Chapter 19
TRANSPORTATION AND TRAFFIC (MARINE)

19.1 Introduction

This chapter describes existing conditions and applicable regulations related to marine transportation surrounding the Port of Los Angeles, discusses potential impacts on marine transportation operation and safety associated with the project elements, and determines the significance of those impacts. There are no program elements that would apply to or have an impact on marine transportation and traffic; therefore, this chapter does not include a discussion of the program. For transportation and traffic impacts associated with the program elements, onshore tunnel alignments, and shaft sites, see Chapter 18.

Marine-based construction activities with potential impacts under the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA) include dredging near the riser and diffuser areas; transport of offshore tunnel excavated material from the Los Angeles Export Terminal (LAXT) shaft site and dredged material from the riser and diffuser areas to an Ocean Dredged Material Disposal Site (ODMDS); transport of the riser and diffuser; transport of workers from the Port of Los Angeles to the riser and diffuser construction locations; construction of the riser and diffuser; and rehabilitation of the existing ocean outfalls. Operational activities with potential impacts under CEQA and NEPA include marine traffic generated by maintenance of the riser and diffuser on the San Pedro Shelf (SP Shelf).

As discussed in Section 3.6.1, a Preliminary Screening Analysis (Appendix 1-A) was performed to determine impacts associated with the construction and operation of program and project elements by resource area. During preliminary screening, each element was determined to have no impact, a less than significant impact, or a potentially significant impact. Those elements determined to be potentially significant were further analyzed in this environmental impact report/environmental impact statement (EIR/EIS). This EIR/EIS analysis discloses the final impact determination for those elements deemed potentially significant in the Preliminary Screening Analysis. The location of the impact analysis for each program element is summarized by alternative in Table 19-1. As shown in the table, none of the program-level elements are analyzed in the Preliminary Screening Analysis or this chapter because they are all located outside the marine environment.

Table 19-1. Impact Analysis Location of Program Elements by Alternative

	Alternative						Analysis Location	
Program Element	**1**	**2**	**3**	**4**	**5[a]**	**6[b]**	**PSA**	**EIR/EIS**
Conveyance System								
Conveyance Improvements	X	X	X	X	X	N/A	N/A	
SJCWRP								
Plant Expansion	X	X	X	X	X	N/A	N/A	
Process Optimization	X	X	X	X	N/A	N/A	N/A	
WRP Effluent Management	X	X	X	X	X	N/A	N/A	

Table 19-1 (Continued)

	Alternative						Analysis Location	
Program Element	**1**	**2**	**3**	**4**	**5[a]**	**6[b]**	**PSA**	**EIR/EIS**
POWRP								
Process Optimization	X	X	X	X	N/A	N/A	N/A	
WRP Effluent Management	X	X	X	X	X	N/A	N/A	
LCWRP								
Process Optimization	X	X	X	X	N/A	N/A	N/A	
WRP Effluent Management	X	X	X	X	X	N/A	N/A	
LBWRP								
Process Optimization	X	X	X	X	N/A	N/A	N/A	
WRP Effluent Management	X	X	X	X	X	N/A	N/A	
WNWRP								
WRP Effluent Management	X	X	X	X	X	N/A	N/A	
JWPCP								
Solids Processing	X	X	X	X	X	N/A	N/A	
Biosolids Management	X	X	X	X	X	N/A	N/A	
JWPCP Effluent Management	X	X	X	X	N/A	N/A	Evaluated at the project level. See Table 19-2.	

WRP effluent management and biosolids management do not include construction.
[a] See Section 19.4.7 for a discussion of the No-Project Alternative.
[b] See Section 19.4.8 for a discussion of the No-Federal-Action Alternative.
PSA = Preliminary Screening Analysis
C = construction
O = operation
N/A = not applicable

As discussed in Section 3.2.2, Joint Water Pollution Control Plant (JWPCP) effluent management was the one program element carried forward as a project. The location of the marine transportation impact analysis for each project element is summarized by alternative in Table 19-2. As shown in Table 19-2, the onshore tunnel alignments and shaft sites would be located on land and would not influence the marine environment; therefore, they are not discussed in the Preliminary Screening Analysis or this chapter.

Table 19-2. Impact Analysis Location of Project Elements by Alternative

	Alternative						Analysis Location	
Project Element	**1**	**2**	**3**	**4**	**5[a]**	**6[b]**	**PSA**	**EIR/EIS**
Tunnel Alignment								
Wilmington to SP Shelf (onshore)	X				N/A	N/A		N/A
Wilmington to SP Shelf (offshore)	X				N/A	N/A	O	C
Wilmington to PV Shelf (onshore)		X			N/A	N/A		N/A
Wilmington to PV Shelf (offshore)		X			N/A	N/A	O	C
Figueroa/Gaffey to PV Shelf (onshore)			X		N/A	N/A		N/A
Figueroa/Gaffey to PV Shelf (offshore)			X		N/A	N/A	O	C
Figueroa/Western to Royal Palms (onshore)				X	N/A	N/A		N/A

Table 19-2 (Continued)

	Alternative						Analysis Location	
Project Element	**1**	**2**	**3**	**4**	**5[a]**	**6[b]**	**PSA**	**EIR/EIS**
Shaft Sites								
JWPCP East	X	X			N/A	N/A	N/A	
JWPCP West			X	X	N/A	N/A	N/A	
TraPac	X	X			N/A	N/A	N/A	
LAXT	X	X			N/A	N/A	N/A	
Southwest Marine	X	X			N/A	N/A	N/A	
Angels Gate			X		N/A	N/A	N/A	
Royal Palms				X	N/A	N/A	N/A	
Riser/Diffuser Areas								
SP Shelf	X				N/A	N/A	O	C,O
PV Shelf		X	X		N/A	N/A	O	C
Existing Ocean Outfalls	X	X	X	X	N/A	N/A	C,O	C

[a] See Section 19.4.7 for a discussion of the No-Project Alternative.
[b] See Section 19.4.8 for a discussion of the No-Federal-Action Alternative
PSA = Preliminary Screening Analysis
C = construction
O = operation
N/A = not applicable.

19.2 Environmental Setting

19.2.1 Regional Setting

The Los Angeles Harbor is located within the Port of Los Angeles in San Pedro Bay. The bay is protected from the open Pacific Ocean by the San Pedro and Middle breakwaters. The opening between these breakwaters is known as Angels Gate, and provides entry to the Port of Los Angeles. Vessel traffic channels have been established in the Los Angeles Harbor, and numerous aids to navigation have been developed. Impacts on marine transportation and traffic associated with project elements would primarily occur within the vicinity of the Port of Los Angeles. Principally, this would include the precautionary area directly outside the Port of Los Angeles, but it would also include the area surrounding the existing ocean outfalls as well as marine vessel traffic lanes from the Port of Los Angeles to potential ocean disposal sites. Therefore, the discussion in this chapter will be limited to these areas.

Numerous vessels, including fishing boats, pleasure vessels, passenger-carrying vessels, tankers, auto carriers, container vessels, dry bulk carriers, cruise ships, and barges, call or reside at the port. Commercial vessels follow vessel traffic lanes established by the United States (U.S.) Coast Guard (USCG) when approaching and leaving the harbor, as depicted on Figure 19-1. Designated traffic lanes converge at the precautionary areas shown on the figure. Vessel traffic, as it approaches, enters, and leaves the port, is described in the following section.

19.2.1.1 Vessel Transportation Safety

Vessel traffic is highly regulated by the USCG Captain of the Port (COTP) and the Marine Exchange of Southern California (Marine Exchange) via the Vessel Traffic Service (VTS). Mariners are required to report their positions to the COTP and the VTS prior to transiting through the port. The VTS monitors

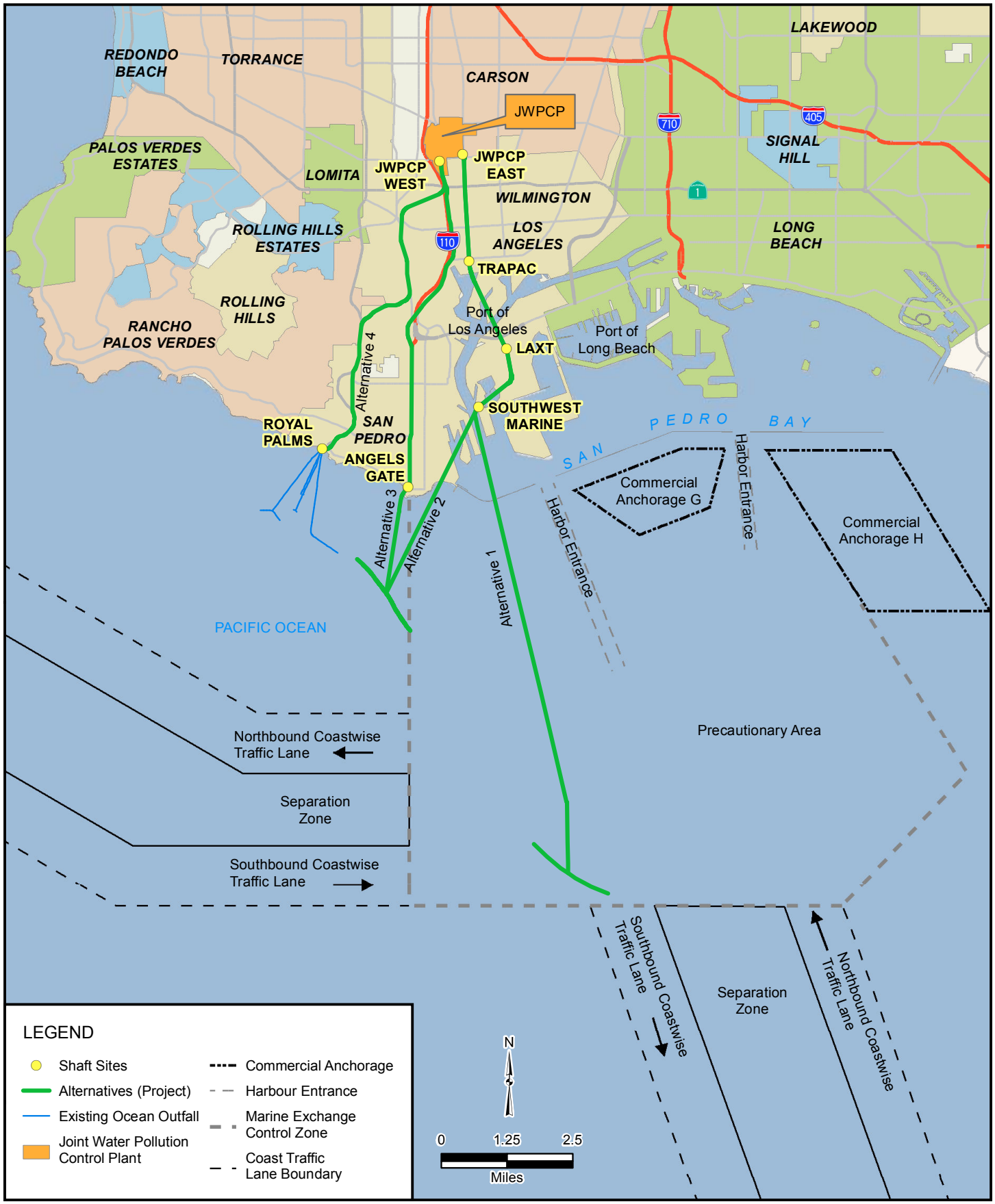

FIGURE 19-1

CLEARWATER Program

Vessel Traffic Lanes Entering and Exiting Port Complex

Source: Sanitation Districts of Los Angeles County 2011, Thomas Bros. 2011, ESRI 2011

the positions of all inbound/outbound vessels within the precautionary area and the approach corridor traffic lanes as shown on Figure 19-1. Smaller craft, such as yachts and fishing vessels, are not required to participate in the VTS. In the event of scheduling conflicts and/or if vessel occupancy within the port reaches operating capacity, vessels are required to anchor at the commercial anchorages (G and H on Figure 19-1) outside the breakwater until mariners receive COTP authorization to initiate transit into the port.

Several measures are in place to ensure the safety of vessel navigation in the port area. The USCG provides a weekly Local Notice to Mariners (LNM), which describes current navigational issues and construction activities within the region. 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. These navigation areas, routes, and regulating agencies and organizations are described in this section.

Marine Exchange of Southern California

The Marine Exchange is a voluntary, non-profit organization affiliated with the Los Angeles Chamber of Commerce that monitors, facilitates, and reports on all traffic statistics for the four major ports in Southern California, including the Port of Los Angeles. One of the purposes of the Marine Exchange is to enhance navigation safety in the precautionary area and harbor area of the Port of Los Angeles. Services consist of a coordinating office, specific reporting points, and very high frequency-frequency modulation radio communications used with participating vessels. Vessel traffic channels and numerous aids to navigation (i.e., operating rules and regulations) have also been established for the port. The Marine Exchange also operates the Physical Oceanographic Real Time System (PORTS) as a service to organizations making operational decisions based on oceanographic and meteorological conditions in the vicinity of the port. PORTS collects and disseminates accurate real-time information on tides, visibility, winds, currents, and sea swells to maritime users to assist in the safe and efficient transit of vessels in the port area.

Vessel Traffic Service

The VTS is operated by the Marine Exchange and the USCG to monitor traffic with shore-based radar within both the main approach and departure lanes, including the precautionary area, as well as internal movement within port areas. The VTS uses radar, radio, and visual inputs to collect real-time vessel traffic information and broadcast traffic advisories to assist mariners. Vessels are required to report their positions and destinations to the VTS at certain times and locations, and they may also request information about traffic they could encounter in the precautionary area. The VTS implements the COTP's uniform procedures, including advanced notification to vessel operators, vessel traffic managers, and port pilots identifying the location of dredges, derrick barges, and any associated operational procedures and/or restrictions (e.g., one-way traffic), to ensure safe transit of vessels operating within, to, and from the port complex. In addition, a communication system links the following key operational centers: USCG COTP, VTS, Los Angeles Pilot Station, Long Beach Pilot Station, and the Port of Long Beach Security. This system is used to exchange vessel movement information and safety notices among the various organizations.

Traffic Separation Schemes

A traffic separation scheme is an internationally recognized vessel routing designation that separates opposing flows of vessel traffic into lanes, and includes a zone between lanes where traffic is to be avoided. Traffic separation schemes have been designated to help direct offshore vessel traffic along portions of the California coastline. Vessels are not required to use any designated traffic separation scheme, but failure to use one, if available, would be a major factor for determining liability in the event of a collision. Traffic separation scheme designations are proposed by the USCG, but must be approved

by the International Maritime Organization, which is part of the United Nations. The traffic lanes utilized for traffic separation schemes at the port are shown on Figure 19-1.

Precautionary and Regulated Navigation Areas

A precautionary area is designated in congested areas near the entrance to the port to set speed limits or to establish other safety precautions for ships entering or departing the port. A regulated navigation area (RNA) is defined as a water area within a defined boundary for which federal regulations for vessels navigating within this area have been established under 33 Code of Federal Regulations (CFR) Part 165, Subsection 165.1109. In the case of the port, RNA boundaries match the designated precautionary area. Portions of the precautionary area as an RNA are identified in 33 CFR Part 165, Subsection 165.1152.

The precautionary area for the port is defined by a line that extends south from Point Fermin approximately 7 nautical miles, then due east approximately 7 nautical miles, then northeast for approximately 3 nautical miles, and then back northwest (see Figure 19-1). Ships are required to cruise at speeds of 12 knots or less upon entering the precautionary area. A minimum vessel separation of 0.25 nautical mile is also required in the precautionary area. Vessel traffic within the precautionary area is monitored by the Marine Exchange.

Pilotage

The Port of Los Angeles enforces numerous federal navigation regulations (i.e., port tariffs) within the port. Specifically, all vessels of foreign registry as well as larger U.S. commercial vessels (i.e., greater than 300 gross tons) are required to use a federally licensed pilot when navigating inside the breakwater. Some U.S. flag vessels have a trained and licensed pilot onboard; those vessels are not required to use a pilot while navigating larger vessels through the port. In most circumstances, vessels employ the services of a federally licensed local pilot from the port pilots. In instances where a local pilot is not used, pilots must have a local federal pilot license and receive approval by the USCG COTP prior to entering or departing the port. The port tariffs also require vessels to notify the affected pilot station(s) in situations when a pilot is not needed before entering, leaving, shifting, or moving between the Port of Los Angeles and the Port of Long Beach.

Physical Oceanographic Real Time System

In partnership with the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, California Office of Spill Prevention and Response (OSPR), USCG, and some businesses operating in the Port of Los Angeles, the Marine Exchange operates PORTS to provide crucial information in real time to mariners, oil spill response teams, managers of coastal resources, and others about water levels, currents, salinity, and winds in the port.

The instruments that collect the information are deployed at strategic locations within the port to provide data at critical locations and to allow “now-casting” and forecasting using a mathematical model of the ports’ oceanographic processes (tides, currents, etc.). Data from the sensors are fed into a central collection point; raw data from the sensors are integrated and synthesized into information and analysis products, including graphical displays of PORTS data.

19.2.1.2 Navigational Hazards

Port pilots can easily identify fixed navigational hazards in the port, including breakwaters protecting the outer harbors, anchorage areas, and various wharfs and landmasses that comprise the port complex. These hazards are easily visible by radar and are currently illuminated at night. Two bridges cross the navigation channels of the port. Both bridges have restricted vertical clearances, and one has a restricted horizontal clearance.

Vessels that are waiting to enter the port and moor at a berth can anchor at the commercial anchorages outside the breakwaters. Vessels do not require tug assistance to anchor outside the breakwater. For safety reasons, the VTS will not assign an anchorage in the first row of sites closest to the breakwater to vessels exceeding 656 feet in length.

Vessel Accidents

Although marine safety is thoroughly regulated and managed, accidents do occasionally occur, including allisions (between a moving vessel and a stationary object, including another vessel), collisions (between two moving vessels), and vessel groundings. The number of vessel allisions, collisions, and groundings (ACGs) in the Port of Los Angeles and the Port of Long Beach has ranged between 3 and 12 annually in the 12-year period from 1997 through 2008, with the lowest number occurring in 2008. Based on the data shown in Table 19-3, between 1997 and 2008 there were, on average, 7.4 ACG incidents per year. Each of these accidents was subject to USCG marine casualty investigation, and the subsequent actions taken were targeted at preventing future occurrences.

Table 19-3. Allisions, Collisions, and Groundings – Port of Los Angeles/Port of Long Beach (1997–2008)

	ACG Incidents			
Year	Allisions	Collisions	Groundings	Total
1997	1	3	2	6
1998	1	2	3	6
1999	3	4	2	9
2000	3	2	1	6
2001	4	1	0	5
2002	6	5	0	11
2003	4	2	2	8
2004	6	4	2	12
2005	3	1	0	4
2006	4	0	5	9
2007	3	1	6	10
2008	1	1	1	3

These commercial vessel accidents meet a reportable level defined in 46 CFR 4.05, but do not include commercial fishing vessel or recreational boating incidents.

Source: Harbor Safety Committee 2004; Harbor Safety Committee 2009

Vessels are required by law to report failures of navigational equipment, propulsion, steering, or other vital systems that occur during marine navigation. Marine vessel accidents in San Pedro Bay are reported to the USCG via the COTP office or the COTP representative at the VTS as soon as possible. According to the VTS, approximately 1 in 100 vessels calling at the Port of Los Angeles and the Port of Long Beach experience a mechanical failure during their inbound or outbound transit.

Close Quarters

To avoid vessels passing too close to one another, the VTS documents, reports, and takes action on close quarters situations. VTS close quarters situations are described as vessels passing an object or another vessel closer than 0.25 nautical mile or 500 yards. These incidents usually occur within the precautionary area. No reliable data are available for close quarter incidents outside the VTS area. Normal actions taken in response to close quarters situations include initiating informal USCG investigation, sending letters of concern to owners and/or operators, having the involved vessel master(s) visit the VTS and review the incident, and USCG enforcement boardings. An 11-year history of the number of close

quarters situations is presented in Table 19-4. Because there was a relatively steady amount of commercial transits over that time period, there was a decreasing trend in close quarters incidents.

Table 19-4. Number of VTS-Recorded Close Quarters Incidents (1998–2008)

Year	No. of Close Quarters Incidents
1998	9
1999	5
2000	1
2001	2
2002	6
2003	4
2004	1
2005	0
2006	0
2007	1
2008	1

Sources: Harbor Safety Committee 2004; Harbor Safety Committee 2005; Harbor Safety Committee 2006; Harbor Safety Committee 2007; Harbor Safety Committee 2009

Near Misses

The Harbor Safety Committee defines a near miss as follows:

> A reportable 'Near Miss' is an incident in which a pilot, master or other person in charge of navigating a vessel, successfully takes action of a 'non-routine nature' to avoid a collision with another vessel, structure, or aid to navigation, or grounding of the vessel, or damage to the environment.

The most practical and readily available near miss data can be obtained from VTS reports, which are available from the Los Angeles Harbor Department. The number of near miss incidents is the same as the number of close quarter incidents listed in Table 19-4.

19.2.1.3 Factors Affecting Vessel Traffic Safety

This section summarizes environmental conditions that could impact vessel safety in the Port of Los Angeles area.

Fog

Fog is a well-known weather condition in Southern California. Port-area fog occurs most frequently in April and from September through January, when visibility over the bay is below 0.5 mile for 7 to 10 days per month. Fog at the Port of Los Angeles is mostly a land (radiation) type fog that drifts offshore and worsens in the late night and early morning. Smoke from nearby industrial areas often adds to its thickness and persistence. Along the shore, fog drops visibility to less than 0.5 mile for 3 to 8 days per month from August through April, and is generally at its worst in December (Harbor Safety Committee 2008).

Winds

Wind conditions vary widely, particularly in fall and winter. Winds can be strongest during the period when the Santa Ana winds (prevailing winds from the northeast occurring from October through March) blow. The Santa Ana winds, though infrequent, may be violent. A Santa Ana condition occurs when a

strong high-pressure system resides over the plateau region of Nevada and Utah and generates a northeasterly or easterly wind over Southern California. Aside from weather forecasts, there is little warning of a Santa Ana's onset; good visibility and unusually low humidity often prevail for some hours before it arrives. Shortly before arriving on the coast, the Santa Ana may appear as an approaching dark-brown dust cloud. This positive indication often provides a 10 to 30 minute warning. The Santa Ana wind may come at any time of day and can be reinforced by an early morning land breeze or weakened by an afternoon sea breeze (Harbor Safety Committee 2008a).

Winter storms produce strong winds over San Pedro Bay, particularly southwesterly to northwesterly winds. Winds of 17 knots or greater occur about 1 to 2 percent of the time from November through May. Southwesterly to westerly winds begin to prevail in the spring and last into early fall (Harbor Safety Committee 2008a).

Tides

The mean range of tide is 3.8 feet for the Los Angeles Harbor and the diurnal range is about 5.4 feet. A range of 9 feet may occur at maximum tide (Harbor Safety Committee 2008a).

Currents

The tidal currents follow the axis of the channels within the port and rarely exceed 1 knot. The Los Angeles Harbor is subject to seiche (i.e., seismically induced water waves that surge back and forth in an enclosed basin as a result of earthquakes) and surge, with the most persistent and conspicuous oscillation having about a 1-hour period. Near Reservation Point, the prominent hourly surge causes velocity variations as great as 1 knot. These variations often overcome the lesser tidal current, so that the current ebbs and flows at one-half-hour intervals. The more restricted channel usually causes the surge through the Back Channel to reach a greater velocity at the east end of Terminal Island, rather than west of Reservation Point. In the Back Channel, hourly variation may be 1.5 knots or more. At times, the hourly surge, together with shorter, irregular oscillations, causes a very rapid change in water height and current direction/velocity, which may endanger vessels moored at the piers (Harbor Safety Committee 2008a).

Water Depths

The U.S. Army Corps of Engineers (Corps) maintains the federal channels in the Port of Los Angeles. Water depths are listed in Table 19-5.

Table 19-5. Water Depths Within the Los Angeles Harbor

Channel/Basin	Depth – MLLW (feet)
Main Channel	-53
Turning Basin	-53
West Basin	-53
East Basin	-45
North Channel (Pier 300–400)	-53
North Turning Basin	-81
Approach and Entrance Channels	-81

Channels in the Los Angeles Harbor were last surveyed by the Corps in spring of 2006.
MLLW = mean lower low water
Source: Harbor Safety Committee 2008b

19.2.1.4 Vessel Traffic

The riser and diffuser areas would be located offshore of one of the busiest ports in the world. The Port of Los Angeles is the busiest port in the United States. In 2008, there were a total of 21,600 one-way trips of vessels into the Port of Los Angeles (Corps 2010a)[1]. The largest group of commercial vessels to enter and leave the port is container ships. Increasing cargo volumes in recent years have been accommodated primarily by larger vessels rather than additional vessels. Some of the largest container ships in the world now visit the Port of Los Angeles. Container ships as long as 1,000 feet and over 100,000 tons have visited the port. The largest container ships in the world now exceed 150,000 gross tons and 1,200 feet in length. In most of the port complex, it is possible to operate the largest container ships currently afloat. (Parsons 2011.)

In addition to the commercial cargo traffic previously discussed, the port also serves a small fishing vessel fleet based in Fish Harbor and a wide variety of commercial passenger marine vessels including cruise ships, passenger ferries to Catalina Island, sport fishing tours, whale watching tours, harbor cruises, and private recreational vessels. The Port of Los Angeles is the largest cruise ship terminal on the West Coast. Passenger ferry traffic to Catalina Island offered by Catalina Express varies seasonally with approximately 10 to 15 weekly round-trips to the island during the spring (Catalina Express 2010). In addition, operators conducting sport fishing and whale watching tours offer multiple daily trips, contributing to the substantial amount of small-vessel traffic within the port.

Main Channel

The Los Angeles Main Channel extends northwest from the channel entrance for about 1 mile, then veers north to the Inner Harbor turning basin, as shown on Figure 19-2. The Main Channel is 1,000 feet wide. About 0.6 mile northwest of the breakwater, the supertanker channel leads west from the Main Channel to the deep-draft facilities at Berths 45–50. The Main Channel from the breakwater to the supertanker channel and the supertanker channel are maintained at 53 feet. Water depths of the Main Channel and other nearby channels are shown in Table 19-5.

West Basin

The West Basin extends approximately 1.4 miles northwest of the Main Channel near the Vincent Thomas Bridge, as shown on Figure 19-2. The West Basin is approximately 700 feet wide. Commercial vessel traffic in the West Basin consists mostly of container shipping, with a few tankers and some other marine traffic. Water depths of the West Basin and other nearby channels are shown in Table 19-5.

19.2.2 Program Setting

The program would result in no impacts on marine transportation; therefore, the existing program setting is not discussed.

[1] The Corps defines a *trip* as a vessel movement. For self-propelled vessels, a trip is logged between every point of departure and every point of arrival (e.g., a one-way trip). For loaded barges, a trip is logged from the point of the loading of the barge to the point of unloading of the barge. For empty barges, trips are logged from the point of unloading to the point of loading counting the fleeting areas in between. Some towboat trips and empty barge moves are estimated from a sample to expedite processing and reduce costs. The number of trips also includes vessels engaged in foreign trade. These movements are furnished by U.S. Customs and Boarder Protection. To more accurately reflect the actual traffic patterns (e.g., inbound vs. outbound trip counts), some adjustments are made to the domestic trip counts in the trip tables produced by the Corps (Corps 2011).

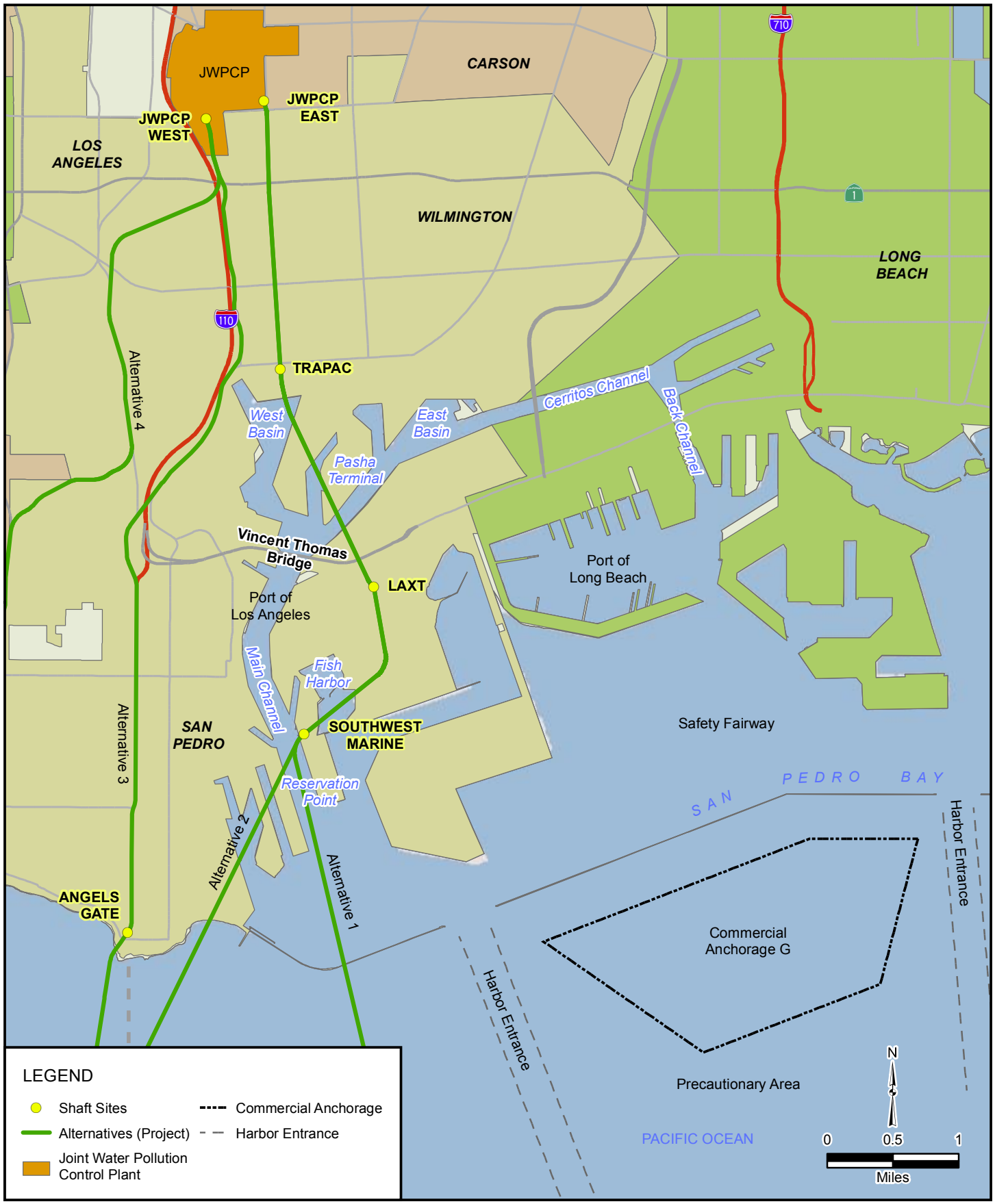

FIGURE 19-2

CLEARWATER Program

Port of Los Angeles Vicinity

Source: Sanitation Districts of Los Angeles County 2011, Thomas Bros. 2011, ESRI 2011

19.2.3 Project Setting

The marine transportation and traffic thresholds of significance only apply to construction and operation of the riser and diffuser project elements, construction of the offshore tunnel alignments, and rehabilitation and maintenance of the existing ocean outfalls; all other project elements will not be addressed in this section.

With respect to offshore tunnel construction and riser and diffuser construction, it is assumed that all non-hazardous excavated material deemed to be suitable for ocean disposal by the Southern California Dredged Material Management Team (SC-DMMT) would be disposed of at an available ODMDS. All hazardous material excavated from the offshore tunnel alignments and all material, non-hazardous and hazardous alike, excavated from shaft sites would be disposed of at appropriate onshore locations. The construction and operation of all other project elements would occur on land and would not otherwise affect marine transportation and traffic. Details of the project are provided in Chapters 1, 2, and 3.

19.3 Regulatory Setting

19.3.1 Federal

A number of federal laws regulate marine structures and movement of vessels. In general, these laws address design and construction standards, operational standards, and spill prevention and cleanup. Regulations to implement these laws are contained primarily in Titles 33 (Navigation and Navigable Waters), 40 (Protection of Environment), and 46 (Shipping) of the CFR.

Since 1789, the federal government has authorized navigation channel improvement projects. The General Survey Act of 1824 established the Corps' role as the agency responsible for the navigation system. Since then, ports have worked in partnership with the Corps to maintain waterside access to port facilities.

19.3.1.1 U.S. Coast Guard

The USCG, through Title 33 (Navigation and Navigable Waters) and Title 46 (Shipping) of the CFR, is the federal agency responsible for vessel inspection, marine terminal operations safety, coordination of federal responses to marine emergencies, enforcement of marine pollution statutes, marine safety (navigation aids), and operation of the National Response Center for spill response.

19.3.1.2 U.S. Army Corps of Engineers

The Corps is responsible for maintaining the navigability of federal channels, through dredging, and maintenance of federal infrastructure, such as jetties and breakwaters. The Corps is also responsible for ensuring navigability of federal waterways through review and issuance of permits under Section 10 of the Rivers and Harbors Act of 1899.

19.3.2 Regional

19.3.2.1 Marine Exchange of Southern California

As described in Section 19.2.1.1, the Marine Exchange is a non-profit organization affiliated with the Los Angeles Chamber of Commerce. The organization is supported by subscriptions from port-related

organizations that recognize the need for such an organization and use its services. This voluntary service is designated to enhance navigation safety in the precautionary area and harbor area of the Port of Los Angeles. The Marine Exchange monitors vessel traffic within the precautionary area and operates PORTS (see Section 19.2.1.1) as a service to those making operational decisions based on oceanographic and meteorological conditions in the vicinity of the Port of Los Angeles.

19.3.2.2 Harbor Safety Committee

The Port of Los Angeles has a Harbor Safety Committee (committee) that is responsible for planning the safe navigation and operation of tankers, barges, and other vessels within San Pedro Bay and approach areas. This committee has been created under the authority of Government Code Section 8670.23(a), which requires the Administrator of the OSPR to create a harbor safety committee for the Los Angeles and Long Beach Harbors. The committee issued the original Port of Los Angeles/Port of Long Beach Harbor Safety Plan (HSP) in 1991 and has issued annual updates since. Major issues facing the committee include questions regarding the need for escort tugs, required capabilities of escort tugs, and the need for new or enhanced vessel traffic information systems to monitor and advise vessel traffic.

The committee developed a regulatory scheme, which includes the minimum standards that are applicable under favorable circumstances and conditions, to institutionalize good marine practices and guide those involved in moving tanker vessels. The master or pilot will arrange for additional tug assistance if bad weather, unusual harbor congestion, or other circumstances so require.

19.3.2.3 Harbor Safety Plan

The HSP contains additional operating procedures for vessels operating in the port vicinity. The vessel operating procedures stipulated in the HSP are considered good marine practice. Some procedures are federal, state, or local regulations, while other guidelines are non-regulatory standards of care.

The HSP provides specific rules for navigation of vessels in reduced visibility conditions and does not recommend transit for vessels greater than 150,000 deadweight tonnage if visibility is less than 1 nautical mile, and for all other vessels if visibility is less than 0.5 nautical mile.

The HSP establishes vessel speed limits. In general, speeds should not exceed 12 knots within the precautionary area or 6 knots within the port. These speed restrictions do not preclude the master or pilot from adjusting speeds to avoid or mitigate unsafe conditions. Weather, vessel maneuvering characteristics, traffic density, construction/dredging activities, and other possible issues are taken into account.

19.3.2.4 Vessel Transportation Service

As described previously, the VTS is a shipping service operated by the USCG or public/private sector consortiums (see Section 19.2.1.1). These services monitor traffic in both approach and departure lanes, as well as internal movement within the port. These services use radar, radio, and visual inputs to gather real-time vessel traffic information and broadcast traffic advisories and summaries to assist mariners. The VTS that services the Port of Los Angeles is located at the entrance to the port. The system is owned by the Marine Exchange and is operated jointly by the Marine Exchange and the USCG under the oversight of the OSPR and the Harbor Safety Committee.

This system provides information on vessel traffic and ship locations so that vessels can avoid ACGs in the approaches to the port. The VTS assists in the safe navigation of vessels approaching the port in the

precautionary area. The partnership is a unique and effective approach that has gained acceptance from the maritime community.

19.4 Environmental Impacts and Mitigation Measures

19.4.1 Methodology and Assumptions

Impacts on marine transportation were assessed by determining the net increase in vessel traffic over existing (2008) conditions resulting from construction of the project elements compared to the ability of the port to safely handle vessel traffic, as well as the project's potential to increase risks to vessel traffic caused by project-related activities during construction and operation. Existing regulations regarding vessel safety are designed to avoid potential impacts and are considered standard practice.

At the preliminary design phase, during which the environmental analyses in this chapter were conducted, some details were unknown about where in the port certain activities would be conducted. In particular, this includes the specific location where excavated material from the offshore tunnel would be loaded onto barges for ocean disposal as well as the location of staging and assembly areas for the riser and diffuser. It is most likely that the staging and assembly area for the riser and diffuser would be located within the Port of Los Angeles at the Pasha Terminal between Berths 174–181; therefore, it is assumed that all materials and construction personnel activity related to the risers and diffuser would depart from and return to this location. While the specific location from which all excavated material from the offshore tunnel would be loaded onto barges is still unknown, it is reasonable to assume that the barges would be loaded at Fish Harbor, also within the Port of Los Angeles, approximately 0.5 mile from the LAXT construction shaft site.

With respect to the diffuser assemblies, the diffuser pipes may be constructed of either steel, reinforced concrete pipe (RCP), or high-density polyethylene (HDPE) pipe, as described in Chapter 3. The type of material chosen for the diffuser will affect the potential marine transportation impacts. A steel pipe or RCP diffuser would involve similar construction activities and techniques with respect to marine transportation; therefore, the impact discussions are grouped accordingly. An HDPE pipe diffuser would involve substantially different construction activities and techniques and, therefore, is discussed separately. Although each alternative in this section includes impact discussions for a steel pipe or RCP diffuser separate from an HDPE diffuser, only one method would be chosen for construction of the diffuser assemblies.

The analyses described in this chapter assume the worst-case scenario for the purposes of evaluating the greatest potentially significant environmental impacts on marine transportation. Regulatory agencies may not allow ocean disposal if the excavated material from the offshore tunnel includes hazardous contamination, unacceptable slurry mixtures, or is considered to be too rocky. However, with respect to offshore tunnel construction, it is assumed that all of the excavated material would be deemed suitable for ocean disposal by the SC-DMMT and would be disposed of at the ODMDS located farthest from the shaft sites, which in this case would be LA-3, located approximately 26 miles southeast of the Port of Los Angeles (see Figure 3-26). Additional ocean disposal sites, e.g., LA-2, may become viable alternative ODMDS sites at the time of project construction. LA-2 is located approximately 7 miles southwest of the Port of Los Angeles. Both LA-2 and LA-3 are located outside of designated traffic lanes and, therefore, would not result in direct conflicts with other vessels in these high traffic areas. Concerning marine transportation operation and safety, neither location would result in greater impacts over the other, except the location resulting in the greatest distance travelled would result in a greater amount of time in transit, during which a construction barge may potentially conflict with other marine vessels. Therefore, because

LA-2 is approximately 19 miles closer than LA-3, it is assumed that disposal site LA-2 would entail less impacts on marine transportation operation and safety relative to LA-3.

For the purposes of the analysis in this chapter, the Draft Environmental Impact Statement for the Proposed Site Designation of the LA-3 Ocean Dredged Material Disposal Site off Newport Bay, Orange County, California (LA-3 DEIS), prepared for the U.S. Environmental Protection Agency and the Corps, Los Angeles District (U.S. EPA and the Corps 2004), is incorporated herein by reference. The Final Environmental Impact Statement for the Proposed Site Designation of the LA-3 Ocean Dredged Material Disposal Site off Newport Bay, Orange County, California, was adopted in September 2005. The LA-3 DEIS analyzed the impacts associated with the proposed designation of the LA-3 site as a permanent site for the ocean disposal of dredged material and the continued operation of LA-2 (also known as the LA-3 DEIS Preferred Alternative [Alternative 3]). The LA-3 site is used in conjunction with the LA-2 site for the disposal of dredged material originating from projects located within Los Angeles and Orange Counties. The relevant analysis for the LA-3 DEIS Preferred Alternative included in the LA-3 DEIS and incorporated into this chapter is associated with marine transportation.[2]

Although there are periods during which various project elements have overlapping construction schedules, not all elements would be under construction at the same time or for the same duration. Consistent with the approach previously discussed, the greatest potentially significant environmental impacts with respect to marine transportation were assumed. Therefore, the analyses in this chapter assumed that each project element would be constructed during the phase in which all other project elements would be generating the greatest amount of marine construction traffic simultaneously.

19.4.1.1 Baseline

CEQA Baseline

The CEQA baseline includes existing marine traffic conditions and patterns where project elements would be constructed, including the marine traffic lanes providing ingress and egress to the Port of Los Angeles. The reference date for the CEQA baseline is 2008. Approximately 21,600 one-way vessel trips occurred during this time, in which the following incidents were reported: one allision, one collision, one grounding, and one close quarters (Corps 2010b).

NEPA No-Federal-Action Baseline

The NEPA no-federal-action baseline for the Clearwater Program is described in Section 1.7.4.2. The NEPA baseline in general represents the condition of resources at the year 2022 when construction of project elements under the Corps jurisdiction would conclude.

Historic trends at the Port of Los Angeles have shown that increasing commercial cargo volumes are accommodated primarily by an increase in vessel size rather than a considerable increase in vessel traffic,

[2] The analysis regarding marine transportation is included in Chapter 3 of the LA-3 DEIS on pages 3-99 to 3-105, and for the Preferred Alternative in Chapter 4 on pages 4-33 to 4-34. Additionally, the cumulative analysis for recreation associated with the LA-3 Preferred Alternative is included in Chapter 4 of the LA-3 DEIS on pages 4-78 to 4-79. Finally, the relationship between short-term and long-term resource use and the irreversible or irretrievable commitment of resources on pages 4-80 to 4-81 of the LA-3 DEIS is applicable. The analysis in the LA-3 DEIS is relevant to the Clearwater Program analysis because construction of the offshore tunnel in Alternatives 1, 2, and 3 could require ocean disposal of the excavated material and would make use of either LA-3 or LA-2. The quantity of excavated material is defined in Chapter 3 of the Clearwater Program EIR/EIS and would not exceed the maximum limits of either LA-3 or LA-2. Therefore, because the LA-3 DEIS analyzed vessel impacts associated with disposing dredged materials at LA-3 and LA-2, this chapter incorporates the analysis by reference and does not provide additional information.

and it is expected that this trend will continue through the year 2022, when construction of the project would be completed. The analysis in this chapter assumes that overall traffic volumes at the project planning horizon will be comparable to existing conditions. Therefore, the NEPA no-federal-action baseline is the same as the CEQA baseline for marine transportation.

Note that the NEPA analysis includes direct and indirect impacts as discussed in Section 3.5.2. Any impact associated with project elements located within the Corps' geographic jurisdiction (i.e., the marine environment) during construction would be the direct result of the Corps permit and considered a direct impact under NEPA. Any impact associated with project elements located outside the Corps' geographic jurisdiction during construction would be the indirect result of the Corps permit and considered an indirect impact under NEPA. Any impact that occurs during operation would be considered an indirect impact under NEPA.

19.4.2 Thresholds of Significance

The project would pose a significant impact if it exceeds any of the following thresholds for marine transportation and traffic (TRM):

TRM-1. Interferes with the operation of designated vessel traffic lanes entering and exiting the Port of Los Angeles.

TRM-2. Impairs the level of safety for vessels navigating the Main Channel or West Basin area within the Port of Los Angeles, or precautionary areas outside the Port of Los Angeles.

Program and project elements were analyzed by threshold in the Preliminary Screening Analysis (Appendix 1-A) to identify potentially significant impacts on marine transportation and traffic before mitigation. Table 19-6 identifies which elements were brought forward for further analysis by threshold in this EIR/EIS for Alternatives 1 through 4. If applicable, Table 19-6 also identifies thresholds evaluated in this EIR/EIS if an emergency discharge into various water courses were to occur under the No-Project or No-Federal Action Alternatives, as described in Sections 3.4.1.5 and 3.4.1.6.

Table 19-6. Thresholds Evaluated

		Threshold	
	Alt.	**TRM-1**	**TRM-2**
Project Element			
Wilmington to SP Shelf (offshore tunnel)	1	X	X
Wilmington to PV Shelf (offshore tunnel)	2	X	X
Figueroa/Gaffey to PV Shelf (offshore tunnel)	3	X	X
SP Shelf Riser/Diffuser Area	1	X	X
PV Shelf Riser/Diffuser Area	2,3	X	X
Existing Ocean Outfalls Riser/Diffuser Area	1–4	X	

Alt. = alternative

In the alternatives analysis that follows, if a program or project element is common to more than one alternative, a detailed discussion is presented only in the first alternative in which it appears.

19.4.3 Alternative 1

19.4.3.1 Program

Alternative 1 (Program) does not include marine elements and, therefore, has no potential to have an impact on marine transportation and traffic.

19.4.3.2 Project

Impact TRM-1. Would Alternative 1 (Project) interfere with the operation of designated vessel traffic lanes entering and exiting the Port of Los Angeles?

Tunnel Alignment – Wilmington to San Pedro Shelf (Offshore)

Construction

CEQA Analysis

Excavated material from the Wilmington to SP Shelf offshore tunnel that is designated and approved for offshore disposal would most likely be conveyed by 5,000-ton barges and disposed of at the existing LA-3 ODMDS, which is located approximately 26 miles from the Palos Verdes Shelf (PV Shelf) site, 21 miles from the SP Shelf site, and 26 miles from the Port of Los Angeles, as shown on Figure 3-26.[3] This site has been used for the disposal of clean dredged material originating in the Los Angeles and Orange County region and is managed at a maximum annual disposal quantity of 2,500,000 cubic yards. There would be an average of 2.6 one-way barge trips (5,000 ton) per week, resulting in approximately 135 one-way barge trips per year between Fish Harbor and LA-3 to dispose of clean excavated material for the entire 6.5-year duration of offshore tunnel construction. During maximum tunneling rates, there would be a maximum of approximately 5.2 one-way barge trips per week between Fish Harbor and LA-3. (Parsons 2011).

As previously discussed, the Port of Los Angeles handles a large amount of marine traffic. Approximately 21,600 one-way deep-draft vessel trips occurred in 2008 (or approximately 415 one-way deep-draft vessel trips per week). It is assumed that disposal barges would utilize similar navigation patterns as deep-draft vessels as they transit from Fish Harbor to LA-3. The addition of an average of approximately 135 one-way barge trips per year to existing deep-draft commercial vessel traffic in this area would represent an increase of less than 1 percent over existing conditions. The addition of a maximum of approximately 5.2 one-way barge trips per week to existing deep-draft commercial vessel traffic in this area would represent an increase of approximately 1 percent over existing conditions. Therefore, given the large number of commercial (non deep-draft) and recreational vessel traffic in this area, the addition of an average of approximately 135 one-way barge trips per year or a maximum of approximately 5.2 one-way barge trips per week would represent a relatively minor increase over existing conditions. Even when combined with marine construction vessel traffic that would be generated by overlapping construction activities related to other project elements, the relative increase in vessels required to dispose of excavated material from construction of the offshore tunnel could be safely accommodated by existing marine traffic management systems such as the VTS and the Marine Exchange without interfering with the vessel traffic lanes entering the port. In addition, barges that would be utilized in the transport of offshore tunnel excavated material to LA-3 would be similar in size and

[3] As described in Section 19.4.1, ODMDS LA-3 was used because it represents the worst-case scenario; however, excavated material may not necessarily be disposed of at this location.

function to other marine vessels currently operating in and around the port and, therefore, would not interfere with other vessels operating in the vicinity of the disposal barges. (Betz pers. comm. 2010.)

Vessels that would be utilized in project construction activities would adhere to all safety protocols including USCG regulations, HSP speed limit regulations, traffic separation schemes, limited visibility guidelines, VTS monitoring requirements, and port tariffs requiring vessels of foreign registry to use a port pilot for transit in and out of the port and adjacent waterways. Therefore, although marine traffic generated during construction of the offshore tunnel would represent an increase over existing conditions, it would not interfere with the designated vessel traffic lanes entering the Port of Los Angeles. Impacts would be less than significant.

NEPA Analysis

Environmental impacts would be the same as described for the CEQA analysis, and would occur for the duration of construction. Baseline conditions would resume upon termination of construction. With respect to the Corps' NEPA scope of analysis described in Section 3.5, the environmental impacts would be considered direct impacts.

Riser/Diffuser Area – San Pedro Shelf

Construction

CEQA Analysis

The parts and materials for the riser and diffuser would be brought to the Pasha Terminal within the Port of Los Angeles via truck from somewhere within the greater Los Angeles region. HDPE diffuser components would be assembled at the Pasha Terminal. Both the riser and diffuser would be transported by barge from the Pasha Terminal to the SP Shelf for installation.

Marine vessels necessary for construction of the riser and diffuser are summarized in Table 19-7. All of the work, including mobilization, preassembly, site preparation, construction, and demobilization would take approximately 24 months for the riser and approximately 6 to 12 months for the diffuser, depending upon the diffuser pipe material. The majority of the riser and diffuser construction work would be based on one 10-hour shift per day, 5-day-per-week schedule. The exception to this is when the pre-fabricated riser assembly is transported to the installation site; during this period the construction work would take place on a continuous 24-hour-per-day basis for approximately 1 week.

Table 19-7. Anticipated Riser and Diffuser Construction Activities and Vessels

Project Activity	No.	Vessel Type	Trip Frequency	Maximum Weekly Trips	Schedule
Riser					
All work	1	Jack-up Platform or Barge and Tugboat	1 round-trip	<1	24 months
All work	1–2	Supply Barge and Tugboat	1 round-trip per day	10	24 months
Transport and position riser assembly	2	Tugboat	1 round-trip	<1	1 week
Crew: riser assembly installation	1	Crew Vessel	3 round-trips per day	15	1 month
Crew: all other work	1	Crew Vessel	1 round-trip per day	5	23 months
Steel or RCP Diffuser					
All work	1	Derrick Barge and Tugboat	1 round-trip	<1	12 months
Transport diffuser piping	1	Supply Barge and Tugboat	1 round-trip per day	5	12 months
Transport ballast rock[a]	1–2	Supply Barge and Tugboat	1 round-trip per 1–2 days	10	12 months
Crew: all work	1	Crew Vessel	1 round-trip per day	5	12 months
HDPE Diffuser					
Site preparation	1	Derrick Barge and Tugboat	1 round-trip	<1	6 months
Placement of diffuser piping	1	Pull Barge and Tugboat	1 round-trip	<1	1 month
Placement of diffuser piping	1	Pump Barge and Tugboat	1 round-trip	<1	1 month
Transport ballast rock[a]	1–2	Supply Barge and Tugboat	1 round-trip per 1–2 days	10	60–120 days
Transport and position diffuser piping[b]	2–4	Tugboat	2 round trip per day	8	1 month
Crew: all work	1	Crew Vessel	1 round-trip per day	5	6 months
Existing Ocean Outfalls Rehabilitation					
Transport ballast rock[c]	1	Supply Barge and Tugboat	1 round-trip per 1–2 days	5	2 months
Placement of ballast rock	1	Derrick Barge	1 round-trip	<1	1 month
Transport of materials	1	Supply Barge and Tugboat	1 round-trip per week	1	1 month
Joint repair	1	Work Vessel	1 round-trip per day	5	1 month
Crew: all work	1	Crew Vessel	1 round-trip per day	5	1 month

[a] 60 to 120 total trips
[b] Assumes eight legs, four tugs per leg, equaling 32 total tug round-trips
[c] 15 to 20 total trips

The riser and diffuser area would be located in the southwest corner of the precautionary area on the SP Shelf, adjacent to the southbound coastwise traffic lane as shown on Figure 19-1. The proximity of the traffic lane to construction work in this area may require temporary adjustment to the traffic lane in order to direct marine traffic around construction vessels. Per 33 CFR Part 167.15, the Commandant of the Coast Guard may authorize an adjustment in the form of a temporary traffic lane shift, a temporary suspension of a section of the scheme, a temporary precautionary area overlaying a lane, or other appropriate measure. The USCG would provide notice of adjustments in the appropriate LNM and in the Federal Register. Requests for temporary adjustments to traffic separation schemes must be submitted 150 days prior to the time the adjustment is desired, and should be submitted to the District Commander of the Coast Guard District in which the traffic separation scheme is located. The COTP may also need to issue a deviation to the RNA rules, which require certain vessels to keep engines ready for immediate maneuver and maintain passing distances of at least 0.25 nautical mile from other vessels (Hennigan pers. comm.).

Staging of construction vessels at the riser and diffuser area would be highly visible, and would require buoys at the riser and diffuser site to stage construction vessels for the duration of construction activities. Smaller vessels would avoid construction vessels by visual observation. However, fishermen regularly trawl within the precautionary area, and the anchor spread of barges located at the riser and diffuser area during construction is an issue as cables would not be easily seen. Trawling and gill nets could be affected by anchoring systems in the event that fishermen trawling in the vicinity of construction do not heed LNMs released by the USCG. Lighted buoys would be required at the riser and diffuser area for staging of construction vessels for a period of 6 to 12 months. Because these buoys would be placed in a navigable water regulated by the USCG, they would be considered a permanent private aid to navigation (PATON), requiring a Class II PATON permit from the USCG for placement of buoys in waters used by general navigation (USCG 2010a). After processing the permit, the USCG district commander would recommend to the NOAA, through publication in the LNM, to chart the buoys as permanent Class II PATONs (USCG 2010b).

Overall, marine traffic generated by construction of the riser and diffuser on the SP Shelf would result in an increase of vessel calls compared to existing conditions. However, vessels that would be utilized in project construction activities would adhere to all safety protocols including USCG regulations, HSP speed-limit regulations, traffic separation schemes, limited visibility guidelines, VTS monitoring requirements, and port tariffs requiring vessels of foreign registry to use a port pilot for transit in and out of the port and adjacent waterways. Therefore, although marine traffic generated during construction of the riser and diffuser assembly would represent an increase over existing conditions, it would not interfere with the designated vessel traffic lanes entering the Port of Los Angeles. Impacts would be less than significant.

Specific construction activities related to the riser and the different types of diffuser under consideration are discussed below.

Riser

The top of the riser head structure would be positioned approximately 20 feet above the surrounding seabed. Although the riser would be installed outside of designated ship anchorage areas, ballast rock, the quantity of which is estimated in Section 3.3.2.4, would be placed within a 75-foot radius around the riser head to protect the structure from wave and current forces, fishing activities, dragging ship anchors, and direct anchor hits. Either a pile-supported jack-up platform would be installed above the site of the riser or an anchored barge would be used to provide a base from which to support installation of the riser assembly.

Installation of the riser would occur over a period of 24 months and would require the marine vessels summarized in Table 19-7, including a jack-up platform or barge and tugboat, supply barge, multiple tugboats, and crew vessels. Preparation of the seabed surrounding the riser site would require up to two barges and tugboats and one crew vessel making daily round-trips from the Pasha Terminal to the SP Shelf for the entire 24-month duration. An additional crew vessel making three daily round-trips for approximately 1 month would be required during installation of the riser assembly. Other marine vessels associated with installation of the riser include one round-trip each of the jack-up platform or barge and tugboat, and the use of two tugboats for transport of the riser assembly from the Pasha Terminal to the SP Shelf.

As previously discussed, preparation of the seabed surrounding the riser site would occur within the precautionary area on the SP Shelf, and may require an adjustment to the southbound vessel traffic lanes. Construction activities would result in temporary increases in the number of marine vessels currently utilizing the vessel traffic lanes and precautionary area surrounding the port. However, construction work would not occur within pilot approach areas, deepwater channels, or anchorage areas. The USCG would issue a LNM using radio, printed notices, and chart corrections, and a minimum clearance of approximately 0.25 nautical mile would be maintained with other marine vessels within the precautionary area. With implementation of standard marine safety practices and the precautions previously listed, the construction vessels would not interfere with the vessel traffic lanes and the probability of accidents would be very low. Impacts would be less than significant.

Steel or RCP Diffuser

Installation of a steel or RCP diffuser would occur over a period of 12 months and would require the marine vessels summarized in Table 19-7, including a derrick barge, supply barges, supporting tugboats, and a crew vessel. Trenching and dredging would be required along the diffuser alignment. Site preparation would require one round-trip of a derrick barge and tugboat. Transport of the diffuser piping would require daily round-trips of a supply barge and tugboat from the Pasha Terminal to the diffuser area for 12 months. Transport of ballast rock would require up to two supply barges and tugboats making round-trips every 1 to 2 days for approximately 12 months. Ballast rock would be sourced from either a location off the coast of Mexico or from Catalina Island. One crew vessel would be required, making one daily round-trip from the port to the diffuser area.

Similar to installation of the riser, preparation of the seabed surrounding the diffuser would occur within the precautionary area and may require an adjustment to the vessel traffic lanes. Construction activities would result in temporary increases in the number of marine vessels currently utilizing the vessel traffic lanes and precautionary area surrounding the port. However, construction work would not occur within pilot approach areas, deepwater channels, or anchorage areas. For construction activities at the diffuser area, the USCG would issue a LNM using radio, printed notices, and chart corrections, and a minimum clearance of approximately 0.25 nautical mile would be maintained with other marine vessels within the precautionary area. With implementation of standard marine safety practices and the precautions previously listed, the construction vessels would not interfere with the vessel traffic lanes and the probability of accidents would be very low. Impacts would be less than significant.

HDPE Diffuser

If the diffuser were constructed of HDPE pipe, no trenching or dredging on the SP Shelf would be required, although some minor grading may be required because the HDPE diffuser would be placed directly on the seafloor. There would also be a limited amount of ballast rock required to protect the piping and riser as estimated in Section 3.3.2.4. The HDPE design would consist of a manifold with eight diffuser legs. The pipe outer diameter would range in size from approximately 63 inches to 42 inches. Construction vessels would work in an ocean surface area covering approximately 8 acres (the riser,

manifold, and diffuser would cover a seafloor area of approximately 8 acres). Approximately 1,500 pre-installed concrete anchor blocks would be attached to the HDPE piping to provide ballast during the sinking and installation process as well as to provide stability against ocean currents and wave-induced hydrodynamic loading.

The HDPE diffuser piping would be prepared and assembled into continuous segments for each of the eight legs, ranging from 1,000 to 4,000 feet in length, at the Pasha Terminal in the Port of Los Angeles. From this location, the HDPE pipes would be pressurized, partially submerged with the assistance of ballast weights, and towed to the site with a pulling tugboat, a trailing tugboat, and several assist vessels. During the tow, the air pressure inside the pipeline would be monitored to ensure that the initial pressure is maintained. Each of the pipelines would be independently towed to the offshore diffuser site under good to fair weather and wave conditions that would ensure a successful deployment.

Overall construction and installation of the HDPE diffuser would occur over a period of approximately 6 months and would require the marine vessels summarized in Table 19-7, including a derrick barge, pull barge, pump barge, supply barge, supporting tugboats, and a crew vessel. Transport and positioning of the diffuser piping would require up to four tugboats each making daily round-trips from the Pasha Terminal to the diffuser area for approximately 1 month. Preparation of the seabed would require one round-trip of a derrick barge and supporting tugboat and daily round-trips of a crew vessel operating at the diffuser area for approximately 6 months. Placement of the diffuser would require a pull barge, a pump barge, and supporting tugboats making one round-trip from the Pasha Terminal to the diffuser area for a duration of approximately 1 month.

A 4,000-foot-long HDPE pipe segment is three times greater in length than the largest commercial deep-draft vessels currently calling at the port. As a result, the USCG may issue a LNM warning other vessels transiting the precautionary area for each transport of HDPE pipeline.

Similar to installation of the riser, preparation of the seabed for the HDPE diffuser site on the SP Shelf would occur within the precautionary area, and may require an adjustment to the vessel traffic lanes. Construction activities would result in temporary increases in the number of marine vessels currently utilizing the vessel traffic lanes and precautionary area surrounding the port; however, construction work would not occur within pilot approach areas, deepwater channels, or anchorage areas. For construction activities at the diffuser area, the USCG would issue a LNM using radio, printed notices, and chart corrections, and a minimum clearance of approximately 0.25 nautical mile would be maintained with other marine vessels within the precautionary area. With implementation of standard marine safety practices and the precautions previously listed, the construction vessels would not interfere with the vessel traffic lanes and the probability of accidents would be very low. Impacts would be less than significant.

NEPA Analysis

Environmental impacts would be the same as described for the CEQA analysis, and would occur for the duration of construction. Baseline conditions would resume upon termination of construction. With respect to the Corps' NEPA scope of analysis described in Section 3.5, the environmental impacts would be considered direct impacts.

Operation

CEQA Analysis

Operation of the riser and diffuser on the SP Shelf would involve periodic maintenance activities conducted on an as needed basis, similar in scope and scale to those currently conducted at the existing

outfalls on the PV Shelf. The Sanitation Districts inspect the existing outfalls once a year due to discharge permit requirements, and similar inspections would also be conducted on the riser and diffuser on the SP Shelf. The inspections would occur over the life of the facilities, or until there is a change in the discharge permit. However, unlike maintenance activities currently conducted at the existing outfalls, the riser and diffuser on the SP Shelf would be located within the precautionary area adjacent to the southbound vessel traffic lanes, thus increasing the exposure of these maintenance activities to other vessels transiting the vessel traffic lanes and precautionary area. Marine traffic generated by operation and maintenance of the riser and diffuser on the SP Shelf would result in an increase of vessel calls compared to existing conditions; however, this traffic would be similar to that currently conducted for the existing outfalls.

Marine vessels that would be utilized in these activities would adhere to all safety protocols including USCG regulations, HSP speed-limit regulations, traffic separation schemes, limited visibility guidelines, VTS monitoring requirements, and port tariffs requiring vessels of foreign registry to use a port pilot for transit in and out of the port and adjacent waterways. In addition, the USCG would issue a LNM during maintenance activities to inform other vessels of the activities occurring in the area. Therefore, although marine traffic generated during operation and maintenance of the riser and diffuser would represent an increase over existing conditions and would occur within the precautionary area adjacent to the southbound vessel traffic lanes, it would not interfere with the designated vessel traffic lanes entering the Port of Los Angeles. Impacts would be less than significant.

NEPA Analysis

Environmental impacts would be the same as described for the CEQA analysis, and would occur for the operational life of the structure. With respect to the Corps' NEPA scope of analysis described in Section 3.5, the environmental impacts would be considered indirect impacts.

Riser/Diffuser Area – Existing Ocean Outfalls

Construction

CEQA Analysis

The existing ocean outfalls extend from the existing manifold structure at Royal Palms Beach as described in Section 2.2.4.3. The project may include improvements to the existing ocean outfalls, such as joint repairs and re-ballasting. The re-ballasting work would occur on the existing 72-, 90-, and 120-inch outfalls in water depths ranging from approximately 20 to 50 feet. A small derrick barge would be used to place the ballast rock around the outfalls and support the joint repair work. Joint repairs would involve temporarily removing some of the existing ballast rock from around the outfalls to fully expose the joint being repaired. A coupling, which is a giant clamp that wraps around the joint, would be installed and the annular space filled with concrete. The existing ballast rock would be replaced around the pipe. The marine vessels required for this work are listed in Table 19-7.

The majority of the construction work would be based on one 10-hour shift per day, 5 days per week. It is estimated that approximately eight to ten construction workers would be needed for the rehabilitation work for a period of approximately 2 months. Marine vessels required for this rehabilitation would involve a supply barge, derrick barge, supporting tugboats, a work vessel, and a crew vessel. Transport of ballast rock would require a supply barge and tugboat operating one round-trip every 1 to 2 days for approximately 2 months. Placement of ballast rock would require a derrick barge conducting one round-trip over a 1-month period. Transport of materials would require a supply barge and tugboat operating one round-trip per week for approximately 1 month. Joint repairs and transport of construction

workers would require a work vessel and crew vessel operating one daily round-trip for approximately 1 month.

Overall, marine traffic generated by rehabilitation of the existing outfalls on the PV Shelf would result in an increase in vessel calls compared to existing conditions; however, these activities would occur outside of the precautionary area and vessel traffic lanes. Vessels that would be utilized in rehabilitation activities would adhere to all safety protocols including USCG regulations, HSP speed-limit regulations, traffic separation schemes, limited visibility guidelines, VTS monitoring requirements, and port tariffs requiring vessels of foreign registry to use a port pilot for transit in and out of the port and adjacent waterways. Therefore, although marine traffic generated during rehabilitation of the existing outfalls would represent an increase over existing conditions, it would not interfere with the designated vessel traffic lanes entering the Port of Los Angeles. Impacts would be less than significant.

NEPA Analysis

Environmental impacts would be the same as described above for the CEQA analysis, and would occur for the duration of construction. Baseline conditions would resume upon termination of construction. With respect to the Corps' NEPA scope of analysis described in Section 3.5, the environmental impacts would be considered direct impacts.

CEQA Impact Determination

Construction and operation of Alternative 1 (Project) would not interfere with the operation of designated vessel traffic lanes entering and exiting the Port of Los Angeles. Impacts under CEQA would be less than significant.

Mitigation

No mitigation is required.

Residual Impacts

Impacts would be less than significant.

NEPA Impact Determination

Construction and operation of Alternative 1 (Project) would not interfere with the operation of designated vessel traffic lanes entering and exiting the Port of Los Angeles. Impacts under NEPA would be less than significant with respect to the No-Federal-Action Alternative (see Section 3.4.1.6).

Mitigation

No mitigation is required.

Residual Impacts

Impacts would be less than significant.

Impact TRM-2. Would Alternative 1 (Project) impair the level of safety for vessels navigating the Main Channel or West Basin area within the Port of Los Angeles, or precautionary areas outside the Port of Los Angeles?

Tunnel Alignment – Wilmington to San Pedro Shelf (Offshore)

Construction

CEQA Analysis

As discussed under Impact TRM-1, construction activities related to disposal of excavated material for the Wilmington to SP Shelf offshore tunnel would result in an increase in marine traffic due to barges transporting excavated material to the offshore ocean disposal site LA-3.[4] Even when combined with marine traffic that would be generated by overlapping construction activities related to other project elements, the relative increase in vessels required to dispose of excavated material from construction of the offshore tunnel could be safely accommodated by existing marine traffic management systems including the VTS and Marine Exchange. In addition, the barges that would be utilized in the transport of excavated material to LA-3 would be similar in size and function to other vessels operating in and around the port and, therefore, would not result in safety hazards to other vessels operating in the vicinity, including fishing vessels operating in Fish Harbor.

Vessels that would be utilized in project construction activities would adhere to all safety protocols including USCG regulations, HSP speed-limit regulations, traffic separation schemes, limited visibility guidelines, VTS monitoring requirements, and port tariffs requiring vessels of foreign registry to use a port pilot for transit in and out of the port and adjacent waterways. Therefore, although marine traffic generated during construction of the offshore tunnel would represent an increase over existing conditions, it would not impair the level of safety of other vessels navigating the Main Channel or West Basin area within the Port of Los Angeles, or precautionary areas outside the Port of Los Angeles. Impacts would be less than significant.

NEPA Analysis

Environmental impacts would be the same as described for the CEQA analysis, and would occur for the duration of construction. Baseline conditions would resume upon termination of construction. With respect to the Corps' NEPA scope of analysis described in Section 3.5, the environmental impacts would be considered direct impacts.

Riser/Diffuser Area – San Pedro Shelf

Construction

CEQA Analysis

As discussed under Impact TRM-1, construction activities related to construction and installation of the riser and diffuser on the SP Shelf would result in an increase in marine traffic due to barges transporting equipment and personnel from the Pasha Terminal to the SP Shelf. Even when combined with marine traffic that would be generated by overlapping construction activities related to other project elements, the relative increase in vessels required for the construction and installation of the riser and diffuser could be safely accommodated by existing marine traffic management systems including the VTS and the Marine Exchange. With the exception of transport of the HDPE diffuser pipes, the barges, tugboats, and work

[4] As described in Section 19.4.1, ODMDS LA-3 was used because it represents the worst-case scenario; however, excavated material may not necessarily be disposed of at this location.

and crew vessels that would be utilized in the transport of materials and personnel would be similar in size and function to other vessels operating in and around the port and, therefore, would not impair the safety of other vessels navigating the Main Channel or West Basin area within the Port of Los Angeles, or precautionary areas outside the Port of Los Angeles.

With respect to the transport of the HDPE diffuser pipes, the use of proper precautions including issuance of a LNM by the USCG would be sufficient to prevent safety issues or conflicts with other vessels navigating this area. Lighted buoys would be required at the riser and diffuser area for staging of construction vessels for a period of approximately 6 to 12 months, requiring a Class II PATON permit from the USCG for placement of buoys in waters used by general navigation (USCG 2010a). After processing the permit, the USCG district commander would recommend to the NOAA, through publication in the LNM, to chart the buoys as permanent Class II PATONs to inform other marine vessels of their location (USCG 2010b). Furthermore, vessels that would be utilized in project construction activities would adhere to all safety protocols including USCG regulations, HSP speed-limit regulations, traffic separation schemes, limited visibility guidelines, VTS monitoring requirements, and port tariffs requiring vessels of foreign registry to use a port pilot for transit in and out of the port and adjacent waterways. Therefore, although marine traffic generated during construction of the riser and diffuser on the SP Shelf would represent an increase over existing conditions and would be greater in length than the existing types of vessels transiting the Port of Los Angeles, it would not impair the level of safety of other vessels navigating the Main Channel or West Basin area within the Port of Los Angeles, or precautionary areas outside the Port of Los Angeles. Impacts would be less than significant.

NEPA Analysis

Environmental impacts would be the same as described for the CEQA analysis, and would occur for the duration of construction. Baseline conditions would resume upon termination of construction. With respect to the Corps' NEPA scope of analysis described in Section 3.5, the environmental impacts would be considered direct impacts.

CEQA Impact Determination

Construction of Alternative 1 (Project) would not impair the level of safety for vessels navigating the Main Channel or West Basin area within the Port of Los Angeles, or precautionary areas outside the Port of Los Angeles. Impacts under CEQA would be less than significant.

Mitigation

No mitigation is required.

Residual Impacts

Impacts would be less than significant.

NEPA Impact Determination

Construction of Alternative 1 (Project) would not impair the level of safety for vessels navigating the Main Channel or West Basin area within the Port of Los Angeles, or precautionary areas outside the Port of Los Angeles. Impacts under NEPA would be less than significant with respect to the No-Federal-Action Alternative (see Section 3.4.1.6).

Mitigation

No mitigation is required.

Residual Impacts

Impacts would be less than significant.

19.4.3.3 Impact Summary – Alternative 1

Impacts on marine transportation and traffic analyzed in this EIR/EIS for Alternative 1 (Project) are summarized in Table 19-8. The proposed mitigation, where feasible, and the significance of the impact before and following mitigation are also listed in the table.

Alternative 1 (Program) does not include marine elements and has no potential to have an impact on marine transportation and traffic; therefore, an Impact Summary – Alternative 1 (Program) table is not included.

Table 19-8. Impact Summary – Alternative 1 (Project)

Project Element	Impact Determination Before Mitigation	NEPA Direct or Indirect	Mitigation	Residual Impact After Mitigation
Impact TRM-1. Would Alternative 1 (Project) interfere with the operation of designated vessel traffic lanes entering and exiting the Port of Los Angeles?				
Tunnel Alignment				
Wilmington to SP Shelf (Offshore)	CEQA Less Than Significant Impact During Construction	N/A	No mitigation is required.	CEQA Less Than Significant Impact During Construction
	NEPA Less Than Significant Impact During Construction	Direct	No mitigation is required.	NEPA Less Than Significant Impact During Construction
Riser/Diffuser Area				
SP Shelf	CEQA Less Than Significant Impact During Construction	N/A	No mitigation is required.	CEQA Less Than Significant Impact During Construction
	NEPA Less Than Significant Impact During Construction	Direct	No mitigation is required.	NEPA Less Than Significant Impact During Construction
	CEQA Less Than Significant Impact During Operation	N/A	No mitigation is required.	CEQA Less Than Significant Impact During Operation
	NEPA Less Than Significant Impact During Operation	Indirect	No mitigation is required.	NEPA Less Than Significant Impact During Operation
Existing Ocean Outfalls	CEQA Less Than Significant Impact During Construction	N/A	No mitigation is required.	CEQA Less Than Significant Impact During Construction
	NEPA Less Than Significant Impact During Construction	Direct	No mitigation is required.	NEPA Less Than Significant Impact During Construction
Impact TRM-2. Would Alternative 1 (Project) impair the level of safety for vessels navigating the Main Channel or West Basin area within the Port of Los Angeles, or precautionary areas outside the Port of Los Angeles?				
Tunnel Alignment				
Wilmington to SP Shelf (Offshore)	CEQA Less Than Significant Impact During Construction	N/A	No mitigation is required.	CEQA Less Than Significant Impact During Construction

Table 19-8 (Continued)

Project Element	Impact Determination Before Mitigation	NEPA Direct or Indirect	Mitigation	Residual Impact After Mitigation
	NEPA Less Than Significant Impact During Construction	Direct	No mitigation is required.	NEPA Less Than Significant Impact During Construction
Riser/Diffuser Area				
SP Shelf	CEQA Less Than Significant Impact During Construction	N/A	No mitigation is required.	CEQA Less Than Significant Impact During Construction
	NEPA Less Than Significant Impact During Construction	Direct	No mitigation is required.	NEPA Less Than Significant Impact During Construction

19.4.4 Alternative 2

19.4.4.1 Program

Alternative 2 (Program) is the same as Alternative 1 (Program) and has no marine elements; therefore, Alternative 2 (Program) has no potential to have an impact on marine transportation and traffic.

19.4.4.2 Project

The impacts for the existing ocean outfalls for Alternative 2 (Project) would be the same as for Alternative 1 (Project).

Impact TRM-1. Would Alternative 2 (Project) interfere with the operation of designated vessel traffic lanes entering and exiting the Port of Los Angeles?

Tunnel Alignment – Wilmington to Palos Verdes Shelf (Offshore)

Construction

CEQA Analysis

Construction activities relating to the Wilmington to PV Shelf offshore tunnel for Alternative 2 (Project) are similar to those described under Alternative 1 (Project); however, Alternative 2 (Project) would result in a shorter duration during which excavated material would be barged to ocean disposal site LA-3.[5, 6] Less excavated material would be generated because the offshore tunnel alignment between the Trans Pacific Container Service Corporation (TraPac) shaft site and the PV Shelf riser and diffuser area would be shorter than the Alternative 1 (Project) offshore tunnel alignment by approximately 26,250 feet, resulting in fewer ocean disposal barge trips for Alternative 2 (Project).

[5] The offshore tunnel under Alternative 2 (Project) would be approximately 29,250 feet in length and would take approximately 5 years to construct. The offshore tunnel under Alternative 1 (Project) would be approximately 55,500 feet in length and would take approximately 6.5 years to construct.

[6] As described in Section 19.4.1, ODMDS LA-3 was used because it represents the worst-case scenario; however, excavated material may not necessarily be disposed of at this location.

As determined under Alternative 1 (Project), even when combined with marine traffic that would be generated by overlapping construction activities related to other project elements, the relative increase in vessels required to dispose of excavated material from construction of the offshore tunnel could be safely accommodated by existing marine traffic management systems including the VTS and the Marine Exchange. The barges that would be utilized in the transport of excavated material to LA-3 would be similar in size and function to other vessels operating in and around the port and, therefore, would not result in safety hazards to other vessels operating in the vicinity.

Furthermore, vessels that would be utilized in project construction activities would adhere to all safety protocols including USCG regulations, HSP speed-limit regulations, traffic separation schemes, limited visibility guidelines, VTS monitoring requirements, and port tariffs requiring vessels of foreign registry to use a port pilot for transit in and out of the port and adjacent waterways. Therefore, although marine traffic generated during construction of the offshore tunnel would represent an increase over existing conditions, it would not interfere with the designated vessel traffic lanes entering the Port of Los Angeles. Impacts would be less than significant.

NEPA Analysis

Environmental impacts would be the same as described for the CEQA analysis, and would occur for the duration of construction. Baseline conditions would resume upon termination of construction. With respect to the Corps' NEPA scope of analysis described in Section 3.5, the environmental impacts would be considered direct impacts

Riser/Diffuser Area – Palos Verdes Shelf

Construction

CEQA Analysis

Construction activities relating to construction of the riser and diffuser on the PV Shelf for Alternative 2 (Project) are similar to those described on the SP Shelf under Alternative 1 (Project). The majority of the diffuser would be located outside of the precautionary area, with only a small portion of the eastern edge of the diffuser being located within the far western edge of the precautionary area. Although the diffuser would be partially located within the precautionary area, it would be located away from the primary flow of traffic entering and exiting via the vessel traffic lanes. The USCG would provide notice to other marine vessels of the presence of construction vessels in the vicinity of the precautionary area through the LNM.

Lighted buoys would be required at the riser and diffuser area, outside of the precautionary area, to stage construction vessels for a period of approximately 6 to 12 months. The buoys would require a Class II PATON permit from the USCG for placement of buoys in waters used by general navigation (USCG 2010a). After processing the permit, the USCG district commander would recommend to the NOAA, through publication in the LNM, to chart the buoys as permanent Class II PATONs to inform other marine vessels of their location (USCG 2010b). All other elements related to construction and installation of the riser and diffuser would be the same, including staging and transport of the riser and construction personnel from the Pasha Terminal to the PV Shelf; staging, assembly and transport of the HDPE diffuser and construction personnel to the PV Shelf; staging, assembly and transport of the steel or RCP diffuses and construction personnel to the PV Shelf; and offshore installation of the riser and diffuser on the PV Shelf.

Overall, marine traffic generated by construction of the riser and diffuser on the PV Shelf would result in an increase of vessel calls compared to existing conditions. However, vessels that would be utilized in

project construction activities would adhere to all safety protocols including USCG regulations, HSP speed-limit regulations, traffic separation schemes, limited visibility guidelines, VTS monitoring requirements, and port tariffs requiring vessels of foreign registry to use a port pilot for transit in and out of the port and adjacent waterways. Therefore, although marine traffic generated during construction of the riser and diffuser assembly would represent an increase over existing conditions, it would not interfere with the designated vessel traffic lanes entering the Port of Los Angeles. Impacts would be less than significant.

NEPA Analysis

Environmental impacts would be the same as described for the CEQA analysis, and would occur for the duration of construction. Baseline conditions would resume upon termination of construction. With respect to the Corps' NEPA scope of analysis described in Section 3.5, the environmental impacts would be considered direct impacts.

CEQA Impact Determination

Construction of Alternative 2 (Project) would not interfere with the operation of designated vessel traffic lanes entering and exiting the Port of Los Angeles. Impacts under CEQA would be less than significant.

Mitigation

No mitigation is required.

Residual Impacts

Impacts would be less than significant.

NEPA Impact Determination

Construction of Alternative 2 (Project) would not interfere with the operation of designated vessel traffic lanes entering and exiting the Port of Los Angeles. Impacts under NEPA would be less than significant.

Mitigation

No mitigation is required.

Residual Impacts

Impacts would be less than significant.

Impact TRM-2. Would Alternative 2 (Project) impair the level of safety for vessels navigating the Main Channel or West Basin area within the Port of Los Angeles, or precautionary areas outside the Port of Los Angeles?

Tunnel Alignment – Wilmington to Palos Verdes Shelf (Offshore)

Construction

CEQA Analysis

Construction activities relating to the Wilmington to PV Shelf offshore tunnel for Alternative 2 (Project) are similar to those described under Alternative 1 (Project); however, Alternative 2 (Project) would result in a shorter duration during which tunnel excavated material would be barged to ocean disposal site

LA-3.[7, 8] This is due to the fact that the offshore tunnel alignment between the TraPac shaft site and the PV Shelf riser and diffuser area is shorter than the Alternative 1 (Project) offshore tunnel alignment by approximately 26,250 feet.

As discussed under Alternative 1 (Project), construction activities related to disposal of offshore tunnel excavated material would result in an increase in marine traffic due to barges transporting excavated material to the offshore ocean disposal site LA-3. Even when combined with marine traffic that would be generated by overlapping construction activities related to other project elements, the relative increase in vessels required to dispose of excavated material from construction of the offshore tunnel could be safely accommodated by existing marine traffic management systems including the VTS and the Marine Exchange. The barges that would be utilized in the transport of excavated material to LA-3 would be similar in size and function to other vessels operating in and around the port and, therefore, would not result in safety hazards to other vessels operating in the vicinity, including fishing vessels operating in Fish Harbor.

Furthermore, vessels that would be utilized in project construction activities would adhere to all safety protocols including USCG regulations, HSP speed-limit regulations, traffic separation schemes, limited visibility guidelines, VTS monitoring requirements, and port tariffs requiring vessels of foreign registry to use a port pilot for transit in and out of the port and adjacent waterways. Therefore, although marine traffic generated during construction of the offshore tunnel would represent an increase over existing conditions, it would not impair the level of safety of other vessels navigating the Main Channel or West Basin area within the Port of Los Angeles, or precautionary areas outside the Port of Los Angeles. Impacts would be less than significant.

NEPA Analysis

Environmental impacts would be the same as described for the CEQA analysis, and would occur for the duration of construction. Baseline conditions would resume upon termination of construction. With respect to the Corps' NEPA scope of analysis described in Section 3.5, the environmental impacts would be considered direct impacts.

Riser/Diffuser Area – Palos Verdes Shelf

Construction

CEQA Analysis

Construction activities relating to construction of the riser and diffuser on the PV Shelf for Alternative 2 (Project) are similar to those on the SP Shelf described under Alternative 1 (Project). The majority of the diffuser would be located outside the precautionary area on the PV Shelf, with only a small portion of the eastern edge of the diffuser being located within the far western edge of the precautionary area. Although the diffuser would be partially located within the precautionary area, it would be located away from the primary flow of traffic entering and exiting via the vessel traffic lanes. The USCG would provide notice to other marine vessels of the presence of construction vessels in the vicinity of the precautionary area through the LNM.

[7] The offshore tunnel under Alternative 2 (Project) would be approximately 29,250 feet in length and would take approximately 5 years to construct. The offshore tunnel under Alternative 1 (Project) would be approximately 55,500 feet in length and would take approximately 6.5 years to construct.

[8] As described in Section 19.4.1, ODMDS LA-3 was used because it represents the worst-case scenario; however, excavated material may not necessarily be disposed of at this location.

Lighted buoys would be required at the riser and diffuser area, outside of the precautionary area, to stage construction vessels for a period of approximately 6 to 12 months. The buoys would require a Class II PATON permit from the USCG for placement of buoys in waters used by general navigation (USCG 2010a). After processing the permit, the USCG district commander would recommend to the NOAA, through publication in the LNM, to chart the buoys as permanent Class II PATONs to inform other marine vessels of their location (USCG 2010b). All other elements related to construction and installation of the riser and diffuser would be the same, including staging and transport of the riser and construction personnel from the Pasha Terminal to the PV Shelf riser and diffuser area; staging, assembly and transport of the HDPE diffuser and construction personnel to the PV Shelf; staging, assembly and transport of the steel or RCP diffuser and construction personnel to the PV Shelf; and offshore installation of the riser and diffuser.

Overall, construction activities related to construction and installation of the riser and diffuser on the PV Shelf would result in an increase in marine traffic due to barges transporting equipment and personnel to the riser and diffuser area. Even when combined with marine traffic that would be generated by overlapping construction activities related to other project elements, the relative increase in vessels required for the construction and installation of the riser and diffuser could be safely accommodated by existing marine traffic management systems including the VTS and the Marine Exchange. With the exception of transport of the HDPE diffuser pipes, the barges, tugboats, and work and crew vessels that would be utilized in the transport of materials and personnel would be similar in size and function to other vessels operating in and around the port and, therefore, would not impair the safety of other vessels navigating the Main Channel or West Basin area within the Port of Los Angeles, or precautionary areas outside the Port of Los Angeles.

With respect to transport of the HDPE diffuser pipes, the use of proper precautions including issuance of a LNM by the USCG would be sufficient to prevent safety issues or conflicts with other vessels navigating this area. Furthermore, vessels that would be utilized in project construction activities would adhere to all safety protocols including USCG regulations, HSP speed-limit regulations, traffic separation schemes, limited visibility guidelines, VTS monitoring requirements, and port tariffs requiring vessels of foreign registry to use a port pilot for transit in and out of the port and adjacent waterways. Therefore, although marine traffic generated during construction of the riser and diffuser on the PV Shelf would represent an increase over existing conditions and would be out of scale compared to the existing types of vessels transiting the Port of Los Angeles, it would not impair the level of safety of other vessels navigating the Main Channel or West Basin area within the Port of Los Angeles, or precautionary areas outside the Port of Los Angeles. Impacts would be less than significant.

NEPA Analysis

Environmental impacts would be the same as described for the CEQA analysis, and would occur for the duration of construction. Baseline conditions would resume upon termination of construction. With respect to the Corps' NEPA scope of analysis described in Section 3.5, the environmental impacts would be considered direct impacts.

CEQA Impact Determination

Construction of Alternative 2 (Project) would not impair the level of safety for vessels navigating the Main Channel or West Basin area within the Port of Los Angeles, or precautionary areas outside the Port of Los Angeles. Impacts under CEQA would be less than significant.

Mitigation

No mitigation is required.

Residual Impacts
Impacts would be less than significant.

NEPA Impact Determination
Construction of Alternative 2 (Project) would not impair the level of safety for vessels navigating the Main Channel or West Basin area within the Port of Los Angeles, or precautionary areas outside the Port of Los Angeles. Impacts under NEPA would be less than significant.

Mitigation
No mitigation is required.

Residual Impacts
Impacts would be less than significant.

19.4.4.3 Impact Summary – Alternative 2

Impacts on marine transportation and traffic analyzed in this EIR/EIS for Alternative 2 (Project) are summarized in Table 19-9. The proposed mitigation, where feasible, and the significance of the impact before and following mitigation are also listed in the table.

Alternative 2 (Program), which is the same as Alternative 1 (Program), does not include marine elements and has no potential to have an impact on marine transportation and traffic.

Table 19-9. Impact Summary – Alternative 2 (Project)

Project Element	Impact Determination Before Mitigation	NEPA Direct or Indirect	Mitigation	Residual Impact After Mitigation
Impact TRM-1. Would Alternative 2 (Project) interfere with the operation of designated vessel traffic lanes entering and exiting the Port of Los Angeles?				
Tunnel Alignment				
Wilmington to PV Shelf (Offshore)	CEQA Less Than Significant Impact During Construction	N/A	No mitigation is required.	CEQA Less Than Significant Impact During Construction
	NEPA Less Than Significant Impact During Construction	Direct	No mitigation is required.	NEPA Less Than Significant Impact During Construction
Riser/Diffuser Area				
PV Shelf	CEQA Less Than Significant Impact During Construction	N/A	No mitigation is required.	CEQA Less Than Significant Impact During Construction
	NEPA Less Than Significant Impact During Construction	Direct	No mitigation is required.	NEPA Less Than Significant Impact During Construction
Existing Ocean Outfalls	CEQA Less Than Significant Impact During Construction	N/A	No mitigation is required.	CEQA Less Than Significant Impact During Construction
	NEPA Less Than Significant Impact During Construction	Direct	No mitigation is required.	NEPA Less Than Significant Impact During Construction

Table 19-9 (Continued)

Project Element	Impact Determination Before Mitigation	NEPA Direct or Indirect	Mitigation	Residual Impact After Mitigation
Impact TRM-2. Would Alternative 2 (Project) impair the level of safety for vessels navigating the Main Channel or West Basin area within the Port of Los Angeles, or precautionary areas outside the Port of Los Angeles?				
Tunnel Alignment				
Wilmington to PV Shelf (Offshore)	CEQA Less Than Significant Impact During Construction	N/A	No mitigation is required.	CEQA Less Than Significant Impact During Construction
	NEPA Less Than Significant Impact During Construction	Direct	No mitigation is required.	NEPA Less Than Significant Impact During Construction
Riser/Diffuser Area				
PV Shelf	CEQA Less Than Significant Impact During Construction	N/A	No mitigation is required.	CEQA Less Than Significant Impact During Construction
	NEPA Less Than Significant Impact During Construction	Direct	No mitigation is required.	NEPA Less Than Significant Impact During Construction

19.4.5 Alternative 3

19.4.5.1 Program

Alternative 3 (Program) is the same as Alternative 1 (Program) and does not include marine elements; therefore, Alternative 3 (Program) has no potential to have an impact on marine transportation and traffic.

19.4.5.2 Project

The impacts for the riser and diffuser area on the PV Shelf for Alternative 3 (Project) would be the same as for Alternative 2 (Project). The impacts for the existing ocean outfalls would be the same as for Alternative 1 (Project).

Impact TRM-1. Would Alternative 3 (Project) interfere with the operation of designated vessel traffic lanes entering and exiting the Port of Los Angeles?

Tunnel Alignment – Figueroa/Gaffey to Palos Verdes Shelf (Offshore)

Construction

CEQA Analysis

Construction activities relating to the Figueroa/Gaffey to PV Shelf offshore tunnel for Alternative 3 (Project) are similar to those described under Alternatives 1 (Project) and 2 (Project); however, Alternative 3 (Project) would result in an even shorter duration during which excavated material would be

barged to ocean disposal site LA-3.[9, 10] This is due to the fact that the offshore tunnel alignment between the Angels Gate shaft site and the PV Shelf riser and diffuser area is shorter than the Alternative 1 (Project) offshore tunnel alignment between the TraPac shaft site and the SP Shelf by approximately 43,200 feet, and is shorter than the Alternative 2 (Project) offshore tunnel alignment between the TraPac shaft site and the PV Shelf by approximately 16,950 feet.

As determined under Alternative 1 (Project), even when combined with marine traffic that would be generated by overlapping construction activities related to other project elements, the relative increase in vessels required to dispose of excavated material from construction of the offshore tunnel could be safely accommodated by existing marine traffic management systems including the VTS and the Marine Exchange. The barges that would be utilized in the transport of tunnel excavated material to LA-3 would be similar in size and function to other vessels operating in and around the port and, therefore, would not interfere with other vessels operating in the vicinity.

Furthermore, vessels that would be utilized in project construction activities would adhere to all safety protocols including USCG regulations, HSP speed-limit regulations, traffic separation schemes, limited visibility guidelines, VTS monitoring requirements, and port tariffs requiring vessels of foreign registry to use a port pilot for transit in and out of the port and adjacent waterways. Therefore, although marine traffic generated during construction of the offshore tunnel would represent an increase over existing conditions, it would not interfere with the designated vessel traffic lanes entering the Port of Los Angeles. Impacts would be less than significant.

NEPA Analysis

Environmental impacts would be the same as described for the CEQA analysis, and would occur for the duration of construction. Baseline conditions would resume upon termination of construction. With respect to the Corps' NEPA scope of analysis described in Section 3.5, the environmental impacts would be considered direct impacts.

CEQA Impact Determination

Construction of Alternative 3 (Project) would not interfere with the operation of designated vessel traffic lanes entering and exiting the Port of Los Angeles. Impacts under CEQA would be less than significant.

Mitigation

No mitigation is required.

Residual Impacts

Impacts would be less than significant.

NEPA Impact Determination

Construction of Alternative 3 (Project) would not interfere with the operation of designated vessel traffic lanes entering and exiting the Port of Los Angeles. Impacts under NEPA would be less than significant.

Mitigation

No mitigation is required.

[9] The offshore tunnel under Alternative 3 (Project) is approximately 12,300 feet in length and would take approximately 5 years to construct. The offshore tunnel under Alternative 2 (Project) is approximately 29,250 feet in length and would take approximately 5 years to construct. The offshore tunnel under Alternative 1 (Project) is approximately 55,500 feet in length and would take approximately 6.5 years to construct.

[10] As described in Section 19.4.1, ODMDS LA-3 was used because it represents the worst-case scenario; however, excavated material may not necessarily be disposed of at this location.

Residual Impacts
Impacts would be less than significant.

Impact TRM-2. Would Alternative 3 (Project) impair the level of safety for vessels navigating the Main Channel or West Basin area within the Port of Los Angeles, or precautionary areas outside the Port of Los Angeles?

Tunnel Alignment – Figueroa/Gaffey to Palos Verdes Shelf (Offshore)

Construction

CEQA Analysis
Construction activities relating to the Figueroa/Gaffey to PV Shelf offshore tunnel for Alternative 3 (Project) are similar to those described under Alternatives 1 (Project) and 2 (Project); however, Alternative 3 (Project) would result in an even shorter duration during which excavated material would be barged to ocean disposal site LA-3.[11, 12] This is due to the fact that the offshore tunnel alignment between the Angels Gate shaft site and the PV Shelf riser and diffuser area is shorter than both the Alternatives 1 (Project) and 2 (Project) offshore tunnel alignments.

As discussed under Alternative 1 (Project), construction activities related to disposal of offshore tunnel excavated material would result in an increase in marine traffic due to barges transporting excavated material to the offshore ocean disposal site LA-3. Even when combined with marine traffic that would be generated by overlapping construction activities related to other project elements, the relative increase in vessels required to dispose of excavated material from construction of the offshore tunnel could be safely accommodated by existing marine traffic management systems including the VTS and the Marine Exchange. The barges that would be utilized in the transport of excavated material to LA-3 would be similar in size and function to other vessels operating in and around the port and, therefore, would not result in safety hazards to other vessels operating in the vicinity, including fishing vessels operating in Fish Harbor.

Vessels that would be utilized in project construction activities would adhere to all safety protocols including USCG regulations, HSP speed-limit regulations, traffic separation schemes, limited visibility guidelines, VTS monitoring requirements, and port tariffs requiring vessels of foreign registry to use a port pilot for transit in and out of the port and adjacent waterways. Therefore, although marine traffic generated during construction of the offshore tunnel would represent an increase over existing conditions, it would not impair the level of safety of other vessels navigating the Main Channel or West Basin area within the Port of Los Angeles, or precautionary areas outside the Port of Los Angeles. Impacts would be less than significant.

NEPA Analysis
Environmental impacts would be the same as described for the CEQA analysis, and would occur for the duration of construction. Baseline conditions would resume upon termination of construction. With respect to the Corps' NEPA scope of analysis described in Section 3.5, the environmental impacts would be considered direct impacts.

[11] The offshore tunnel under Alternative 3 (Project) is approximately 12,300 feet in length and would take approximately 5 years to construct. The offshore tunnel under Alternative 2 (Project) is approximately 29,250 feet in length and would take approximately 5 years to construct. The offshore tunnel under Alternative 1 (Project) is approximately 55,500 feet in length and would take approximately 6.5 years to construct.
[12] As described in Section 19.4.1, ODMDS LA-3 was used because it represents the worst-case scenario; however, excavated material may not necessarily be disposed of at this location.

CEQA Impact Determination

Construction of Alternative 3 (Project) would not impair the level of safety for vessels navigating the Main Channel or West Basin area within the Port of Los Angeles, or precautionary areas outside the Port of Los Angeles. Impacts under CEQA would be less than significant.

Mitigation

No mitigation is required.

Residual Impacts

Impacts would be less than significant.

NEPA Impact Determination

Construction of Alternative 3 (Project) would not impair the level of safety for vessels navigating the Main Channel or West Basin area within the Port of Los Angeles, or precautionary areas outside the Port of Los Angeles. Impacts under NEPA would be less than significant with respect to the No-Federal-Action Alternative (see Section 3.4.1.6).

Mitigation

No mitigation is required.

Residual Impacts

Impacts would be less than significant.

19.4.5.3 Impact Summary – Alternative 3

Impacts on marine transportation and traffic analyzed in this EIR/EIS for Alternative 3 (Project) are summarized in Table 19-10. The proposed mitigation, where feasible, and the significance of the impact before and following mitigation are also listed in the table.

Alternative 3 (Program), which is the same as Alternative 1 (Program), does not include marine elements and has no potential to have an impact on marine transportation and traffic.

Table 19-10. Impact Summary – Alternative 3 (Project)

Project Element	Impact Determination Before Mitigation	NEPA Direct or Indirect	Mitigation	Residual Impact After Mitigation
Impact TRM-1. Would Alternative 3 (Project) interfere with the operation of designated vessel traffic lanes entering and exiting the Port of Los Angeles?				
Tunnel Alignment				
Figueroa/ Gaffey to PV Shelf (Offshore)	CEQA Less Than Significant Impact During Construction	N/A	No mitigation is required.	CEQA Less Than Significant Impact During Construction
	NEPA Less Than Significant Impact During Construction	Direct	No mitigation is required.	NEPA Less Than Significant Impact During Construction
Riser/Diffuser Area				
PV Shelf	CEQA Less Than Significant Impact During Construction	N/A	No mitigation is required.	CEQA Less Than Significant Impact During Construction

Table 19-10 (Continued)

Project Element	Impact Determination Before Mitigation	NEPA Direct or Indirect	Mitigation	Residual Impact After Mitigation
	NEPA Less Than Significant Impact During Construction	Direct	No mitigation is required.	NEPA Less Than Significant Impact During Construction
Existing Ocean Outfalls	CEQA Less Than Significant Impact During Construction	N/A	No mitigation is required.	CEQA Less Than Significant Impact During Construction
	NEPA Less Than Significant Impact During Construction	Direct	No mitigation is required.	NEPA Less Than Significant Impact During Construction
Impact TRM-2. Would Alternative 3 (Project) impair the level of safety for vessels navigating the Main Channel or West Basin area within the Port of Los Angeles, or precautionary areas outside the Port of Los Angeles?				
Tunnel Alignment				
Figueroa/ Gaffey to PV Shelf (Offshore)	CEQA Less Than Significant Impact During Construction	N/A	No mitigation is required.	CEQA Less Than Significant Impact During Construction
	NEPA Less Than Significant Impact During Construction	Direct	No mitigation is required.	NEPA Less Than Significant Impact During Construction
Riser/Diffuser Area				
PV Shelf	CEQA Less Than Significant Impact During Construction	N/A	No mitigation is required.	CEQA Less Than Significant Impact During Construction
	NEPA Less Than Significant Impact During Construction	Direct	No mitigation is required.	NEPA Less Than Significant Impact During Construction

19.4.6 Alternative 4 (Recommended Alternative)

19.4.6.1 Program

Alternative 4 (Program) is the same as Alternative 1 (Program) and does not include marine elements; therefore, Alternative 4 (Program) has no potential to have an impact on marine transportation and traffic.

19.4.6.2 Project

The construction impacts for the rehabilitation of the existing ocean outfalls for Alternative 4 (Project) would be the same as for Alternative 1 (Project).

19.4.6.3 Impact Summary – Alternative 4

Impacts on marine transportation and traffic analyzed in this EIR/EIS for Alternative 4 (Project) are summarized in Table 19-11. The proposed mitigation, where feasible, and the significance of the impact before and following mitigation are also listed in the table.

Alternative 4 (Program), which is the same as Alternative 1 (Program), does not include marine elements and has no potential to have an impact on marine transportation and traffic.

Table 19-11. Impact Summary – Alternative 4 (Project)

Project Element	Impact Determination Before Mitigation	NEPA Direct or Indirect	Mitigation	Residual Impact After Mitigation
Impact TRM-1. Would Alternative 4 (Project) interfere with the operation of designated vessel traffic lanes entering and exiting the Port of Los Angeles?				
Riser/Diffuser Area				
Existing Ocean Outfalls	CEQA Less Than Significant Impact During Construction	N/A	No mitigation is required.	CEQA Less Than Significant Impact During Construction
	NEPA Less Than Significant Impact During Construction	Direct	No mitigation is required.	NEPA Less Than Significant Impact During Construction

19.4.7 Alternative 5 (No-Project Alternative)

Pursuant to CEQA, an environmental impact report (EIR) must evaluate a no-project alternative. A no-project alternative describes the no-build scenario and what reasonably would be expected to occur in the foreseeable future if the project were not approved. Under the No-Project Alternative for the Clearwater Program, the Sanitation Districts would continue to expand, upgrade, and operate the Joint Outfall System (JOS) in accordance with the JOS 2010 Master Facilities Plan (Sanitation Districts 1994), which includes all program elements proposed under the Clearwater Program, excluding process optimization at the water reclamation plants, as described in Section 3.4.1.5. A new or modified ocean discharge system would not be constructed. As a result, there would be a greater potential for an emergency discharge into various water courses, as described in Section 3.4.1.5.

Because there would be no construction of a new or modified JWPCP ocean discharge system, the Corps would not make any significance determinations under NEPA and would not issue any permits or discretionary approvals for dredge or fill actions or for transport or ocean disposal of dredged material.

19.4.7.1 Program

Alternative 5 (Program) does not include marine elements and has no potential to have an impact on marine transportation and traffic.

19.4.7.2 Project

Alternative 5 does not include a project; therefore, a new or modified ocean discharge system would not be constructed. As a consequence of taking no action, there would be a greater potential for emergency discharges into various water courses, as described in Section 3.4.1.5. The emergency discharges would not affect marine transportation. No impacts would occur.

19.4.7.3 Impact Summary – Alternative 5

Alternative 5 would result in no impacts on marine transportation and traffic. Alternative 5 (Program), which is the same as Alternative 1 (Program) excluding process optimization, does not include marine

elements and has no potential to have an impact on marine transportation and traffic. Additionally, there would be no impacts for Alternative 5 (Project).

19.4.8 Alternative 6 (No-Federal-Action Alternative)

Pursuant to NEPA, an environmental impact statement (EIS) must evaluate a no-federal-action alternative. The No-Federal-Action Alternative for the Clearwater Program consists of the activities that the Sanitation Districts would perform without the issuance of the Corps' permits. The Corps' permits would be required for the construction of the offshore tunnel, construction of the riser and diffuser, the rehabilitation of the existing ocean outfalls, and the ocean disposal of dredged material. Without a Corps permit to work on the aforementioned facilities, the Sanitation Districts would not construct the onshore tunnel and shaft sites. Therefore, none of the project elements would be constructed under the No-Federal-Action Alternative. The Sanitation Districts would continue to use the existing ocean discharge system, which could result in emergency discharges into various water courses, as described in Sections 3.4.1.6 and 19.4.7.2. The program elements for the recommended alternative would be implemented in accordance with CEQA requirements. However, based on the NEPA scope of analysis established in Sections 1.4.2 and 3.5, these elements would not be subject to NEPA because the Corps would not make any significance determinations and would not issue any permits or discretionary approvals.

19.4.8.1 Program

The program elements are beyond the NEPA scope of analysis.

19.4.8.2 Project

The impact analysis for Alternative 6 (Project) is the same as described for Alternative 5 (Project).

19.4.8.3 Impact Summary – Alternative 6

The program is not analyzed under Alternative 6. Impacts for Alternative 6 would be the same as discussed under Alternative 5 (Project); therefore, there would be no impacts on marine transportation and traffic for Alternative 6.

19.4.9 Comparison of Significant Impacts and Mitigation for All Alternatives

The impacts on marine transportation and traffic for all alternatives would be less than significant. No mitigation is required. Therefore, a table summarizing significant impacts and mitigation is not included in this chapter.