant.

Contribution of the Proposed Program (Prior to Mitigation)

Because the Port Police would provide primary law enforcement services during construction of the proposed appealable/fill projects (i.e., Tri Marine Expansion, 338 Cannery Street Adaptive Reuse, and Al Larson Marina) there would be minimal demands on LAPD services. All construction sites would be fenced and access would be limited to authorized personnel. However, during construction additional demands on Port Police personnel for traffic control services would be required if roadway operations are impacted by installation or upgrades to utility infrastructure within the public right-of-way. Therefore, the contribution of the proposed appealable/fill project construction to the demand for law enforcement services would be potentially cumulatively considerable when combined with past, present, and reasonably foreseeable future projects.

Operation of the proposed appealable/fill projects noted above and other land use changes would increase operational activities within the PMPU area. Several of the proposed appealable/fill projects and land use changes would result in additional visitors to the PMPU area. The Port Police would provide primary law enforcement services to the PMPU area and the LAPD would provide support to the Port Police under special circumstances. As such, LAPD response times would not be affected by operations of the proposed appealable/fill projects noted above and other land use changes. In addition to working with the LAPD, the Port Police also coordinate with the Long Beach Police Department and the Los Angeles County Sheriff for landside assistance and with the USCG for commercial vessel operations (Grant 2011, personal communication). Therefore, the proposed appealable/fill projects and land use changes under the proposed Program would not burden the Port Police such that they would not be able to maintain their current level of service to the PMPU area. Furthermore, the Port Police continue to assess the needs of the Port, including the PMPU area, and would make adjustment to their operations as needed. Accordingly, the contribution of the proposed appealable/fill project operations to the demand for additional law enforcement officers (Port Police, LAPD) and/or facilities would not result in

cumulatively considerable impacts when combined with past, present, and reasonably foreseeable future projects.

Construction and operation of the proposed appealable/fill projects (e.g., Berths 187-189 Liquid Bulk Relocation, Yang Ming Terminal Redevelopment, China Shipping Fill, Berth 300 Development, Tri Marine Expansion, 338 Cannery Street Adaptive Reuse, and Al Larson Marina) and land use changes would not affect USCG response times because these areas would be within the current USCG coverage area and would not affect the distance or routes between USCG facilities and the project sites. Furthermore, some of the proposed appealable/fill projects would construct new vessel berthing facilities that would provide USCG the ability to dock at these sites if such an action were required. Therefore, the contribution of the proposed appealable/fill projects to the demand for additional USCG officers and/or facilities during construction and operations would not result in cumulatively considerable impacts when combined with past, present, and reasonably foreseeable future projects.

Mitigation Measures and Cumulative Residual Impacts

MM PS-1, which would require preparation of a manual in compliance with the WATCH, would be implemented during construction of the proposed appealable/fill projects. Implementation of **MM PS-1** would ensure that the contribution of the proposed appealable/fill projects and land use changes would be less than cumulatively considerable to impacts on the demand for additional law enforcement officers and/or facilities.

Cumulative Impact PS-2: The proposed Program would not require the addition of a new fire station or the expansion, consolidation, or relocation of an existing facility to maintain service – Less than Cumulatively Considerable with Mitigation

Cumulative Impact PS-2 addresses the potential for the proposed Program along with other cumulative projects to require the addition of a new fire station or the expansion, consolidation, or relocation of an existing facility to maintain service.

Impacts of Past, Present, and Reasonably Foreseeable Future Projects

The existing demand for fire protection created by construction and operation of the past projects has been accommodated by the LAFD because current emergency responses times to the Port area are considered adequate. Many of the present and reasonably foreseeable future projects, including but not limited to Berths 176-181 Break Bulk Terminal Redevelopment (#7), Relocation of SA Recycling (#11), SSA Marine Outer Harbor Fruit Facility Relocation (#20), and Berths 97-109 China Shipping Development Project (#25), involve relocation and in some cases expansion of existing facilities within the Port and vicinity. Therefore, an increased demand on fire protection could result from their development. Several of the projects would increase the demand for local fire protection by increasing the amount of Port land used for operations. However, all projects are designed and constructed to meet all applicable state and local codes and ordinances to ensure adequate fire protection and would be subject to LAFD review and approval. These codes and ordinances would

include measures such as requiring fire protection infrastructure (i.e., fire hydrants and sprinklers) and ensuring that the LAFD is given the opportunity to review and approve changes in site access. Additionally, present and future cumulative projects would be required to coordinate with law enforcement agencies during construction of all roadway improvements to establish emergency vehicular access, ensuring continuous law enforcement access to surrounding areas. Furthermore, fire stations in the area are generally distributed to facilitate quick emergency response throughout the PMPU area. Consequently, past, present, and reasonably foreseeable future projects would not result in significant cumulative impacts on fire protection services.

Contribution of the Proposed Program (Prior to Mitigation)

Construction of proposed appealable/fill projects under the PMPU would have the potential to temporarily interrupt fire flow water supplies during installation of utility infrastructure. Temporary interruptions and/or delays to fire protection services would occur if roadway operations are impacted during installation or upgrades to utility infrastructure within the public right-of-way. Therefore, impacts to fire protection services during construction would be potentially cumulatively considerable when combined with past, present, and reasonably foreseeable future projects.

Construction activities associated with the proposed appealable/fill projects noted above would comply with all applicable state and local codes and ordinances to ensure adequate fire protection. In addition, the LAHD would notify the LAFD in advance of construction activities that would affect fire suppression infrastructure. The LAFD would be afforded the opportunity to review and comment on appealable/fill project features affecting fire suppression infrastructure. In addition, construction and demolition activities would be subject to emergency response systems implemented by LAFD and WATCH requirements (**MM PS-1**).

Operation of the proposed appealable/fill projects and other land use changes under the proposed Program would increase operational activities within the PMPU area. However, some proposed land use changes (e.g., replacing existing liquid bulk areas with container uses) would not likely increase demands on fire protection services because the potential for emergency situations would be reduced compared to existing conditions. Some proposed land uses would result in additional visitors to the PMPU area. However, it is not expected that activities associated with this area would require a substantial increase in fire protection services compared to existing conditions.

All proposed appealable/fill projects would be designed and constructed to meet applicable state and local codes and ordinances to ensure adequate fire protection and would be subject to LAFD review and approval. These codes and ordinances address requirements for fire protection infrastructure (e.g., fire hydrants and sprinklers). Furthermore, fire stations in the PMPU area are generally located to facilitate quick emergency response throughout the Port. Therefore, operation of the proposed Program would not make a cumulatively considerable contribution to a significant cumulative impact on fire protection services.

Mitigation Measures and Cumulative Residual Impacts

The proposed Program would not make a cumulatively considerable contribution to a significant cumulative impact. Therefore, no mitigation is required.

4.2.11 Recreation

4.2.11.1 Scope of Analysis

Cumulative impacts on recreational areas could result from the combined demand of the proposed appealable/fill projects under the proposed Program along with past, present, and future related projects on any of the parks and recreational areas within the PMPU area and vicinity. The geographic scope depends on the service area of the individual recreational facilities and the extent over which increased demands for services from the proposed Program could affect those services. The region of analysis for the cumulative recreational impacts includes recreational opportunities located within the Port and neighboring communities of Wilmington and San Pedro.

4.2.11.2 Cumulative Impact Analysis

Cumulative Impact REC-1: The proposed Program would not 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 – Less than Cumulatively Considerable

Cumulative Impact REC-1 addresses the potential for the proposed Program when combined with past, present, and reasonably foreseeable future projects to increase the demand for recreational facilities that would result in the physical deterioration of existing resources.

Impacts of Past, Present, and Reasonably Foreseeable Future Projects

Construction and operation of past projects have resulted in demands for recreational resources that are accommodated by the various recreational, educational, and visitor-oriented facilities in the Port area. Related present and reasonably foreseeable future projects in the PMPU area are predominately berth and terminal expansion or traffic circulation improvements undertaken by the Port and Port of Long Beach. These projects include Berths 136-147 Marine Terminal (TraPac) (#13), Berths 226-236 (Evergreen) Container Terminal Improvements Project (#17), Berths 97-109 China Shipping Development Project (#25), Berths 171-181, Pasha Marine Terminal Improvements Project (#26), Berths 212-224 (YTI) Container Terminal Improvements Project (#35), and Berths 121-131 (Yang Ming) Container Terminal Improvements Project(#36). These actions represent expansion or intensification of existing industrial or transportation uses and would not induce population growth that could result in cumulatively considerable demands for recreation.

Projects listed in Table 4.1-1 would provide new open space and recreation resources for the public, including the Wilmington Waterfront Development Project (#5), ARSSS Open Space (#6), San Pedro Waterfront (#14), Wilmington Youth Sailing and Aquatic Center (#27), San Pedro Waterfront Enhancements Project (#29), and Admiral Kidd Park Expansion Site (#105).

The majority of the related projects would either not result in substantial demand for recreational services in the Port or would amend existing recreational resources. As a consequence, past, present, and reasonably foreseeable future projects would not result in a significant cumulative impact to recreational resources.

Contribution of the Proposed Program (Prior to Mitigation)

Construction of most proposed appealable/fill projects and associated land use changes would not increase use of or demand for neighborhood parks. This is because these projects are not expected to result in substantial in-migration or relocation of construction employees to satisfy the need for increased temporary, construction-related employment. Since construction of the proposed appealable/fill projects would not increase use of existing recreational facilities, these projects would not indirectly accelerate the physical deterioration of facilities. However, the Al Larson Marina Project could restrict water-related recreational opportunities (e.g., recreational boating) in this portion of Fish Harbor during construction. This temporary restriction would not place greater demand or accelerate deterioration of other marina facilities in the Port. Therefore, construction of the proposed Program would not make a cumulatively considerable contribution to a significant cumulative impact on recreational resources.

Operations of most proposed appealable/fill projects and land use changes under the proposed Program would not generate substantial new demand for recreational or park services that in turn would result in a substantial physical deterioration or need for expansion of existing park or recreational facilities. In addition, land use changes associated with the Berth 187-189 Liquid Bulk Relocation Project (i.e., replacing an existing liquid area with open space uses) would result in additional open space that would reduce future pressures on existing recreational resources within Planning Area 2.

The closure of the AL Larson Marina, as called for in the PMPU, could remove up to 125 boat slips at Berths 257-258 to allow for the expansion of the boatyard located directly north of the marina. This would result in a reduction in the number of slips available to recreational boaters. A marina facilities analysis would be completed to determine the demand for additional boat slips and whether new slips would need to be constructed prior to construction of a new boatyard or expansion of the adjacent boatyard. Boat owners displaced by this project would need to use other facilities within or outside of the Port. This would not necessarily result in increased use or promote deterioration of marina facilities in other areas of the Port because marina use typically is limited by the number of available slips rather than the number of boaters interested in accessing the marina. Overall, the proposed land use changes would result in a net increase of 23 acres of recreational boating area (Table 2.5-6). Therefore, operation of the proposed Program would not make a cumulatively considerable contribution to a significant cumulative impact on recreational resources.

Mitigation Measures and Cumulative Residual Impacts

The proposed Program would not make a cumulatively considerable contribution to a significant cumulative impact. Therefore, no mitigation is required.

Cumulative Impact REC-2: The proposed Program would not include recreational facilities or require the construction or expansion of recreational facilities that could have an adverse physical effect on the environment – Less than Cumulatively Considerable

Cumulative Impact REC-2 addresses the potential for the proposed appealable/fill projects and land use changes under the proposed Program when combined with past, present, and reasonably foreseeable future projects to require the construction or expansion of recreational faculties that could have an adverse physical effect on the environment.

Impacts of Past, Present, and Reasonably Foreseeable Future Projects

Projects listed in Table 4.1-1, including the Wilmington Waterfront Development Project (#5), ARSSS Open Space (#6), San Pedro Waterfront Project (#14), Wilmington Youth Sailing and Aquatic Center (#27), San Pedro Waterfront Enhancements Project (#29), and Admiral Kidd Park Expansion Site (#105), would provide new open space and recreation resources for the public. Construction and operation of these facilities could have a substantial impact on the environment.

Contribution of the Proposed Program (Prior to Mitigation)

Construction and operation of the proposed appealable/fill projects and associated land use changes would not include or require building new recreational facilities or modifying existing facilities. One of the proposed land use changes (i.e., replacing the existing liquid bulk terminal at Berth 187-189 with open space uses [Planning Area 2]) would convert existing uses to open space. Details of these land use conversions are currently not available. However, minor construction activities associated with these changes would not result in adverse physical effects on the environment. Therefore, construction and operation of the proposed Program would not make a cumulatively considerable contribution to a significant cumulative impact on recreational resources.

Mitigation Measures and Cumulative Residual Impacts

The proposed Program would not make a cumulatively considerable contribution to a significant cumulative impact. Therefore, no mitigation is required.

4.2.12 Transportation and Circulation

4.2.12.1.1 Ground Transportation

Scope of Analysis

This section addresses the cumulative transportation/circulation impact analysis for the proposed Program. The analysis includes streets and intersections that would be used by truck and automobile traffic to gain access to and from the proposed appealable/fill project sites and key freeway segments. Thresholds of significance used in the cumulative analysis are the same as those used for the proposed Program analysis in Section 3.12, Transportation and Circulation.

Methodology

Cumulative impacts are assessed by quantifying differences between future baseline conditions and future conditions with the proposed Program to determine the Program's contribution to the cumulative impact. This comparison differs from the analysis in Section 3.12, Transportation and Circulation, in that it considers the proposed Program in the context of the regional conditions that will pertain in the future, given normal growth and the traffic generated by the related projects in Table 4.1-1. Traffic conditions for the year 2035 were estimated by adding traffic that would be associated with regional traffic growth and traffic increases resulting from increases in Port throughput to CEQA baseline conditions in the Port area. Local traffic growth was forecast based on a computerized traffic analysis tool known as the Port Area Travel Demand Model, which includes regional traffic growth as well as growth for the port and the local area, and supplements the growth factors described below.

Background traffic growth occurs as a result of regional growth in employment, population, schools, and other activities. Most of the past, present, and reasonably foreseeable future projects are covered by the growth forecasts of the Port Travel Demand Model. Other local projects are not included in the SCAG Regional Model and were thus separately accounted for in the Port Travel Demand Model (e.g., the San Pedro Waterfront Project (#14)). All Port and Port of Long Beach projected container and non-container terminal traffic growth are included in the Port Travel Demand Model.

The background future intersection traffic volumes (which account for cumulative non-project growth) were developed based on SCAG socioeconomic projections for the year 2035, with amendments as reflected in the Port Area Travel Demand Model.

The background future freeway traffic volumes along I-110, I-405, and SR-91 were obtained from the Port Area Travel Demand Model. Future freeway traffic volumes along I-710 were obtained from the I-710 (Long Beach Freeway) Major Corridor Improvement Project Draft EIS/EIR (Caltrans and LACMTA 2012) travel demand modeling results. In order to use the best available information for this analysis and ensure consistency with contemporaneous studies, the 2035 Future traffic volumes along I-710 were taken directly from the No Project scenario of the I-710 EIS/EIR.

Port of Los Angeles and Port of Long Beach Trip Generation

Future trip generation by the Port and Port of Long Beach for the year 2035 was estimated by adding traffic resulting from the terminal expansion and associated throughput growth under the current *Port of Los Angeles Plan*. The *2009 San Pedro Bay Cargo Forecast* (Tioga 2009) was used to determine the total Port throughput for each future analysis year. Port-related trip generation was developed using the Port's "QuickTrip" truck generation model. Port-related trip generation is separated into four classes of vehicles:

- Bobtails: tractor-only;
- Chassis: tractor plus chassis;
- Container: tractor and chassis with loaded or empty container; and,
- Auto: employee automobile and other auto visitor trips.

Each of the analysis years was defined by changing operating parameters as follows: modified weekend activity; expanded terminal operating hours; increased on-dock rail use; and, increased dual transactions within the terminal. These operating parameters affect the amount of truck traffic generated by the terminals to their estimated maximum capacity. Cargo volume (throughput) would increase over the years, and terminals would also change their operations to accommodate the increase in containers. Accordingly, these operational changes are already being put into place. It should be noted that increased throughput does not directly translate into increased truck trips proportionately due to the different terminal operating parameters over the years. For example, truck trips could actually decrease at certain terminals in the future due to the implementation and expansion of on-dock rail, even with greater throughput. This is because the increase in on-dock capacity is even greater than the increase in throughput, thus resulting in fewer truck trips but more containers processed through the terminal. A rail yard capacity analysis was conducted for expanded terminals to ensure that the proposed Program could accommodate the projected on-dock container volumes.

The following section summarizes some of the key operating parameters used in the trip generation estimate. These operating parameters were derived from and consistent with the parameters developed and applied in the *Ports of Long Beach/Los Angeles Transportation Study* (Port of Long Beach and Port 2001).

- **Work shifts**. To achieve the forecast TEU throughput volumes, the Port's terminals must handle more cargo during the non-peak hours than they do currently. The QuickTrip model can generate trips for one, two, or three shifts. For the proposed Program, it is assumed that 60 percent of throughput would be handled during the Day Shift (8 A.M. to 5 P.M.) and 20 percent of throughput would be handled in each of the 2nd (5 P.M. to 3 A.M.) and Night Shifts (3 A.M. to 8 A.M.).
- **Non-Cargo Trip Generation**. Non-cargo trips (employee, visitor, delivery/vendor trips) were determined based on trip generation data from the Port. Worker trips for all other container terminals were computed using the *Port and Port of Long Beach Transportation Study* methodology, which estimates trips based on TEU throughput using trip generation rates.

- **TEU Throughput Growth**. Port TEU throughput is from the *2009 San Pedro Bay Cargo Forecast* of overall port-wide growth based on estimates of terminal capacity and demand, as shown below (Tioga 2009).
- **On-Dock Rail Usage**. On-dock rail refers to a rail terminal that is located within or adjacent to the terminal that is used to build trains that take containers to and from the terminal via rail. Those containers thus do not travel by truck; they enter or leave the terminal on rail cars. As the percentage of containers moved via on-dock rail is increased, the percentage of containers moved by truck decreases. Building and operating on-dock rail facilities is a key method to reduce truck trips to and from the container terminal. It is expected that the use of on-dock rail will increase throughout the Port over time for many reasons, including the construction of expanded on-dock rail facilities as needed, improvements and enhancements to new and existing on-dock rail facilities, improvements in rail operation technologies, increased demand for rail movements as opposed to truck movements, improved container management procedures, and other factors. The amount of throughput that can be handled by on-dock rail versus by truck is based on the capacity of the on-dock rail facility, including the overall size of the on-dock rail yard, the number of linear feet of rail track in the facility, the number and type of equipment servicing the rail yard, the physical layout of the rail yard and how it interacts with the rest of the terminal and other design and operational factors. Those factors determine the number of trains that can be built within given time periods, the size of the trains, and the overall level of terminal throughput that can be carried in and out of the terminal on rail cars.
- **Weekend Terminal Operations**. Based on detailed terminal capacity analyses that evaluates terminal and gate congestion, historical weekend gate move data, and to be reasonably conservative, weekend throughput is assumed to be 15 percent of the total weekly throughput.

QuickTrip

Program-related trip generation includes trips generated by the proposed Program. Traffic growth was developed using the "QuickTrip" truck generation model. QuickTrip is a spreadsheet truck trip generation model that was developed for the *Ports of Long Beach/Los Angeles Transportation Study* (Port of Long Beach and Port 2001). QuickTrip estimates terminal truck flows by hour of the day based on TEU throughput and using assumed terminal operating parameters. The QuickTrip model was run and tested against the gate data (gate counts and historical gate data from 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. QuickTrip was validated by comparing estimates of gate activity to actual gate counts conducted in the field. The results of the validation exercise indicate that the QuickTrip model is able to estimate truck movements by day and peak hour within 2 to 10 percent of actual counts for all terminals combined (both directions combined), depending on which peak hour is modeled.

Peak hour Port-related truck trips do not increase proportionately with TEU growth. This is because in future years, on-dock rail usage would increase and work shift splits would change as described above. Both of these actions would shift more activity to the second shift and away from the day shift. Therefore, although total

trips increase between the baseline and Port build-out, some of the increase occurs during off-peak time periods due to the operating parameters described above.

The distribution of drayage trips related to off-dock intermodal cargo is based on the projected demand of each port terminal. The off-dock intermodal cargo is split 50/50 between BNSF and UP facilities, with the majority of intermodal cargo utilizing the near dock facilities: BNSF's proposed SCIG and UP's ICTF. Five percent of each railroad's share of intermodal cargo is projected to utilize the railroad's facilities near downtown Los Angeles: BNSF's Hobart Yard and UP's East Los Angeles Yard.

Program-related trip generation was developed using existing intermodal facility traffic counts, tenant-supplied information and the ports' "QuickTrip" truck generation model. Traffic generated by the proposed Program was forecasted to determine potential impacts on study area roadways.

The net differences in TEUs between the proposed Program and PMP are listed by planning area in Table 4.2-1.

Table 4.2-1. PMP and PMPU Container Terminal Net TEUs

Planning Area	*Location*	*TEUs (x 1,000)*		
		Approved PMP	*Proposed Program*	*Net TEUs*
Planning Area 2: West Basin/Wilmington	Berths 100-131 (West Basin Container Terminal-Yang Ming-China Shipping)	3,244	3,550	306
Planning Area 3: Terminal Island	Berths 302-305 (APL-Eagle Marine Services)	3,206	4,142	936
	Berths 212-225 (YTI)	2,459	3,557	1,098
Total		**8,909**	**11,249**	**2,340**

For the purposes of this analysis, it the residential distribution data of terminal employees surveyed as part of the Longshore Worker place of residence was used to distribute port-related employee auto trips in the Port Travel Demand Model.

The net differences in vehicle trips between the proposed Program and PMP are listed by planning area in Table 4.2-1. The proposed Program trip generation was determined by using the proposed Program's TEU projections, the QuickTrip outputs, and specific trip generation from non-container truck trips at Fish Harbor (Planning Area 4). The resultant proposed Program's daily trip generation is shown in Table 4.2-2, and its peak hour trip generation is shown in Table 4.2-3.

Table 4.2-2. Proposed Program Daily Trip Generation

		Autos		*Noncontainer Trucks*		*Bobtails*		*Chassis*		*Containers*		*Total Vehicles*
Planning Area	*Location*	*In*	*Out*	*In*	*Out*	*In*	*Out*	*In*	*Out*	*In*	*Out*	
Planning Area 2: West Basin and Wilmington	Berths 100-131 (West Basin Container Terminal-Yang Ming-China Shipping)	170	135	-	-	135	125	70	5	295	390	1,325
Planning Area 3: Terminal Island	Berths 302-305 (APL-Eagle Marine Services)	410	335	-	-	415	385	150	25	840	1,040	3,600
Planning Area 4: Fish Harbor	Fish Harbor	-	-	25	25	-	-	-	-	-	-	50
	Total	**580**	**470**	**25**	**25**	**550**	**510**	**220**	**30**	**1,135**	**1,430**	**4,975**

Table 4.2-3. Proposed Program Peak Hour Trip Generation (in Passenger Car Equivalents)

		A.M. Peak Hour			**M.D. Peak Hour**			**P.M. Peak Hour**		
Planning Area	*Location*	*In*	*Out*	*Total*	*In*	*Out*	*Total*	*In*	*Out*	*Total*
Planning Area 2: West Basin and Wilmington	Berths 100-131 (West Basin Container Terminal-Yang Ming-China Shipping)	70	55	125	65	65	130	45	70	115
Planning Area 3: Terminal Island	Berths 302-305 (APL-Eagle Marine Services)	185	165	350	175	185	360	125	165	290
Planning Area 4: Fish Harbor	Fish Harbor	10	10	20	10	10	20	10	10	20
	Total	**265**	**230**	**495**	**250**	**260**	**510**	**180**	**245**	**425**

Program-Area Transportation Improvements

Numerous transportation projects are planned for implementation in the Port area during the period of the CEQA cumulative analysis for the proposed Program. These projects are either included in the RTP and Regional Transportation Improvement Program, or were developed as part of Port Planning and implementation efforts. Several of the transportation projects contained in the study have been reviewed by Caltrans. Caltrans is the agency that owns, operates, and controls many of these transportation facilities. Thus, implementation of any improvements at those locations must be approved by Caltrans before they can proceed. A major project development milestone is called the Project Study Report (PSR), which outlines the need for the project, describes the project components, analyzes the project, and assesses project alternatives. After approval of the PSR, the project is considered to be approved by Caltrans for purposes of proceeding to the development of geometric plans, right-of-way maps, environmental studies, and then construction.

All of the noted projects have been taken through the PSR process and the PSR documents were approved by Caltrans. Additionally, funds have been designated for these projects. The remaining steps to implementation of the projects include preparation of engineering plans, environmental documentation, funding and construction. Because these projects were approved by Caltrans through the PSR process, are planned to be environmentally cleared via the use of a Negative Declaration, and have committed funding, they are reasonably foreseeable projects and are therefore included in the transportation analysis as related projects and assumed to be in place during the proposed Program's CEQA Cumulative analysis year. This analysis for the PEIR is based on the conditions that existed when the Notice to Proceed was issued and, by contrast, does not assume that these planned transportation improvements will be in place.

The related transportation projects include:

- **Sepulveda Boulevard Widening:** This project consists of widening Sepulveda Boulevard from Alameda Street to the east Carson City limits from two lanes to four lanes. The project will widen Sepulveda Boulevard near the current entrance/exit of the ICTF site and the exit of the proposed ICTF Modernization project, which is used for ICTF access to/from Alameda Street. The project lead agency is the City of Carson.
- **Wilmington Avenue/223rd Street Interchange Improvements:** Construction will consist of: 1) an additional traffic lane on Wilmington Avenue northbound from 223rd Street to the existing I-405 northbound off-ramp; 2) construction of a new two lane I-405 on-ramp from southbound Wilmington Avenue; 3) construction of an additional lane to the existing two-lane I-405 southbound on-ramp from Wilmington Avenue; and, 4) construction of an additional lane to the existing two-lane I-405 southbound off-ramp to Wilmington Avenue. The project lead agency is the City of Carson.
- **Navy Way/Seaside Avenue Interchange (#44):** This project entails the removal of the traffic signal, and the construction of new northbound Navy Way-to-westbound Seaside Avenue trumpet-style connector ramp. The Port will monitor traffic regularly at this location to determine when this project will be implemented. Recent studies have determined that this project would not be needed until after the year 2025. The project is also contained in the SCAG 2012 RTP.
- **Gerald Desmond Bridge Replacement Project (#77):** The Port of Long Beach, in cooperation with Caltrans, will be replacing the existing Gerald Desmond Bridge, which connects SR-710 to Terminal Island, in the City of Long Beach. The Gerald Desmond Bridge Replacement Project will improve existing traffic flows across the bridge, replace the physically deteriorated existing structure, and increase the vertical clearance beneath the bridge for the shipping traffic that passes below. In terms of capacity, the bridge will be expanded to include six travel lanes plus full standard shoulders, in comparison to the existing bridge which has three lanes on the ascending portions of the bridge and two lanes on the descending portions, and has limited shoulders. The new bridge and Ocean Boulevard will be the westerly extension of SR-710 to SR-47 (Terminal Island Freeway).

The following major planned regional improvements are not included as part of the CEQA cumulative analysis, however their construction would alter the regional roadway capacity near the Port by affecting roadways utilized by both CEQA cumulative background trips and proposed Program trips.

- **I-710 (Long Beach Freeway) Corridor Project (#85):** The LAHD is collaborating with Caltrans, SCAG, Metro, Gateway Cities Council of Governments, and the Port of Long Beach on the I-710 Corridor Project. The Port is a funding and technical partner to Caltrans and Metro for the Project Approval/Environmental Documentation phase. The recently released Draft EIR/EIS identifies improvements to the entire 20-mile corridor to accommodate all year 2035 Port/Port of Long Beach and regional traffic. The corridor area includes the mainline freeway and adjacent arterial street system. The proposed improvements include: a separate truckway with zero emission technology; additional lanes on the mainline in various locations; improved/reconstructed freeway-freeway and arterial street interchanges; and, extensive arterial street/intersection improvements throughout the entire corridor area.
- **The Schuyler Heim Bridge Replacement (#84):** The Schuyler Heim Bridge Replacement is currently under construction, by Caltrans. This project is merely a replacement, and will not add additional lanes to the existing six lane bridge.
- **SR-47 Expressway (#87)**: This proposed ACTA project consists of a new, four-lane elevated roadway connecting the new Heim Bridge on the south end, with Alameda Street on the north end, just south of PCH. This new viaduct would provide a bypass of three signalized intersections and five at-grade railroad crossings between along Henry Ford Avenue and Alameda Street between Pier A Way and PCH. This planned ACTA project is presently awaiting the resolution of environmental litigation, which has caused the postponement of final design. Moreover, due to the decline in cargo volumes and corresponding revenue, this project is unfunded at this time.

Cumulative Impact TRANS-1: The proposed Program would not result in a short-term, temporary increase in truck and auto traffic-Less than Cumulatively Considerable

Cumulative Impact TRANS-1 addresses the potential for the proposed Program in combination with other cumulative projects to result in impacts on roadways and intersections from a short-term temporary increase in construction truck and automobile traffic (associated with construction worker commutes), transport and staging of construction equipment, transport of construction materials to the proposed appealable/fill project sites, and hauling excavated and demolished materials away from the proposed appealable/fill project sites.

Impacts of Past, Present, and Reasonably Foreseeable Future Projects

Past construction activities in the Port resulted in short-term, temporary impacts at selected roadway links, intersections, and ramps. Construction period traffic handling measures were implemented to mitigate these impacts. Once construction was completed, no further construction traffic impacts occurred.

Contribution of the Proposed Program (Prior to Mitigation)

The total number of construction-related trips would vary during construction of the proposed appealable/fill projects under the proposed Program. 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 be via the I-110 to SR-47 across the Vincent Thomas Bridge or via the I-710 to Ocean Boulevard across the Gerald Desmond Bridge to Navy Way via Seaside Avenue/Ocean Boulevard.

Workers would be required to arrive at the construction site prior to the A.M. peak period and depart prior to the P.M. peak period. Therefore, significant traffic impacts from construction workers' vehicles would not occur during the A.M. or P.M. peak periods.

A traffic management plan containing traffic control measures conforming to the requirements and guidance of the LADOT and other responsible agencies would be required at the time construction permits are obtained. At a minimum, the traffic management plan shall contain the following:

- Detour plans;
- Coordination with emergency services and transit providers;
- Coordination during the entire construction period with surrounding property owners, businesses, residences, and tenants through the establishment of a community construction liaison and public noticing within at least a 1-mile radius of the project site (in English, Spanish, and other languages if necessary) via brochures, mailings, community meetings, and a project website;
- Advanced notification of temporary bus stop loss and/or bus line relocation;
- Identification of temporary alternative bus routes;
- Advanced notice of temporary parking loss;
- Identification of temporary parking replacement or alternative adjacent parking within a reasonable walking distance;
- Use of designated haul routes, use of truck staging areas; and,
- Observance of hours of operations restrictions and appropriate signing for construction activities.

The traffic management plan would be implemented for all construction work directly related to PMPU construction activities. The traffic management plan would be submitted to LAHD for approval before beginning construction.

In the event that a temporary road and/or lane closure would be necessary during construction, the contractor shall provide traffic control activities and personnel, as necessary and as required by LADOT, to minimize traffic impacts. This may include detour signage, cones, construction area signage, flagmen, and other measures as required for safe traffic handling in the construction zone.

Approved emergency equipment access standards would be incorporated into the construction plans for the proposed appealable/fill project, ensuring provisions for adequate roadway width, turning radii, and staging areas. Additionally, it is expected that any proposed lane closures would be modified as the design team refines the construction plans and traffic strategies.

These projects would not contribute to cumulatively significant impacts on the physical environment when combined with past, present, and reasonably foreseeable projects.

Mitigation Measures and Cumulative Residual Impacts

The proposed Program would not make a cumulatively considerable contribution to a significant cumulative impact. Therefore, no mitigation is required.

Cumulative Impact TRANS-2: The proposed Program would not significantly impact at least one study location V/C ratios or level of service for long-term vehicular traffic - Less than Cumulatively Considerable

Cumulative Impact TRANS-2 addresses the potential for the proposed Program when combined with past, present, and reasonably foreseeable future projects to have a significant adverse impact at one study intersection.

Impacts of Past, Present, and Reasonably Foreseeable Future Projects

Cumulative impacts were analyzed using a two-step process. An initial comparison was made to compare the cumulative "With Program" LOS condition against CEQA baseline conditions to determine if a cumulative impact would occur relative to CEQA baseline conditions. A cumulative impact was deemed to occur if it exceeded the allowable threshold of significance. If a cumulative impact was determined, then a second comparison was conducted by calculating the difference in LOS for the future conditions "With Program" and the future conditions "Without Program" levels of service. If the difference in LOS was calculated to exceed the threshold guidelines, then it was determined that the project component of the analysis would comprise a cumulatively considerable contribution of the impact.

Table 4.2-4, summarizes future intersection operating conditions of the CEQA baseline and the CEQA baseline plus the proposed Program including the related projects in Table 4.1-1 (e.g., Wilmington Waterfront Development Project (#5), Pier 500 (#9), Berths 136-147 Marine Terminal (TraPac) (#13), and Berths 212-224 (YTI) Container Terminal Improvements Project (#35)) at each study intersection. A number of the study intersections will operate at LOS D or E in the future. Cumulative impacts are shown to occur at six intersections.

Table 4.2-5 compares the future "2035 Without Program" (CEQA baseline plus related projects) to the proposed Program at each study intersection in order to determine if there is a cumulatively considerable impact. No cumulatively considerable contribution to the impacts would result from the proposed Program.

Contribution of the Proposed Program (Prior to Mitigation)

Tables 4.2-4 and 4.2-5 also show future operating conditions with the proposed Program. The proposed Program conditions were compared to CEQA baseline and the future without Program conditions to determine cumulative and cumulatively considerable impacts, and then the impacts were assessed using the significant impact criteria.

Table 4.2-4. Cumulative Intersection Level of Service Analysis – Year 2035 Proposed Program

#	Study Intersection	CEQA Baseline (2011)						2035 With Program						Changes in V/C			Cumulative Impact		
		A.M. Peak		M.D. Peak		P.M. Peak		A.M. Peak		M.D. Peak		P.M. Peak		A.M. Peak	M.D. Peak	P.M. Peak	A.M. Peak	M.D. Peak	P.M. Peak
		LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C						
1	Ocean Blvd (WB) / Terminal Island Fwy[b]	A	0.335	A	0.398	A	0.375	A	0.539	A	0.587	A	0.455	0.204	0.189	0.080	N	N	N
2	Ocean Blvd (EB) / Terminal Island Fwy[b]	A	0.215	A	0.379	A	0.348	A	0.497	A	0.543	A	0.454	0.282	0.164	0.106	N	N	N
3	Ocean Blvd (WB) / Pier S Ave[b]	A	0.266	A	0.313	A	0.341	A	0.563	A	0.547	A	0.433	0.297	0.234	0.092	N	N	N
4	Ocean Blvd (EB) / Pier S Ave[b]	A	0.209	A	0.364	A	0.340	A	0.393	A	0.538	A	0.454	0.184	0.174	0.114	N	N	N
5	Seaside Ave / Navy Way	A	0.427	A	0.316	A	0.541	Not an Intersection									N	N	N
6	Ferry St (Seaside Ave) / SR-47 Ramps[a]	A	0.112	A	0.244	A	0.142	A	0.404	A	0.484	A	0.379	0.292	0.240	0.237	N	N	N
7	Pico Ave / Pier B St / 9th St / I-710 Ramps[b]	A	0.435	A	0.519	A	0.499	D	0.846	E	0.921	B	0.622	0.411	0.402	0.123	N	N	N
8	Anaheim St / Harbor Ave[b]	A	0.453	A	0.455	A	0.560	B	0.688	C	0.712	B	0.649	0.235	0.257	0.089	N	N	N
9	Anaheim St / Santa Fe Ave[b]	A	0.473	A	0.508	A	0.578	B	0.679	B	0.671	C	0.781	0.206	0.163	0.203	N	N	N
10	Anaheim St / E I St / W 9th St[b]	A	0.501	A	0.525	A	0.529	D	0.853	D	0.848	C	0.795	0.352	0.323	0.266	N	N	N
11	Anaheim St / Farragut Ave[a]	A	0.277	A	0.228	A	0.286	A	0.351	A	0.285	A	0.360	0.074	0.057	0.074	N	N	N
12	Anaheim St / Henry Ford Ave[a]	A	0.300	A	0.416	A	0.560	C	0.742	C	0.792	D	0.867	0.442	0.376	0.307	Yes	Yes	Yes
13	Anaheim St / Alameda St[a]	A	0.361	A	0.325	A	0.468	A	0.596	A	0.486	C	0.746	0.235	0.161	0.278	N	N	Yes
14	Henry Ford Ave / Pier A Wy / SR-47/103 Ramps[a]	A	0.078	A	0.125	A	0.167	A	0.511	A	0.449	A	0.336	0.433	0.324	0.169	N	N	N
15	Harry Bridges Blvd / Broad Ave[a]	A	0.143	A	0.115	A	0.218	A	0.263	A	0.185	A	0.365	0.120	0.070	0.147	N	N	N
16	Harry Bridges Blvd / Avalon Blvd[a]	A	0.155	A	0.082	A	0.238	A	0.477	A	0.320	A	0.568	0.322	0.238	0.330	N	N	N
17	Harry Bridges Blvd / Fries Ave[a]	A	0.123	A	0.127	A	0.203	A	0.258	A	0.253	A	0.360	0.135	0.126	0.157	N	N	N
18	Harry Bridges Blvd / Neptune Ave[a]	A	0.053	A	0.028	A	0.127	A	0.150	A	0.100	A	0.280	0.097	0.072	0.153	N	N	N
19	Harry Bridges Blvd / Wilmington Blvd[a]	A	0.119	A	0.077	A	0.202	A	0.379	A	0.265	A	0.358	0.260	0.188	0.156	N	N	N
20	Harry Bridges Blvd / Figueroa St[a]	A	0.235	A	0.237	A	0.292	B	0.617	A	0.447	C	0.778	0.382	0.210	0.486	N	N	Yes
21	Pacific Coast Hwy / Alameda St Ramp[a]	A	0.505	A	0.411	A	0.561	A	0.512	A	0.461	C	0.716	0.007	0.050	0.155	N	N	Yes
22	Pacific Coast Hwy / Santa Fe Ave[b]	C	0.773	B	0.699	D	0.821	E	0.917	D	0.881	E	0.974	0.144	0.182	0.153	Yes	N	N
23	Pacific Coast Hwy / Harbor Ave[b]	B	0.628	B	0.603	C	0.733	C	0.735	C	0.765	E	0.900	0.107	0.162	0.167	N	N	N
24	Sepulveda Blvd / Alameda St Ramp[c]	B	0.679	A	0.484	B	0.612	A	0.486	A	0.514	B	0.617	-0.193	0.030	0.005	N	N	N
25	Intermodal Way / Sepulveda Blvd[c]	A	0.371	A	0.310	A	0.403	A	0.561	A	0.564	B	0.634	0.190	0.254	0.231	N	N	N
26	ICTF Driveway / Sepulveda Blvd[a]	A	0.193	A	0.369	A	0.425	A	0.425	A	0.446	A	0.512	0.232	0.077	0.087	N	N	N
27	Middle Rd / Sepulveda Blvd[a]	A	0.223	A	0.254	A	0.481	A	0.272	A	0.240	A	0.509	0.049	-0.014	0.028	N	N	N
28	Sepulveda Blvd / SR-103[b]	A	0.318	A	0.330	A	0.491	A	0.467	A	0.363	B	0.619	0.149	0.033	0.128	N	N	N
29	Alameda St / Henry Ford Ave[a]	A	0.057	A	0.183	A	0.207	A	0.247	A	0.298	A	0.230	0.190	0.115	0.023	N	N	N
30	Alameda St / Pacific Coast Hwy Ramp[a]	A	0.439	A	0.368	A	0.598	A	0.542	A	0.549	B	0.696	0.103	0.181	0.098	N	N	N
31	Alameda St / Sepulveda Boulevard Ramp[c]	A	0.389	A	0.463	A	0.588	D	0.802	D	0.848	C	0.717	0.413	0.385	0.129	N	N	N
32	Alameda St / 223rd St Ramp[c]	A	0.509	A	0.484	A	0.565	B	0.611	D	0.814	B	0.607	0.102	0.330	0.042	N	N	N
33	Alameda St Ramp / 223rd St[a]	A	0.342	A	0.504	C	0.758	A	0.388	C	0.726	D	0.854	0.046	0.222	0.096	N	Yes	Yes
34	I-405 SB Ramps / 223rd St[a]	A	0.379	A	0.319	A	0.435	A	0.447	A	0.467	A	0.473	0.068	0.148	0.038	N	N	N

Notes:
[a] City of Los Angeles intersection, analyzed using CMA methodology according to City standards.
[b] City of Long Beach intersection analyzed using ICU methodology according to City standards.
[c] City of Carson intersection analyzed using ICU methodology according to City standards.

Table 4.2-5. Cumulatively Considerable Intersection Level of Service Analysis – Year 2035 Proposed Program

#	Study Intersection	2035 Without Program						2035 With Program						Changes in V/C			Cumulatively Considerable Impact		
		A.M. Peak		M.D. Peak		P.M. Peak		A.M. Peak		M.D. Peak		P.M. Peak		A.M. Peak	M.D. Peak	P.M. Peak	A.M. Peak	M.D. Peak	P.M. Peak
		LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C						
1	Ocean Blvd (WB) / Terminal Island Fwy[b]	A	0.518	A	0.574	A	0.442	A	0.539	A	0.587	A	0.455	0.021	0.013	0.013	N	N	N
2	Ocean Blvd (EB) / Terminal Island Fwy[b]	A	0.472	A	0.530	A	0.441	A	0.497	A	0.543	A	0.454	0.025	0.013	0.013	N	N	N
3	Ocean Blvd (WB) / Pier S Ave[b]	A	0.548	A	0.530	A	0.425	A	0.563	A	0.547	A	0.433	0.015	0.017	0.008	N	N	N
4	Ocean Blvd (EB) / Pier S Ave[b]	A	0.404	A	0.528	A	0.444	A	0.393	A	0.538	A	0.454	-0.011	0.010	0.010	N	N	N
5	Seaside Ave / Navy Way	Not an Intersection															N	N	N
6	Ferry St (Seaside Ave) / SR-47 Ramps[a]	A	0.404	A	0.484	A	0.379	A	0.404	A	0.484	A	0.379	0.000	0.000	0.000	N	N	N
7	Pico Ave / Pier B St / 9th St / I-710 Ramps[b]	D	0.843	E	0.918	B	0.618	D	0.846	E	0.921	B	0.622	0.003	0.003	0.004	N	N	N
8	Anaheim St / Harbor Ave[b]	B	0.688	C	0.712	B	0.649	B	0.688	C	0.712	B	0.649	0.000	0.000	0.000	N	N	N
9	Anaheim St / Santa Fe Ave[b]	B	0.671	B	0.659	C	0.778	B	0.679	B	0.671	C	0.781	0.008	0.012	0.003	N	N	N
10	Anaheim St / E I St / W 9th St[b]	D	0.842	D	0.836	C	0.787	D	0.853	D	0.848	C	0.795	0.011	0.012	0.008	N	N	N
11	Anaheim St / Farragut Ave[a]	A	0.343	A	0.275	A	0.354	A	0.351	A	0.285	A	0.360	0.008	0.010	0.006	N	N	N
12	Anaheim St / Henry Ford Ave[a]	C	0.715	C	0.774	D	0.860	C	0.742	C	0.792	D	0.867	0.027	0.018	0.007	N	N	N
13	Anaheim St / Alameda St[a]	A	0.554	A	0.479	C	0.739	A	0.596	A	0.486	C	0.746	0.042	0.007	0.007	N	N	N
14	Henry Ford Ave / Pier A Wy / SR-47/103 Ramps[a]	A	0.500	A	0.444	A	0.331	A	0.511	A	0.449	A	0.336	0.011	0.005	0.005	N	N	N
15	Harry Bridges Blvd / Broad Ave[a]	A	0.247	A	0.165	A	0.353	A	0.263	A	0.185	A	0.365	0.016	0.020	0.012	N	N	N
16	Harry Bridges Blvd / Avalon Blvd[a]	A	0.460	A	0.300	A	0.557	A	0.477	A	0.320	A	0.568	0.017	0.020	0.011	N	N	N
17	Harry Bridges Blvd / Fries Ave[a]	A	0.245	A	0.238	A	0.345	A	0.258	A	0.253	A	0.360	0.013	0.015	0.015	N	N	N
18	Harry Bridges Blvd / Neptune Ave[a]	A	0.137	A	0.085	A	0.265	A	0.150	A	0.100	A	0.280	0.013	0.015	0.015	N	N	N
19	Harry Bridges Blvd / Wilmington Blvd[a]	A	0.363	A	0.246	A	0.340	A	0.379	A	0.265	A	0.358	0.016	0.019	0.018	N	N	N
20	Harry Bridges Blvd / Figueroa St[a]	B	0.617	A	0.447	C	0.767	B	0.617	A	0.447	C	0.778	0.000	0.000	0.011	N	N	N
21	Pacific Coast Hwy / Alameda St Ramp[a]	A	0.512	A	0.454	C	0.712	A	0.512	A	0.461	C	0.716	0.000	0.007	0.004	N	N	N
22	Pacific Coast Hwy / Santa Fe Ave[b]	E	0.917	D	0.859	E	0.956	E	0.917	D	0.881	E	0.974	0.000	0.022	0.018	N	N	N
23	Pacific Coast Hwy / Harbor Ave[b]	C	0.735	C	0.749	D	0.884	C	0.735	C	0.765	E	0.900	0.000	0.016	0.016	N	N	N
24	Sepulveda Blvd / Alameda St Ramp[c]	A	0.461	A	0.486	B	0.617	A	0.486	A	0.514	B	0.617	0.025	0.028	0.000	N	N	N
25	Intermodal Way / Sepulveda Blvd[c]	A	0.544	A	0.544	B	0.634	A	0.561	A	0.564	B	0.634	0.017	0.020	0.000	N	N	N
26	ICTF Drwy / Sepulveda Blvd[a]	A	0.411	A	0.430	A	0.504	A	0.425	A	0.446	A	0.512	0.014	0.016	0.008	N	N	N
27	Middle Rd / Sepulveda Blvd[a]	A	0.272	A	0.240	A	0.509	A	0.272	A	0.240	A	0.509	0.000	0.000	0.000	N	N	N
28	Sepulveda Blvd / SR-103[b]	A	0.467	A	0.361	B	0.616	A	0.467	A	0.363	B	0.619	0.000	0.002	0.003	N	N	N
29	Alameda St / Henry Ford Ave[a]	A	0.235	A	0.287	A	0.227	A	0.247	A	0.298	A	0.230	0.012	0.011	0.003	N	N	N
30	Alameda St / Pacific Coast Hwy Ramp[a]	A	0.533	A	0.544	B	0.692	A	0.542	A	0.549	B	0.696	0.009	0.005	0.004	N	N	N
31	Alameda St / Sepulveda Boulevard Ramp[c]	C	0.791	D	0.840	C	0.712	D	0.802	D	0.848	C	0.717	0.011	0.008	0.005	N	N	N
32	Alameda St / 223rd St Ramp[c]	A	0.596	C	0.796	B	0.600	B	0.611	D	0.814	B	0.607	0.015	0.018	0.007	N	N	N
33	Alameda St Ramp / 223rd St[a]	A	0.319	B	0.640	D	0.812	A	0.326	B	0.647	D	0.816	0.007	0.007	0.004	N	N	N
34	I-405 SB Ramps / 223rd St[a]	A	0.446	A	0.464	A	0.471	A	0.447	A	0.467	A	0.473	0.001	0.003	0.002	N	N	N

Notes:
[a] City of Los Angeles intersection, analyzed using CMA methodology according to City standards.
[b] City of Long Beach intersection analyzed using ICU methodology according to City standards.
[c] City of Carson intersection analyzed using ICU methodology according to City standards.

The analysis indicates that the proposed Program would result in an increase in the volume/capacity ratio at a number of study locations. However, the amount of Program-related traffic that would be added at the study intersection locations would not be of sufficient magnitude to meet or exceed any of the thresholds of significance. This includes some intersections that would operate at LOS E or F where the amount of Program-related traffic would be too small to trigger a significant traffic impact. Accordingly, the proposed Program would not make a cumulatively considerable contribution to a significant cumulative impact.

Mitigation Measures and Cumulative Residual Impacts

The proposed Program would not make a cumulatively considerable contribution to a significant cumulative impact. Therefore, no mitigation is required.

Cumulative Impact TRANS-3: The proposed Program would not cause an increase in onsite employees due to operations, which would then result in a significant increase in public transit use - Less than Cumulatively Considerable

Cumulative Impact TRANS-3 addresses the potential for the proposed Program when combined with past, present, and reasonably foreseeable future projects to result in significant increases in transit demand within the PMPU area.

Impacts of Past, Present, and Reasonably Foreseeable Future Projects

As described in Section 3.12, Transportation and Circulation, existing public transit in the PMPU area operates well under capacity. For example, observations of transit usage in the area for bus routes that serve the PMPU area (Metro Route 220 and Long Beach Transit Routes 191, 192 and 193) revealed that the buses are currently not operating anywhere near capacity and would be able to accommodate the estimated increase in demand. As with the proposed Program, other cumulative Port growth would result in negligible increases in demand for transit usage because Port terminal workers drive to the union terminals and work sites. Accordingly, the related projects in Table 4.1-1, including but not limited to Outer Harbor Cruise Terminal and Park (#1), Pier 500 (#9), Channel Deepening Project (#15), Berths 171-181, and Pasha Marine Terminal Improvements Project (#26), are not expected to have a significant cumulative impact on public transit.

Contribution of the Proposed Program (Prior to Mitigation)

Although operation of the proposed appealable/fill projects would result in additional onsite employees, the increase in work-related trips using public transit would be negligible. Intermodal facilities generate extremely low transit demand for several reasons. The primary reason that workers generally would not use public transit is their work shift schedule. Most workers prefer to use a personal automobile to facilitate timely commuting, and in any case would live throughout the southern California region and generally not have convenient access to the few bus routes that serve the Port. Finally, parking at proposed appealable/fill project sites would be readily available and free for employees. Therefore, it is expected that fewer than ten

work trips per day would be made on public transit, which could easily be accommodated by existing transit services and would not result in a demand for transit services which would exceed the supply of such services. Accordingly, the proposed Program would not make a cumulatively considerable contribution to a significant cumulative impact.

Mitigation Measures and Cumulative Residual Impacts

The proposed Program would not make a cumulatively considerable contribution to a significant cumulative impact. Therefore, no mitigation is required.

Cumulative Impact TRANS-4: The proposed Program would result in operations that would cause increases considered significant for freeway congestion – Less than Cumulatively Considerable with Mitigation

Cumulative Impact TRANS-4 addresses the potential for the proposed Program when combined with past, present, and reasonably foreseeable future projects to result in significant increases in highway congestions.

Impacts of Past, Present, and Reasonably Foreseeable Future Projects

Freeways in the region are affected by new projects that add traffic or change the distribution of traffic. Most of the related projects in Table 4.1-1 (e.g., Ports O'Call Redevelopment (#3), Trucking Support Center (#10), Berths 226-236 (Evergreen) Container Terminal Improvements Project (#17, and Berths 121-131 (Yang Ming) Container Terminal Improvements Project (#36)) can be expected to add traffic to the freeway system. The effects were evaluated at the freeway monitoring stations listed below that likely would be affected by the proposed appealable/fill projects under the proposed Program:

- I-110 south of "C" Street (CMP Station 1045);
- SR-91 east of Alameda Street and Santa Fe Avenue (CMP Station 1033);
- I-405 at Santa Fe Avenue (CMP Station 1066);
- I-710 between Pacific Coast Highway and Willow Street (CMP Station 1078);
- I-710 between I-405 and Del Amo Boulevard (CMP Station 1079);
- I-710 between I-105 and Firestone Boulevard (CMP Station 1080);
- SR-47 at Vincent Thomas Bridge; and,
- SR 47 at Commodore Schuyler Heim Bridge.

Tables 4.2-6 and 4.2-7 show the expected volumes of traffic on those segments, a comparison of the CEQA baseline to 2035 With Program (i.e., with the related projects and other background growth) and 2035 Without Program. The past, present, and reasonably foreseeable future projects would add traffic to the freeway system and at the CMP monitoring stations, resulting in significant cumulative impacts to monitoring stations operating at LOS F or worse.

Table 4.2-6. Year 2035 Proposed Program Cumulative Freeway Analysis

AM Peak Hour																		
Fwy.	Location	Capacity	Northbound/Eastbound						Δ D/C	Cum Imp	Southbound/Westbound						Δ D/C	Cum Imp
			CEQA Baseline			Year 2035 Future With Program					CEQA Baseline			Year 2035 Future With Program				
			Demand	D/C	LOS	Demand	D/C	LOS			Demand	D/C	LOS	Demand	D/C	LOS		
A.M. Peak Hour																		
I-110	Wilmington, s/o "C" St	8,000	4,375	0.55	C	5,030	0.63	C	0.08	No	3,375	0.42	B	4,315	0.54	B	0.12	No
SR-91	e/o Alameda Street/Santa Fe Ave	12,000	6,060	0.51	B	8,715	0.73	C	0.22	No	10,660	0.89	D	8,900	0.74	C	-0.15	No
I-405	Santa Fe Ave.	10,000	11,535	1.15	F(0)	9,900	0.99	E	-0.16	No	9,545	0.95	E	10,910	1.09	F(0)	0.14	Yes
I-710	n/o Jct Rte 1 (PCH), Willow St.	6,000	5,770	0.96	E	8,370	1.40	F(2)	0.44	Yes	6,690	1.12	F(0)	8,785	1.46	F(3)	0.35	Yes
I-710	n/o Jct Rte 405, s/o Del Amo	8,000	6,370	0.80	D	8,880	1.11	F(0)	0.31	Yes	7,805	0.98	E	9,975	1.25	F(0)	0.27	Yes
I-710	n/o Rte 105, n/o Firestone	8,000	8,175	1.02	F(0)	9,110	1.14	F(0)	0.12	Yes	9,285	1.16	F(0)	9,905	1.24	F(0)	0.08	Yes
SR-47	Vincent Thomas Bridge	4,000	2,445	0.61	C	3,690	0.92	D	0.31	No	2,100	0.53	B	3,050	0.76	C	0.24	No
SR-47	Commodore Schuyler Heim Bridge	6,000	305	0.05	A	4,265	0.71	C	0.66	No	590	0.10	A	3,640	0.61	C	0.51	No
P.M. Peak Hour																		
I-110	Wilmington, s/o "C" St	8,000	2,490	0.31	A	4,740	0.59	C	0.28	No	4,205	0.53	B	5,180	0.65	C	0.12	No
SR-91	e/o Alameda Street/Santa Fe Ave	12,000	8,925	0.74	C	10,515	0.88	D	0.14	No	7,205	0.60	C	9,500	0.79	D	0.19	No
I-405	Santa Fe Ave.	10,000	9,865	0.99	E	10,400	1.04	F(0)	0.05	Yes	11,160	1.12	F(0)	11,510	1.15	F(0)	0.03	Yes
I-710	n/o Jct Rte 1 (PCH), Willow St	6,000	5,950	0.99	E	7,220	1.20	F(0)	0.21	Yes	5,660	0.94	E	7,080	1.18	F(0)	0.24	Yes
I-710	n/o Jct Rte 405, s/o Del Amo	8,000	7,740	0.97	E	9,140	1.14	F(0)	0.17	Yes	6,785	0.85	D	7,970	1.00	E	0.15	No
I-710	n/o Rte 105, n/o Firestone	8,000	9,120	1.14	F(0)	9,660	1.21	F(0)	0.07	Yes	9,105	1.14	F(0)	9,515	1.19	F(0)	0.05	Yes
SR-47	Vincent Thomas Bridge	4,000	2,560	0.64	C	3,110	0.78	D	0.14	No	2,930	0.73	C	3,630	0.91	D	0.18	No
SR-47	Commodore Schuyler Heim Bridge	6,000	830	0.14	A	4,245	0.71	C	0.57	No	655	0.11	A	4,905	0.82	D	0.71	No

Table 4.2-7. Year 2035 Proposed Program Cumulatively Considerable Freeway Analysis

AM Peak Hour																		
			Northbound/Eastbound								Southbound/Westbound							
Fwy.	Location	Capacity	Year 2035 Future Without Program			Year 2035 Future With Program			Δ D/C	Cum Con Imp	Year 2035 Future Without Program			Year 2035 Future With Program			Δ D/C	Cum Con Imp
			Demand	D/C	LOS	Demand	D/C	LOS			Demand	D/C	LOS	Demand	D/C	LOS		
A.M. Peak Hour																		
I-110	Wilmington, s/o "C" St	8,000	4,985	0.62	C	5,030	0.63	C	0.01	No	4,275	0.53	B	4,315	0.54	B	0.01	No
SR-91	e/o Alameda Street/Santa Fe Ave	12,000	8,710	0.73	C	8,715	0.73	C	0.00	No	8,900	0.74	C	8,900	0.74	C	0.00	No
I-405	Santa Fe Ave	10,000	9,900	0.99	E	9,900	0.99	E	0.00	No	10,905	1.09	F(0)	10,910	1.09	F(0)	0.00	No
I-710	n/o Jct Rte 1 (PCH), Willow St	6,000	8,275	1.38	F(2)	8,370	1.40	F(2)	0.02	No	8,685	1.45	F(2)	8,785	1.46	F(3)	0.02	No
I-710	n/o Jct Rte 405, s/o Del Amo	8,000	8,780	1.10	F(0)	8,880	1.11	F(0)	0.01	No	9,880	1.24	F(0)	9,975	1.25	F(0)	0.01	No
I-710	n/o Rte 105, n/o Firestone	8,000	9,035	1.13	F(0)	9,110	1.14	F(0)	0.01	No	9,835	1.23	F(0)	9,905	1.24	F(0)	0.01	No
SR-47	Vincent Thomas Bridge	4,000	3,640	0.91	D	3,690	0.92	D	0.01	No	3,010	0.75	C	3,050	0.76	C	0.01	No
SR-47	Commodore Schuyler Heim Bridge	6,000	4,170	0.70	C	4,265	0.71	C	0.02	No	3,545	0.59	C	3,640	0.61	C	0.02	No
P.M. Peak Hour																		
I-110	Wilmington, s/o "C" St	8,000	4,690	0.59	C	4,740	0.59	C	0.01	No	5,150	0.64	C	5,180	0.65	C	0.00	No
SR-91	e/o Alameda Street/Santa Fe Ave	12,000	10,510	0.88	D	10,515	0.88	D	0.00	No	9,500	0.79	D	9,500	0.79	D	0.00	No
I-405	Santa Fe Ave	10,000	10,400	1.04	F(0)	10,400	1.04	F(0)	0.00	No	11,505	1.15	F(0)	11,510	1.15	F(0)	0.00	No
I-710	n/o Jct Rte 1 (PCH), Willow St	6,000	7,145	1.19	F(0)	7,220	1.20	F(0)	0.01	No	7,015	1.17	F(0)	7,080	1.18	F(0)	0.01	No
I-710	n/o Jct Rte 405, s/o Del Amo	8,000	9,055	1.13	F(0)	9,140	1.14	F(0)	0.01	No	7,910	0.99	E	7,970	1.00	E	0.01	No
I-710	n/o Rte 105, n/o Firestone	8,000	9,605	1.20	F(0)	9,660	1.21	F(0)	0.01	No	9,475	1.18	F(0)	9,515	1.19	F(0)	0.01	No
SR-47	Vincent Thomas Bridge	4,000	3,070	0.77	C	3,110	0.78	D	0.01	No	3,585	0.90	D	3,630	0.91	D	0.01	No
SR-47	Commodore Schuyler Heim Bridge	6,000	4,170	0.70	C	4,245	0.71	C	0.01	No	4,855	0.81	D	4,905	0.82	D	0.01	No

Table 4.2-6, summarizes future freeway operating conditions of the CEQA baseline and the CEQA baseline, plus the proposed Program including the related projects in Table 4.1-1 at each study CMP location. A number of the study locations will operate at LOS D or E in the future. Cumulative impacts are shown to occur at four locations, those along I-405 and I-710.

Table 4.2-7 compares the future 2035 Without Program (CEQA baseline plus related projects) to the proposed Program at each CMP location in order to determine if there is a cumulatively considerable impact. No cumulatively considerable contributions to impacts would result from the proposed Program.

Contribution of the Proposed Program (Prior to Mitigation)

The analysis shows that the proposed Program would cause an increase of 0.02 or more of the D/C ratio at freeway link locations operating at LOS F or worse, and therefore the proposed Program would cause a CMP location to experience a cumulatively considerable impact by exceeding the threshold of significance.

Mitigation Measures and Cumulative Residual Impacts

The proposed Program would make a cumulatively considerable contribution to a significant cumulative impact if future improvements to the I-710 corridor are not accomplished as expected. **MM TRANS-1** would require the Port to collaborate with Caltrans and Metro to secure funding and ensure timely implementation of the I-710 Corridor project by 2035 to alleviate future Port area and regional traffic growth on the I-710. Implementation of this measure would reduce cumulative freeway segment impacts to be less than cumulatively significant.

Cumulative Impact TRANS-5: The proposed Program would not result in operations that would cause a significant impact in vehicular delay at railroad grade crossings – Less than Cumulatively Considerable

Cumulative Impact TRANS-5 addresses the potential for operation of the proposed Program when combined with past, present, and reasonably foreseeable future projects to cause an increase in rail activity and delays in regional traffic.

Impacts of Past, Present, and Reasonably Foreseeable Future Projects

Cumulative growth of regional vehicular traffic due to regional development would not be a major component of the traffic crossing the highway/rail crossing at Henry Ford Avenue. Therefore the contribution of cumulative projects, such as Pier 500 (#9), and Berths 206-209 Interim Container Terminal Reuse Project (#28), would be negligible to the overall delay experienced by vehicles at the crossing.

At-grade crossings outside of the proposed PMPU area are not considered within the geographic scope of this analysis. While part of the regional rail system, they are not located in the vicinity of the PMPU area. However, the environmental analysis for future projects under the PMPU would include the project-specific evaluation of regional at-grade rail crossing impacts.

Contribution of the Proposed Program (Prior to Mitigation)

The proprietary model Train Builder was used to estimate 2035 intermodal train volumes to and from the proposed Program terminals. Using QuickTrip inputs for these terminals (percent on-dock rail), the results for 2035 show a total of 1.7 10,000-foot double stack trains and 3.3 8,000-foot double stack trains (Table 4.2-8). For the analysis, it was assumed that two-thirds of the trains would be 8,000 feet long, and one-third would be 10,000 feet long.

Table 4.2-8. Proposed Program (2035 Average Train Volumes) at Henry Ford Avenue

	Double Stack		*Switchers*	*Other*					*Total*
Train Length (feet)	10,000	8,000	1,000	5,000	4,000	3,000	2,000	1,000	
Percentage by Category	33	67	100	20	20	20	20	20	
WBCT	1.0	2.0	4.1	2.1	2.1	2.1	2.1	2.1	17.6
TraPac	0.7	1.3	2.7	1.3	1.3	1.3	1.3	1.3	11.2
2035 Cumulative per Day Total	1.7	3.3	6.8	3.4	3.4	3.4	3.4	3.4	28.8

Other assumptions were that the volume of switchers and "other" trains are linearly related to the number of double-stack trains. In general the switch movements support intermodal operations of the on-dock yards. The ratio of the number of switchers to the number of double-stack trains was 1.38 using the PHL data set for the 4 weeks (July 23, 2012 to August 17, 2012). The ratio of the number of "other" trains to double-stack trains was 3.42 for the 4 weeks. It was assumed that these ratios apply to the 2035 case.

For the Henry Ford Avenue crossing, traffic delay impacts were analyzed in terms of:

- Total vehicle hours of delay per day; and,
- Average vehicle delay in the P.M. peak hour.

Total vehicle hours of delay per day is the sum of all vehicle delays from all trains over a 24-hour period. Average vehicle delay is calculated by dividing the total vehicle delay caused by trains passing a crossing during the P.M. peak commute hour by the number of vehicles passing the at-grade crossing in that hour.

Using average vehicle delay is a universally-accepted approach for evaluating vehicle delay at signalized intersections consistent with methodologies contained in the HCM. At-grade crossings operate similarly to traditional signalized intersections where some vehicles experience no delay (during a green phase or when the gate is up) and others are stopped for a certain period of time (during a red phase or when a train is crossing).

The traffic volumes for the three scenarios are shown in Table 4.2-9.

Table 4.2-9. Average Daily Traffic at Henry Ford Avenue, 2035

Period	*Time of Day*	*2035 Cumulative*
A.M. Peak (3 hours)	6 A.M. – 9 A.M.	3,379
M.D. (6 hours)	9 A.M. – 3 P.M.	6,018
P.M. Peak (4 hours)	3 P.M. – 7 P.M.	5,271
Night (11 hours)	7 P.M. – 6 A.M.	8,590
Total		**23,258**

For the Cumulative analysis, freight train volumes were assumed to be uniformly distributed over 24 hours and assigned to four different time periods of the day, as shown in Table 4.2-10. For example, the A.M. peak period consists of 3 hours, or 12.5 percent of a 24-hour day. 12.5 percent of the daily estimated freight trains were assigned to the A.M. peak period.

Table 4.2-10. Time Periods of the Day

Period	*Time of Day*	*Number of Hours*	*Percent of 24 Hours (uniform distribution)*
A.M. Peak Period	6:00 A.M. to 9:00 A.M.	3	12.5
M.D.	9:00 A.M. to 3:00 P.M.	6	25.0
P.M. Peak Period	3:00 P.M. to 7:00 P.M.	4	16.7
Night	7:00 P.M. to 6:00 A.M.	7	45.8
Total Daily		**24**	**100.0**

The resulting estimated delays for the Henry Ford Avenue grade crossing for the cumulative conditions are shown in Table 4.2-11.

Table 4.2-11. Estimated Vehicular Delays at Henry Ford Avenue Grade Crossing

	2035 Cumulative
Vehicle Hours of Delay per Day	156.2
Average Delay per Vehicle in A.M. Peak Hour (seconds)	26.4
Level of Service A.M. Peak Hour	C
Average Delay per Vehicle in M.D. Peak Hour (seconds)	27.1
Level of Service M.D. Peak Hour	C
Average Delay per Vehicle in P.M. Peak Hour (seconds)	28.5
Level of Service P.M. Peak Hour	C
LOS E (55 – 80 seconds of average delay per vehicle)	Significant if >2 seconds
LOS F (over 80 seconds of average delay per vehicle)	Significant if >1 second
Significant?	No

The cumulative impacts of the proposed Program are not significant. Based on the analysis of 2035 Program trains, rail delays at at-grade crossings east of the Alameda Corridor would not exceed the thresholds of significance.

Mitigation Measures and Cumulative Residual Impacts

The proposed Program would not make a cumulatively considerable contribution to a significant cumulative impact. Therefore, no mitigation is required.

Residual impacts at at-grade crossings are not expected to be significant because rail delay impacts would not be significant. For secondary air quality effects, motor vehicle idling emissions for criteria pollutants during the increased idling time would be expected to be less than significant because: 1) idling does not generate fugitive dust emissions which make up most of the PM_{10} and a substantial portion of the $PM_{2.5}$ vehicle emissions; 2) NO_x emissions are very low during idling (assigned a value of zero for light duty autos and light duty trucks); and, 3) motor vehicle CO impacts to concentrations are less than the ambient air quality standards (when added to background) in entire air basin, and will continue to drop as the regional fleet is replaced with newer vehicles. Secondary noise impacts related to rail delay effects are also expected to be less than significant because highway noise is generally lower at slower speeds, and an increased number of trains would have the effect of lowering average traffic speeds. In addition, a noise source would have to double in order for a 3 dB(A) increase in noise to occur. The proposed Program would not result in a doubling of the number of trains traveling to and from the proposed appealable/fill project sites, nor would it affect the number of vehicles traveling on the surface transportation system. In addition, the secondary impacts on public services (such as fire and life safety) are not anticipated to be significant because rail delay impacts would not be significant.

Cumulative Impact TRANS-6: The proposed Program would not substantially increase hazards due to a design feature or incompatible uses – Less than Cumulatively Considerable

Cumulative Impact TRANS-6 addresses the potential for the proposed Program operations when combined with past, present, and reasonably foreseeable future projects to substantially increase hazards due to a design feature.

Impacts of Past, Present, and Reasonably Foreseeable Future Projects

Cumulative development in the Port area would not create a hazardous design feature, because, as with the proposed Program, other cumulative Port growth would need to be designed in accordance with building and safety code requirements and any new driveways or access roads would have to meet LADOT and LAHD engineering requirements. Accordingly, the related projects in Table 4.1-1 (e.g., City Dock No. 1 Marine Research Project (#2), Berths 226-236 (Evergreen) Container Terminal Improvements Project, and Fish Harbor Redevelopment (#40)) would not have a significant cumulative impact on design features that would be hazardous.

Contribution of the Proposed Program (Prior to Mitigation)

Some of the proposed appealable/fill projects and land use changes would involve modifications to entry or egress from existing roadways in the Port. While the proposed appealable/fill projects and land use changes could result in design changes relative to transportation ingress/egress, such changes would be designed in accordance with building and safety code requirements and any new access roads or driveways would need to meet LADOT and Port engineering requirements. All design changes would be subject to review prior to permitting or leasing. Therefore, the proposed Program would not contribute to cumulatively significant impacts on

increases in hazards due to design features when combined with past, present, and reasonably foreseeable projects.

Mitigation Measures and Cumulative Residual Impacts

The proposed Program would not make a cumulatively considerable contribution to a significant cumulative impact. Therefore, no mitigation is required.

Cumulative Impact TRANS-7: The proposed Program would not result in inadequate emergency access – Less than Cumulatively Considerable

Cumulative Impact TRANS-7 addresses the potential for the proposed Program operations when combined with past, present, and reasonably foreseeable future projects to result in inadequate emergency access.

Impacts of Past, Present, and Reasonably Foreseeable Future Projects

Cumulative development in the Port area would not create inadequate emergency access because, as with the proposed Program, other cumulative Port growth would require project- and site-specific reviews and approvals would ensure emergency access is maintained to a future development. Accordingly, the related projects in Table 4.1-1 (e.g., East Basin Marina Improvements (#8), Berths 302-306 APL Container Terminal Project, San Pedro Waterfront Enhancements Project (#29), and Terminal Island On-Dock Rail Redevelopment (#41)) are not expected to have a significant cumulative impact on emergency access.

Contribution of the Proposed Program (Prior to Mitigation)

Some of the proposed appealable/fill projects and land use changes would involve some changes to entry or egress from existing roadways in the Port. However, any design changes or new designs would be subject to review prior to permitting or leasing. Project-specific reviews and approvals would ensure that operation of these projects would maintain emergency access. These include the Port Police, who are responsible for the safety and security of all passenger, cargo, and vessel operations at the Port. Port Police patrols of the waterfront by boat, helicopter, auto, and bicycle would be accounted for in the design of future development. The LAFD, responsible for enforcing the Fire Code and fire suppression and emergency medical response at the Port, would be consulted for access to all future developments to ensure adequate access for vehicles and responders. Associated law enforcement and fire departments adjacent to the PMPU area would also be consulted. These agencies include: the U.S. Customs Service, USCG, the California Highway Patrol, the County of Los Angeles Sheriff's Department, the LACFD, the LAPD Harbor Division, the LAFD, the Long Beach Police Department, the Port of Long Beach Harbor Patrol, and the Long Beach Fire Department. Therefore, the contribution of the proposed Program to inadequate emergency access would not result in cumulatively considerable impacts when combined with past, present, and reasonably foreseeable future projects.

Mitigation Measures and Cumulative Residual Impacts

The proposed Program would not make a cumulatively considerable contribution to a significant cumulative impact. Therefore, no mitigation is required.

Cumulative Impact TRANS-8: The proposed Program would not conflict with adopted policies, plans, or programs regarding public transit, bicycle or pedestrian facilities, or otherwise decrease the performance or safety of such facilities – Less than Cumulatively Considerable

Cumulative Impact TRANS-8 addresses the potential for the proposed Program operations when combined with past, present, and reasonably foreseeable future projects to conflict with adopted policies, plans, or programs regarding public transit, bicycle or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

Impacts of Past, Present, and Reasonably Foreseeable Future Projects

Cumulative development in the Port area would not conflict with policies, plans or programs regarding active transportation such as bicycle or pedestrian facilities or access to/from transit and the operations of transit. Any changes to these modes of transportation would undergo review by the LADOT to ensure future actions do not conflict with adopted policies, plans or programs. Accordingly, the related projects in Table 4.1-1, including but not limited to City Dock No. 1 Marine Research Project (#2), ARSSS Open Space (#6), Al Larson Boat Shop Improvement Project (#16), and Consolidated Slip Restoration Project (#24), are not expected to have a significant cumulative impact on transit, bicycle or pedestrian facilities.

Contribution of the Proposed Program (Prior to Mitigation)

The proposed Program would not conflict with policies, plans or programs regarding active transportation. Specifically, proposed appealable/fill project sites and areas with land use changes are not adjacent to existing bicycle facilities, public transit access would continue on area roadways, bicycle facilities in the area would remain the same, and no pedestrian facilities would be removed as part of the construction or operations of the proposed Program. In addition, the proposed appealable/fill projects under the proposed Program would be subject to a comprehensive review of adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities to ensure that they do not decrease the performance or safety of such facilities. Therefore, the proposed Program would not contribute to cumulatively significant impacts associated with conflicts with adopted policies, plans, or programs regarding public transit, bicycle or pedestrian facilities when combined with past, present, and reasonably foreseeable projects.

Mitigation Measures and Cumulative Residual Impacts

The proposed Program would not make a cumulatively considerable contribution to a significant cumulative impact. Therefore, no mitigation is required.

Cumulative Impact TRANS-9: The proposed Program would not result in inadequate parking capacity – Less than Cumulatively Considerable

Cumulative Impact TRANS-9 addresses the potential for the proposed Program operations when combined with past, present, and reasonably foreseeable future projects to result in inadequate parking capacity.

Impacts of Past, Present, and Reasonably Foreseeable Future Projects

Cumulative development in the Port area would not result in inadequate parking capacity. Port land uses and their associated parking are based on the projected need for each land use, and would be addressed on a project-by-project basis. Accordingly, the related projects in Table 4.1-1 (e.g., Trucking Support Center (#10), Berths 302-306 APL Container Terminal Project (#18), and Berths 171-181, Pasha Marine Terminal Improvements Project (#26)) are not expected to have a significant cumulative impact on parking capacity.

Contribution of the Proposed Program (Prior to Mitigation)

The proposed appealable/fill projects under the proposed Program would involve some increase in personnel during operations which would increase commuter traffic to some extent and the need for parking. However, parking is not currently limited within the Port and the large areas associated with marine terminals typically provide sufficient parking. In addition, the Port currently has excess parking available at many of its terminals. Future development associated with the proposed appealable/fill projects would meet parking code requirements based on its land use designation and zoning. Therefore, the proposed Program would not contribute to cumulatively significant impacts on inadequate parking capacity when combined with past, present, and reasonably foreseeable projects.

Mitigation Measures and Cumulative Residual Impacts

The proposed Program would not make a cumulatively considerable contribution to a significant cumulative impact. Therefore, no mitigation is required.

4.2.12.1.2 Marine Transportation

Scope of Analysis

The proposed appealable/fill projects and development resulting from land use changes under the PMPU could result in an increase in marine vessel traffic. Vessel traffic associated with the proposed Program would follow designated traffic channels (also used by other vessels) when approaching and leaving the Port. Similarly, in-water/over-water construction activities associated with the proposed appealable/fill projects would occur within the existing federal channel limits (i.e., channel and berthing areas) at the Port. The cumulative impacts include those impacts from past, present, and reasonably foreseeable future projects that would also

increase the number and size of vessels using these shipping lanes, as well as increase the use of Port areas.

Cumulative Impact VT-1: The proposed Program would not interfere with the operation of designated vessel traffic lanes and/or adversely affect the safety of vessels navigating within the Port of Los Angeles and its approaches - Less than Cumulatively Considerable

Cumulative Impact VT-1 addresses the potential for the proposed Program along with other cumulative projects to increase vessel traffic congestion or reduce the existing level of safety for vessels navigating within the Port and/or precautionary areas.

As discussed in Section 3.12.2.4, Marine Vessel Transportation, vessel traffic levels are highly regulated by the USCG COTP and the Marine Exchange of Southern California 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.

Impacts of Past, Present, and Reasonably Foreseeable Future Projects

Past actions within the Port have resulted in deepening navigation channels and upgrading existing wharf infrastructure to accommodate modern and larger ships. Incremental Port development has resulted in water-dependent developments that have been necessary to accommodate the needs of foreign and domestic waterborne commerce. In response to past actions, several measures have been implemented to ensure the safety of vessel navigation in the Port. Specifically, restricted navigation areas and routes have been designated to ensure safe vessel navigation, and are regulated by various agencies and organizations to ensure navigational safety.

Present and reasonably foreseeable Port projects, including the other terminal projects, could result in marine vessel safety impacts if they introduce construction equipment to Port channels or the Precautionary Area, and/or interfere with USCG designated vessel traffic lanes. Construction of projects in the Port of Long Beach would have minimal impact on marine vessel traffic in the Port.

Standard measures including compliance with LAHD standards for construction safety, including the requirement to comply with USCG navigation rules and providing the USCG with a schedule in advance of construction would be required for all construction projects. Compliance with standard safety precautions would keep construction vessels from blocking navigation channels or creating circumstances that could result in substantial navigation hazards.

Once operational, the marine terminal facilities listed in Table 4.1-1 (e.g., Pier 500 (#9), Berths 136-147 Marine Terminal (#13), and Berths 302-306 APL Container

Terminal Project (#18)) would generate additional vessel traffic. Vessel traffic in the Port has been relatively steady over the past 3 years, but has been almost 50 percent higher in the past. Even with full operation of all the projects listed in Table 4.1-1 and the proposed appealable/fill projects under the PMPU, it is unlikely that vessel traffic would reach 3,060 annually as occurred in 2000. The trend towards larger vessels means more cargo can be moved through the Port with the fewer vessel calls. Any additional vessel traffic would be subject to the stringent in-place vessel traffic control measures of the Port. In addition, the Harbor Safety Committee will continue to assess marine safety in the Port and recommend improvements and additional measures as warranted.

Consequently, the related projects would not result in significant cumulative impacts related to navigation hazards. Additionally, the Port utilizes standard safety precautions in piloting these vessels.

Contribution of the Proposed Program (Prior to Mitigation)

The proposed Program would result in an increase in marine vessel traffic. The construction of projects would involve the use of construction vessels and equipment for a variety of crane installation and wharf construction activities. In-water/over-water construction activities are routinely conducted in the Port and contractors performing in-water/over-water construction activities are subject to applicable rules and regulations stipulated in all LAHD contracts and USACE permits, including navigation hazard markings. Because standard safety precautions would be utilized by all contractors, the presence of a derrick barge or support boat would not substantially affect marine vessel safety in the main channels and connected basin areas. Accordingly, in-water construction equipment would not interfere with existing operations in the Port.

During operations the cumulative increase in vessel traffic related to the proposed Program in combination with reasonably foreseeable future Port development of the related projects listed in Table 4.1-1 would result in additional vessel traffic in the Port, including the Precautionary Area, Outer Harbor, and Main Channel. Consequently, the proposed appealable/fill projects under the PMPU along with future Port development would increase the risk of in-water vessel traffic hazards. However, according to the USCG vessels accidents database, the Port has one of the lowest accident rates of all U.S. ports, with a 0.0038 percent probability of a vessel experiencing an ACG during a single transit, as compared to the average 0.025 percent ACG probability for all U.S. ports (U.S. Naval Academy 1999).

The proposed appealable/fill projects would result in an estimated 299 additional vessel calls per year, not counting vessel calls that may result from land use changes for which no data is available to base an estimate. This represents substantially less than the maximum number of vessel calls recorded for any single year (3,060 vessel calls in 2000). Therefore, the proposed Program would not contribute to cumulatively significant impacts related to interference with the operation of designated vessel traffic lanes or impairing the level of safety for vessels, or inadequate parking capacity when combined with past, present, and reasonably foreseeable projects.

Mitigation Measures and Cumulative Residual Impacts

The proposed Program would not make a cumulatively considerable contribution to a significant cumulative impact. Therefore, no mitigation is required.

4.2.13 Utilities

4.2.13.1 Scope of Analysis

Cumulative impacts on utilities can result from the combined demand of the proposed Program with past, present, and future related projects on any of the utilities for which the proposed Program could have impacts (i.e., water supply, wastewater, storm drainage, and energy [electrical and natural gas]).

The geographic scope of the cumulative impact analysis of utilities depends on the service area of the individual utility provider. Because the proposed appealable/fill projects under the proposed Program have the capacity to affect the environment within the Port and surrounding communities, the geographic scope for cumulative impacts includes the Port and extends to adjacent areas, including the communities of San Pedro and Wilmington. Direct impacts of the proposed appealable/fill projects would be localized to the Port area, and indirect impacts could extend farther within the communities of San Pedro and Wilmington. The service areas of the BOS (wastewater), Sanitation Districts of Los Angeles County (solid waste and wastewater treatment), and LADWP (water and electricity) encompass the City of Los Angeles. The Gas Company (natural gas) serves most of central and southern California. However, the geographic region for cumulative utilities impacts is the Port area because the infrastructure that would immediately serve the proposed appealable/fill project sites is located within this service area. Service subareas of utility providers are sufficiently separated such that increased service demands from the proposed Program would not threaten provision of service in other areas (i.e., central and southern California in the case of the Gas Company).

The significance criteria used for the cumulative analysis are the same as those used for the proposed Program in Section 3.13, Utilities.

4.2.13.2 Cumulative Impact Assessment

Cumulative Impact UT-1: The proposed Program would not result in a substantial increase in wastewater flows that would exceed the wastewater treatment requirements of the Los Angeles RWQCB or the capacity of existing treatment facilities – Less than Cumulatively Considerable

Cumulative Impact UT-1 addresses the potential for the proposed Program when combined with past, present, and reasonably foreseeable future projects to generate substantial wastewater demands that would exceed the treatment requirements of the Los Angeles RWQCB or the capacity of existing treatment facilities.

Impacts of Past, Present, and Reasonably Foreseeable Future Projects

Operation of past projects has created a demand for wastewater treatment infrastructure that is currently accommodated by existing treatment facilities. It is expected that all past, present, and reasonably foreseeable future projects (e.g., Pier 500 (#9), Berths 136-147 Marine Terminal (#13), and Berths 302-306 APL Container Terminal Project (#18)) would be designed to be fully compliant with wastewater treatment requirements of the Los Angeles RWQCB. Wastewater from the related projects would not result in an exceedance of wastewater treatment requirements of the Los Angeles RWQCB or the capacity of existing treatment facilities. Therefore, past, present, and reasonably foreseeable future projects would not result in significant cumulative impacts on wastewater treatment requirements.

Contribution of the Proposed Program (Prior to Mitigation)

Construction of the proposed appealable/fill projects under the PMPU could require modifying existing wastewater systems and/or constructing new infrastructure. However, portable temporary facilities would be available for construction workers. Waste from such facilities would be hauled away and disposed of in accordance with the RWCQB's regulations.

The proposed appealable/fill projects would be designed to be fully compliant with existing wastewater treatment requirements of the Los Angeles RWQCB. These projects would be required to tie into existing sewer lines, which could require capacity expansion. LAHD would coordinate with the BOS to obtain any necessary permits for the proposed appealable/fill projects and land use changes. Wastewater generated from the proposed appealable/fill project sites would be conveyed to and treated at the TIWRP. Operation of the proposed appealable/fill projects and land use changes associated with the proposed Program would result in combined estimated increases in wastewater generation of 0.59 mgd (Table 3.13-2). In comparison, TIWRP currently has approximately 10 mgd of additional capacity to accommodate increases in wastewater volumes from operation of the proposed appealable/fill project s and land use changes. Further, as part of project designs, LAHD would evaluate the capacity of the existing and proposed conveyance system at individual project sites and assess the adequacy of existing and proposed conveyance systems. Therefore, the proposed Program would not result in cumulatively considerable impacts to utilities.

Mitigation Measures and Cumulative Residual Impacts

The proposed Program would not make a cumulatively considerable contribution to a significant cumulative impact. Therefore, no mitigation is required.

Cumulative Impact UT-2: The proposed Program would not result in a substantial increase in water demand that would exceed the water supplies available from existing entitlements and resources, and new or expanded facilities or entitlements would not be required – Less than Cumulatively Considerable

Cumulative Impact UT-2 addresses the potential for the proposed Program when combined with past, present, and reasonably foreseeable future projects to require substantial demand for water supplies and therefore require substantial expansion of entitlements and resources to meet that demand.

Impacts of Past, Present, and Reasonably Foreseeable Future Projects

Construction and operation of past projects has defined the existing demands for water, as is currently accommodated by existing facilities. In order to accurately plan for water supply, the LADWP determines water demands using factors such as demographics, weather, economy, and trends in development. The LADWP, in Chapter 6 of the *2010 Urban Water Management Plan*, determined an existing water demand within the LADWP service area that can be accommodated by the planned water supply of the same amount (LADWP 2011). The UWMP projects overall water supply reliability within the LADWP service area through 2035. The LADWP forecast specifically includes anticipated demand from projects that are included in the Port's Community Plan or the PMP, including all past, present and reasonably foreseeable future Port related projects (LADWP 2011). The LADWP expects it will be able to meet the demand through 2035 with a combination of existing supplies, planned supplies, and MWD purchases (existing and planned).

The California Urban Water Management Planning Act requires water suppliers to develop water management plans every 5 years. Because of this, LADWP would continue to project future water demands and supply through new Urban Water Management Plans every 5 years. Therefore, because the LADWP will continue to plan and provide water supply for its customers based on the water supply planning process foreseeable future projects would not result in a significant cumulative impact on the provision of water.

Many of the projects identified in Table 4.1-1 involve new or expanded land uses and/or cargo throughput that may result in additional utility demands. These projects include the Pier 500 (#9), Berths 136-147 Marine Terminal (TraPac) (#13), San Pedro Waterfront Project (#14), Berths 226-236 (Evergreen) Container Terminal Improvements Project (#17), Berths 97-109 China Shipping Development Project (#25), Berths 171-181, Pasha Marine Terminal Improvements Project (#26), Southern California International Gateway (SCIG) (#31), Berths 212-224 (YTI) Container Terminal Improvements Project (#35), and Berths 121-131 (Yang Ming) Container Terminal Improvements Project (#36). The number of related projects would increase the demands for water. However, based on the above, past, present, and reasonably foreseeable future projects would not result in a significant cumulative impact on the provision of water.

Contribution of the Proposed Program (Prior to Mitigation)

Construction for the proposed appealable/fill projects would use water for various purposes, such as dust suppression, mixing and pouring concrete, and other construction-related activities. Water usage during construction would be temporary and not substantial. Because construction activities associated with the proposed appealable/fill projects would not generate substantial water demands, impacts would not be cumulatively considerable.

Based on preliminary estimates of water demands, operation of the proposed appealable/fill projects and land use changes would result in an overall increase in water use 730 AFY (Table 3.13-1). All proposed appealable/fill projects and land use changes would be designed in accordance with LAHD's Green Building Policy, the City of Los Angeles Green LA Action Plan, and LAMC, ensuring implementation of water/energy efficiency designs and material reuse. Based on recent water supply assessments completed by the LADWP for LAHD (LAHD and USACE 2011), increases in water demand associated with Port development are incorporated into the LADWP UWMP water demand forecast. According to the 2010 UWMP, under wet, average, and dry years throughout the 25-year projection period, LADWP's supply portfolio is expected to be reliable, with adequate supplies available to meet demands. Therefore, the proposed appealable/fill projects and land use changes would not impact future water supply such that new or expanded entitlements would be required, and the proposed Program's contribution to cumulative water demand would be less than cumulatively considerable.

Mitigation Measures and Cumulative Residual Impacts

The proposed Program would not make a cumulatively considerable contribution to a significant cumulative impact. Therefore, no mitigation is required.

Cumulative Impact UT-3: The proposed Program would not generate substantial surface runoff that would exceed the capacity of existing municipal storm drain systems – Less than Cumulatively Considerable

Cumulative Impact UT-3 addresses the potential for the proposed Program when combined with past, present, and reasonably foreseeable future projects to generate substantial surface runoff that would exceed the capacity of existing municipal storm drain systems.

Impacts of Past, Present, and Reasonably Foreseeable Future Projects

Past, present, and reasonably foreseeable projects (e.g., Wilmington Waterfront Development Project (#5), Pier 500 (#9), Wilmington Youth Sailing and Aquatic Center (#27), and Fish Harbor Redevelopment (#40)) have been and/or would be required to implement stormwater flow reduction measures (e.g., permeable surfaces, recycling, and bioswales) as required by the SUSMP and LAMC. Therefore, related projects would not result in significant cumulative impacts to storm drain conveyance systems.

Contribution of the Proposed Program (Prior to Mitigation)

Stormwater runoff associated with the construction of the proposed appealable/fill projects would be managed in accordance with the individual project's Construction SWPPP, prepared in compliance with CWA NPDES, to avoid flooding and uncontrolled runoff requirements. Storm drains within the PMPU area have sufficient capacity to accommodate current demands and are designed to accommodate 10-year storm events. Storm drain improvements may be required on a project specific basis. The proposed appealable/fill projects and development associated with the land use changes would include any required installation and expansion of stormwater drainage facilities necessary to accommodate stormwater runoff.

The proposed appealable/fill projects and land use changes would implement LID and LEED requirements that include design features for reducing impervious cover and increasing infiltration (e.g., through porous paving or other permeable surface), increasing evapotranspiration (e.g., by increased use of vegetation), and capturing, treating, and re-using stormwater runoff (e.g., through the use of bioswales, retention basins, and cisterns). Facilities would be constructed in accordance with the requirements of the Municipal Storm Water NPDES Permit (NPDES Permit No. CAS004001), SUSMP regulations, and LAMC requirements (e.g., LID), which specify similar design and operational measures to reduce runoff. These measures would reduce runoff from the proposed appealable/fill project areas compared to baseline conditions. Accordingly, the proposed Program's contribution to cumulative demands on existing storm drain systems would be less than cumulatively considerable.

Mitigation Measures and Cumulative Residual Impacts

The proposed Program would not make a cumulatively considerable contribution to a significant cumulative impact. Therefore, no mitigation is required.

Cumulative Impact UT-4: The proposed Program would not result in an increase in solid waste generation due to project operations that would exceed the capacity of existing solid waste handling and disposal facilities – Less than Cumulatively Considerable

Cumulative Impact UT-4 addresses the potential for the proposed Program when combined with past, present, and reasonably foreseeable future projects to generate substantial solid waste that would exceed the capacity of existing facilities.

Impacts of Past, Present, and Reasonably Foreseeable Future Projects

Construction and operation of past projects has resulted in generation of solid waste which is currently accommodated by existing facilities. The landfills that serve the Port area are the Sunshine Canyon Landfill and the Chiquita Canyon Landfill. Sunshine Canyon has a daily throughput capacity of 12,100 tons allotted for City of Los Angeles use and is expected to accommodate demands until 2037 (CalRecycle 2011). Chiquita Canyon Landfill has a maximum permitted throughput of 6,000 tons per day and an estimated closure date of 2019 (CalRecycle 2010). Los Angeles

County Ordinance 7A prohibits solid waste generated in the City of Los Angeles from being handled by or disposed of in facilities and landfills operated by the LACSD. However, the City of Los Angeles, as well as southern California in general, is currently faced with reduced landfill capacity due to increases in population. To comply with AB 939, recycling studies for the City of Los Angeles have been conducted, and currently there is a citywide diversion rate of 65 percent with a goal of 70 percent by 2013 and a zero waste goal (90 percent or greater diversion) by 2025 (Pereira 2011, personal communication).

Additionally, the City of Industry certified and approved a Conditional Use Permit for a Puente Hills Intermodal Facility in June 2008. This is a waste-by-rail project, intended to accommodate the solid waste removal needs for Los Angeles County. The proposed facility would eventually have the capacity to handle up to two trains per day, transporting a total of 8,000 tons of municipal solid waste per day. It is currently under construction and is expected to commence operations in 2012 (LACSD 2012). With the remaining capacity of Sunshine Canyon City/County Landfill, along with the proposed intermodal system and anticipated recycle diversion rates for the area, solid waste removal and disposal would be adequately provided for past, current, and future projects. Therefore, cumulative impacts would be less than significant.

Many of the projects identified in Table 4.1-1 are Port redevelopment projects within the PMPU vicinity, and generally do not require any expansion of facilities. However, several of the projects involve new or expanded land uses or throughput operations that may result in additional generation of solid waste. These projects include Pier 500 (#9), Berths 136-147 Marine Terminal (TraPac) (#13), San Pedro Waterfront Project (#14), Berths 226-236 (Evergreen) Container Terminal Improvements Project (#17), Berths 97-109 China Shipping Development Project (#25), Berths 171-181, Pasha Marine Terminal Improvements Project (#26), SCIG (#31), Berths 212-224 (YTI) Container Terminal Improvements Project (#35), and Berths 121-131 (Yang Ming) Container Terminal Improvements Project (#36). While the number of related projects would increase the generation of solid waste, existing and planned capacity would be able to accommodate the increased demand. Therefore, based on the above, past, present, and reasonably foreseeable future projects would not result in a significant cumulative impact on landfill capacity.

Contribution of the Proposed Program (Prior to Mitigation)

Construction and demolition activities associated with the proposed appealable/fill projects would generate debris, including asphalt, concrete, building materials, and solids. In 2010, the LAHD achieved a 99 percent diversion rate for construction debris through its construction recycling program. Assuming similar diversion rates would be achieved for the proposed appealable/fill projects, the quantity of debris from construction and demolition that would require solid waste disposal would be relatively small. Recycling construction materials generally occurs where economically feasible. Implementation of the Port's Green Building Policy and waste diversion strategies would reduce increases in solid waste generation during construction and demolition activities. In the event that unidentified hazardous materials are encountered during construction of the proposed appealable/fill projects, LAHD would consider feasible recycling options.

The construction and operation of the proposed appealable/fill projects would result in an overall increase in solid waste generation of 0.346 tons per day (Table 3.13-3). This would represent 0.0063 percent of the permitted throughput at the Sunshine Canyon landfill and 0.0058 of the permitted throughput of the Chiquita Canyon Landfill. However, compliance with the city's *Solid Waste Integrated Resources Plan* and solid waste diversion requirements would ensure that impacts from solid waste disposal would be less than significant. Therefore, the proposed Program's contribution to cumulative solid waste demands would be less than cumulatively considerable.

Mitigation Measures and Cumulative Residual Impacts

The proposed Program would not make a cumulatively considerable contribution to a significant cumulative impact. Therefore, no mitigation is required.

Cumulative Impact UT-5: The proposed Program would not require new, offsite energy supply and distribution infrastructure, or capacity-enhancing alterations to existing facilities that are not anticipated by adopted plans or programs – Less than Cumulatively Considerable

Cumulative Impact UT-5 addresses the potential for the proposed Program when combined with past, present, and reasonably foreseeable future projects to generate increases in energy demands such that construction of new energy supply facilities and distribution infrastructure would be required.

Impacts of Past, Present, and Reasonably Foreseeable Future Projects

Construction and operation of past and present projects has resulted in demands for energy and natural gas. These demands are currently accommodated by existing facilities as provided by the LADWP and the Gas Company. Many of the projects identified in Table 4.1-1 involve new or expanded land uses and/or cargo throughput that may result in additional demands on electricity and natural gas. These projects include Pier 500 (#9), Berths 136-147 Marine Terminal (TraPac) (#13), San Pedro Waterfront Project (#14), Berths 226-236 (Evergreen) Container Terminal Improvements Project (#17), Berths 97-109 China Shipping Development Project (#25), Berths 171-181, Pasha Marine Terminal Improvements Project (#26), SCIG (#31), Berths 212-224 (YTI) Container Terminal Improvements Project (#35), and Berths 121-131 (Yang Ming) Container Terminal Improvements Project (#36). One future project, the Solar Panel Installation Program (#42), would install 10MW of solar power within the Port.

LADWP has a total generating capacity of approximately 7,125 MW per day to serve a peak Los Angeles demand of about 6,142 MW (LADWP 2010). Under the Los Angeles City Charter (Sections 220 and 673), LADWP has the power and duty to construct, operate, maintain, extend, manage, and control water and electric works and property for the benefit of the City and its inhabitants. LADWP's IRP anticipates load growth and plans new generating capacity or demand side management programs to meet load requirements for future customers. The LADWP prepared IRPs in 2000, 2007, and most recently in 2010 to provide a framework to assure that

future energy needs of LADWP customers are reliably met at the least cost and are consistent with the City commitment to environmental excellence (LADWP 2010). In 2002, SB 1078 implemented a Renewable Portfolio Standard, which established a goal that 20 percent of the energy sold to customers be generated by renewable resources by 2017. The IRP provides objectives and recommendations to reliably supply LADWP customers with power and to meet the 20 percent renewable energy goal by 2017.

As of the 2010 IRP, LADWP prepared a Load Forecast predicting that LADWP customers' electricity consumption will increase at an average rate of 1.3 percent per year over the next 20 years with less growth over the next few years due to the current economic recession. For 2027, LADWP predicts that peak demand will reach 7,445 MW.

Through implementation of strategies identified in the IRP, electricity resources and reserves at LADWP will adequately provide electricity for the Port. LADWP is required by the Charter to provide a reliable supply of electricity for its customers, and because LADWP is moving toward increasing renewable energy supplies in its resource portfolio, the electricity demand of the past, present, and reasonably foreseeable future projects would not result in the need to construct a new unplanned offsite power station or facility. As a result, past, present, and reasonably foreseeable future related projects would not result in a significant cumulative impact related to the provision of energy.

Natural gas service to the proposed appealable/fill project sites would be supplied by the Gas Company. As a public utility, the Gas Company is under the jurisdiction of the CPUC and can be affected by actions of federal regulatory agencies. Although regulatory actions may affect the regional and local supply and pricing of natural gas, substantial changes in this utility supply are not anticipated based on current supply and demand projections (California Gas and Electric Utilities 2012). Therefore, past, present, and reasonably foreseeable future projects would not result in a cumulatively significant impact related to natural gas service.

Contribution of the Proposed Program (Prior to Mitigation)

Energy (diesel fuel and electricity) would be used during construction of the proposed appealable/fill projects. Energy expenditures during construction activities would be short-term, occurring periodically during project-specific construction phases. Construction of the proposed appealable/fill projects and land use changes would not result in substantial waste or inefficient use of energy because construction would be competitively bid, which would facilitate efficiency in all construction stages.

Proposed appealable/fill projects and land use changes under the PMPU would incorporate energy-efficient designs that are mandated by current building codes and LAHD policies (e.g., LAHD's Green Building Policy, the City of Los Angeles Green LA Action Plan, and LAMC). As such, energy efficiency standards would be incorporated into the design of future buildings to decrease energy demands. Additionally, the proposed appealable/fill projects would incorporate energy conservation measures in compliance with CBC Title 24 that requires energy efficiency standards for new construction, including requirements for new buildings,

additions, alterations, and repairs to nonresidential buildings. Compliance with CARB requirements to AMP vessels would result in an increase in electricity consumption by the proposed appealable/fill projects. However, based on the LADWP Power IRP, electricity resources and reserves at LADWP would provide adequate electricity for all its customers, including the Port, through the current Power IRP planning horizon of 2040 (LADWP 2010). Therefore, the proposed Program would not make a cumulatively considerable contribution to cumulative energy (electricity and natural gas) demands.

Mitigation Measures and Cumulative Residual Impacts

The proposed Program would not make a cumulatively considerable contribution to a significant cumulative impact. Therefore, no mitigation is required.

4.2.14 Water Quality, Sediments, and Oceanography

4.2.14.1 Scope of Analysis

This section evaluates the potential for the proposed Program, together with other past, present, and reasonably foreseeable future projects, to make a cumulatively considerable contribution to a significant cumulative impact to water quality, sediment, and oceanography. The geographic scope for cumulative impacts to water quality, sediments, and oceanography 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 Port 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 port complex because the federal breakwater shelters the two ports as a unit and water circulates within the port complex.

The scope of past, present, and future projects that contribute to the cumulative impacts analysis on water quality, sediments, and oceanography spans historic Port activities through to future projects identified in Table 4.1-1. The significance criteria used for the cumulative analysis are the same as those used for the proposed Program in Section 3.14, Water Quality, Sediments, and Oceanography.

4.2.14.2 Cumulative Impact Assessment

Cumulative Impact WQ-1: The proposed Program would not cause violations of any water quality standard or waste discharge requirement, or create a condition of pollution, contamination or nuisance as defined in California Water Code §13050 – Less than Cumulatively Considerable

Cumulative Impact WQ-1 addresses the potential for the proposed Program when combined with past, present, and reasonably foreseeable future projects to create pollution, cause nuisances, or violate applicable standards for the receiving water body.

Impacts of Past, Present, and Reasonably Foreseeable Future Projects

Water and sediment quality within the geographic scope are affected by activities within the Port, inputs from the watershed including aerial deposition of particulate pollutants, and effects from historical (legacy) inputs to the Port. As discussed in Section 3.14, Water Quality, Sediments, and Oceanography, portions of the port 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 are being or will be developed that specify load allocations from the individual input sources such that the cumulative loadings to the Port 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 be expected to persist.

Present and reasonably foreseeable future projects (e.g., East Basin Marina Improvements (#8), Pier 500 (#9), Relocation of Jankovich Marine Fueling Station (#12), and Berths 226-236 (Evergreen) Container Terminal Improvements Project (#17)) 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 would occur only if both the timeframe and geographic influences of concurrent projects overlapped.

Many projects, such as the City Dock No. 1 Marine Research Project (#2), Wilmington Waterfront Development Project (#5), and Wilmington Youth Sailing and Aquatic Center (#27), once operational, would result in wastewater and/or stormwater discharges to the Port that could contain a variety of constituents such as dissolved metals and organic compounds. However, given that wastewater and stormwater discharges are regulated by NPDES permits, impacts 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.

Assuming that the potential for accidental spills, illegal vessel discharges, and leaching of contaminants from vessel hulls would increase in proportion to the increased vessel traffic, waste loadings in the Port would also be expected to increase. 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.

Contribution of the Proposed Program (Prior to Mitigation)

In-water construction activities associated with the proposed Program would disturb bottom sediments. Disturbances of bottom sediments would alter some water quality parameters such as DO, nutrients, chemical contamination, and turbidity. These changes would be of short duration and localized to the mixing zone associated with

the construction activity, and are not expected to exceed applicable standards outside of any approved mixing zone. Given that the timeframes for some of the proposed appealable/fill projects are unknown, the potential for overlapping or cumulative impacts to water quality is uncertain. Regardless, each of these projects would require permits for in-water construction activities, and the permits would identify limits for water quality parameters that are designed to protect beneficial uses. Once the construction phase of an in-water project was completed, operations would not be expected to cause further disturbances to bottom sediments or contribute to cumulative impacts.

Proposed appealable/fill projects and land use changes under the proposed Program would not result in any direct discharge of wastewater to the Port, other than stormwater.

Stormwater runoff from the onshore portions of the PMPU area would flow into the Port, along with runoff from adjacent areas of the large, primarily urbanized, watershed. Stormwater runoff from backland areas of the Port would be governed by a stormwater permit, similar to those required for the other cumulative projects, that specifies constituent limits and/or mass emission rates that are intended to protect water quality and beneficial uses of receiving waters. BMPs to prevent or minimize contaminant loadings to the Port from stormwater runoff from past, present, and future projects, including the proposed appealable/fill projects associated with the proposed Program, are required by the SUSMP, which is incorporated into the Los Angeles County Urban Runoff and Stormwater NPDES Permit. While adopted BMPs will vary by project, all BMPs must meet specific design standards to mitigate stormwater runoff and control peak flow discharges. The SUSMP also requires implementation of a monitoring and reporting program to ensure compliance with the constituent limitations in the permit.

The proposed Program would increase vessel traffic in the Port and the Port of Long Beach, which is a potential source of contaminants through discharges incidental to vessel operation and maintenance, such as deck wash-down and leachate from vessel hull anti-fouling paints. Vessels calling at the ports would be subject to the requirements of various federal and state regulations governing discharges to state waters. Future increases in ship calls would also increase risks of accidental spills and illegal discharges into the harbor, with corresponding increases in potentials for impacts to water and sediment quality. In accordance with LAHD's spill response system, vessels are required to maintain oil spill contingency plans and have the financial resources to support a spill response. The USCG conducts regular inspections of vessels to ensure seaworthiness and verify that appropriate pollution control mechanisms are in place. Compliance with the Harbor Toxics TMDL and the VGP is expected to reduce contaminant loading to port waters and sediments.

Therefore, water quality impacts from the proposed Program would be less than cumulatively considerable.

Mitigation Measures and Cumulative Residual Impacts

The proposed Program would not make a cumulatively considerable contribution to a significant cumulative impact. Therefore, no mitigation is required.

Cumulative Impact WQ-2: The proposed Program would not result in placement of fill that substantially reduces or increases the amount of surface water in a water body – Less than Cumulatively Considerable

Cumulative Impact WQ-2 addresses the potential for the proposed Program when combined with past, present, and reasonably foreseeable future projects to substantially reduce or increase the amount of surface water in a water body.

Impacts of Past, Present, and Reasonably Foreseeable Future Projects

The port 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. For example, a total of approximately 2.65 million cubic yards of sediments were dredged for harbor maintenance between 1978 and 2002 at an average rate of approximately 111,000 cubic yards per year. In addition, approximately 75 million cubic yards of sediments were dredged for Port capital improvement projects between 1980 and 1997 at an average rate of approximately 4.4 million cubic yards per year. This total does not include the volume of sediment dredged for the Port's Channel Deepening Project (CSTF 2005). To the extent these structures are still present and sediments have not filled back into the dredged areas, changes to surface area and volume persist to the present day.

Cumulative past, present, and future projects identified in Table 4.1-1 that could increase or decrease the surface area or volume of the port complex include: Pier 500 (#9), Berths 136-147 Marine Terminal (TraPac) (#13), San Pedro Waterfront Project (#14), Berths 97-109 China Shipping Development Project (#25), Chemoil Marine Terminal, Tank Installation (#78), and Schuyler Heim Bridge Replacement (#84). Some of these projects propose to increase, and others to decrease, surface area or volume. Many of these projects (Table 4.1-1) would place fill in the harbor, totaling over 700 acres, of which about 600 acres are completed or under construction (LAHD and USACE 2008). Other cumulative projects with a dredging component, such as the Channel Deepening Project (#15), have removed watershed-derived sediments that accumulated within navigational channels and new project areas. The Channel Deepening Project has removed approximately 8 million cubic yards of sediment and thereby increased the volume of water in the Port. Combined, past, present, and future projects have caused a cumulatively significant reduction in the surface area of the Inner Harbor.

Contribution of the Proposed Program (Prior to Mitigation)

Three of the proposed appealable/fill projects (Yang Ming Terminal Redevelopment, China Shipping Fill, and Berth 300 Development) would have small fill (6 acres, 16 acres, and 18 acres, respectively) components. The Yang Ming Terminal Redevelopment Project also would involve a small cut (i.e., creation of open water) that would create 3 acres of new open water. The net surface area of the fills

associated with the Yang Ming Terminal Redevelopment, China Shipping Fill, and Berth 300 Development projects (40 acres combined) represents only a small portion of the total acreage of open water habitat within the PMPU area (approximately 3,250 acres). Minor, temporary, and localized changes in surface water coverage would occur from in-water construction activities due to the presence of construction equipment. However, this effect would be minor because much of the construction work likely would occur from land, minimizing the need for in-water construction equipment. Thus, these proposed appealable/fill projects would have little effect on the amount of open water in the PMPU area.

The Al Larson Marina Project would remove docks and pilings from the existing marina, which would result in minor, temporary, and localized changes in surface water coverage due to the presence of construction equipment. However, once the docks were removed, construction of the Al Larson Marina would result in a small net increase in open water.

The small net change in the surface area of open water in the port complex associated with operation of the Yang Ming Terminal Redevelopment, China Shipping Fill, and Berth 300 Development projects would not result in significant changes in water or sediment quality or beneficial uses. As such, the contribution of the proposed Program to a cumulatively significant impact related to an increase in surface area in a water body would not be cumulatively considerable.

Mitigation Measures and Cumulative Residual Impacts

The proposed Program would not make a cumulatively considerable contribution to a significant cumulative impact. Therefore, no mitigation is required.

Cumulative Impact WQ-3: The proposed Program would not result in placement of fill that causes permanent adverse changes to the movement of surface water sufficient to produce a substantial change in the current or direction of water flow – Less than Cumulatively Considerable

Cumulative Impact WQ-3 addresses the potential for the proposed Program along with other cumulative projects to permanently alter surface water movements and cause adverse changes in water or sediment quality.

Impacts of Past, Present, and Reasonably Foreseeable Future Projects

As discussed under Cumulative Impact WQ-2, the proposed Program area is within a commercial harbor environment that has been highly modified by past dredging, filling, and shoreline development in support of the maritime operations. Past development has altered surface water movement in the Port through alterations to landforms and bathymetry. Regardless, results from water quality measurements during recent baseline studies of the Port (SAIC 2010) did not indicate stagnation or degraded water quality as a result of restricted water flows. This is expected because channels and waterways within the port complex are maintained for vessel

navigation, and the present configuration of the Port provides for adequate water exchanges between different areas of the port complex.

Contribution of the Proposed Program (Prior to Mitigation)

Three of the proposed appealable/fill projects (Yang Ming Terminal Redevelopment, China Shipping Fill, and Berth 300 Development) would have small fill (6 acres, 16 acres, and 18 acres, respectively) components. The Yang Ming Terminal Redevelopment Project also would involve a 3-acre cut. 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 to marine water quality. Instead, minor, temporary and localized changes in flow conditions could occur due to the presence of construction equipment. However, these effects would be minor because much of the construction work would occur from land, minimizing the need for in-water construction equipment.

Long-term changes to water flow patterns in the port complex related to operation of the Yang Ming Terminal Redevelopment and China Shipping Fill projects would be minor because the footprints of the cut and fill areas would be small relative to the overall surface water area. Therefore, the proposed appealable/fill projects would not make a cumulatively considerable contribution to a significant cumulative water quality impact.

Mitigation Measures and Cumulative Residual Impacts

The proposed Program would not make a cumulatively considerable contribution to a significant cumulative impact. Therefore, no mitigation is required.

Cumulative Impact WQ-4: The proposed Program would not accelerate natural processes of wind and water erosion and sedimentation, resulting in sediment runoff or deposition which would not be contained or controlled onsite – Less than Cumulative Considerable

Cumulative Impact WQ-4 addresses the potential for the proposed Program along with other cumulative projects to increase the rates of soil erosion within onshore portions of the project site and sedimentation within the site or in adjacent properties and receiving waters.

Impacts of Past, Present, and Reasonably Foreseeable Future Projects

Cumulative projects involving demolition or construction are expected to disturb soils and make them subject to erosion by wind or runoff, with potentials for subsequent transport into, and accumulation in, the Port. Past projects have disturbed soils within upland areas of the watershed that drain to the Port, but the erosive effects of these disturbances have passed. The sedimentation and turbidity effects associated with each of these projects are temporary in nature and thus would be cumulative only if the projects overlap in both the spatial and temporal extent of their impacts on water quality. Given the size of the affected area and the number of projects, it is likely that

several projects would overlap in temporal extent, but these projects are distributed over a large area. In addition, these projects would be subject to sediment and erosion control requirements and would be required to prevent and control sediment in runoff. None of the projects identified in Table 4.1-1 is known to have been individually shown to have a significant impact attributable to sedimentation. Thus, the cumulative impacts of concurrent backland construction projects would not result in significant cumulative impacts on turbidity and sedimentation.

Contribution of the Proposed Program (Prior to Mitigation)

Construction activities associated with the proposed appealable/fill projects (i.e., Yang Ming Terminal Redevelopment, China Shipping Fill, Berths 187-189 Liquid Bulk Relocation, Berth 300 Development, Tri Marine Expansion, 338 Cannery Street Adaptive Reuse, and Al Larson Marina) would not accelerate natural processes of wind and water erosion and offsite sedimentation impacts in the harbor. While soils exposed by construction activities would be subject to erosion, construction SWPPPs would incorporate BMPs to minimize erosion and offsite transport of soils and solids from construction and project sites. The proposed Program impacts on rates of erosion and sedimentation would not be cumulatively considerable, and the proposed Program would not make a cumulatively considerable contribution to a significant cumulative erosion and sedimentation impact.

Mitigation Measures and Cumulative Residual Impacts

The proposed Program would not make a cumulatively considerable contribution to a significant cumulative impact. Therefore, no mitigation is required.

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