

3.7 TRANSPORTATION

The following Section describes existing offshore vessel transportation systems in the Project area including relevant harbors and ports and shipping activity in the coastwise shipping traffic lanes. It should be noted that some discussion regarding commercial fishing/recreational vessels has been included within this Section, however further discussion with respect to potential impacts to commercial fishing activities/recreational activities is presented within Section 3.8 (Commercial and Recreational Resources) and Appendix E (Fisheries Management Plan).

3.7.1 Affected Environment

A significant portion of the vessel traffic within the Project area can be attributed to commercial and recreational activities that originate from local ports, specifically the Port of Los Angeles and Port of Long Beach (collectively called the POLA/POLB). Other ports or harbors in the Project vicinity include Long Beach Marina, Anaheim Bay/Huntington Harbor, Newport Harbor, Avalon Harbor and Two Harbors (both located on Santa Catalina Island), and other harbors and marinas further away. A brief description of each port or harbor is provided below. Additionally, the northbound coastwise shipping lanes are located within the western portion of the proposed survey area, approximately 0.5 miles west of Platforms Elly and Eureka (Figure 1-1).

3.7.1.1 Regional Ports, Harbors, and Marinas

Port of Long Beach (POLB) / Port of Los Angeles (POLA). The POLA/POLB are located adjacent to each other in the San Pedro Bay, but are operated separately. The POLA is operated by the City of Los Angeles, and the POLB by the City of Long Beach. The POLB and POLA are two of the world's busiest seaports and together handle 40 percent of all shipping containers entering the United States (U.S.) (City of Long Beach, 2013). The POLB comprises more than 7,600 acres of wharves, cargo terminals, roads, rail yards, and shipping channels. The POLA encompasses 7,500 acres, with 43 miles of waterfront property and features 25 cargo terminals, including passenger, container, breakbulk, dry and liquid bulk, and automobile terminals (POLA, 2014). Project related vessel trips are expected to originate from the POLB.

Long Beach Marina. The Long Beach Marina includes Alamitos Bay Marina, Long Beach Shoreline Marina (Downtown Marina), and Rainbow Harbor / Rainbow Marina. The Long Beach Marinas are located more than 10 miles north of the Project site.

The Alamitos Bay Marina is a small craft harbor providing 1,975 boat slips, and has two boat launch ramps. No vessels associated with this Project will use Alamitos Bay Marina.

The Long Beach Shoreline (Downtown) Marina opened in 1982 and features 1,624 slips for recreational boaters. Shoreline Marina is located between the Queen Mary and the Long Beach Convention Center. No vessels associated with the Project will use Shoreline Marina.

Rainbow Harbor / Rainbow Marina is located between Shoreline Village and the Aquarium of the Pacific in downtown Long Beach. The marina features 87 slips serving both recreational boaters and commercial operators. No vessels associated with this Projects will use Rainbow Harbor/Rainbow Marina.

Anaheim Bay/Huntington Harbor. The Anaheim Bay/Huntington Harbor entrance is located southeast of Seal Beach approximately 10 miles north of the Beta Unit Platforms. "Anaheim Bay" generally refers to the deep-water Navy harbor at the entrance to the Bay which must be passed through in order to reach Huntington Harbor located approximately one mile (1.6 kilometers) from the mouth of the Bay. Los Alamitos Army Airfield and Naval Weapons Station Seal Beach are located adjacent to each other on the north and north-east sides of the bay, respectively. Huntington Harbor has approximately 325 commercial and recreational slips. No vessels associated with this Project will use Anaheim Bay or Huntington Harbor.

Newport Harbor. Newport Harbor is located approximately 15 miles east of the Beta Unit Platforms. The harbor has more than 9,000 slips, and can accommodate large and small private and commercial vessels. Balboa Island is located within Newport Harbor. Other communities, homes, restaurants and commercial buildings line the edge of the harbor. The Harbor is home to several yacht clubs and private marinas. No vessels associated with this Project will use Newport Harbor.

Avalon Harbor. Santa Catalina Island is located approximately 20 miles southwest of the Beta Unit Platforms. Avalon Harbor, located on the island has 400 moorings, all of them privately owned by individuals or the City of Avalon, which rents them to the public. No vessels associated with this Project will use Avalon Harbor.

Two Harbors. Located on Catalina's west end, Two Harbors is located approximately 22 miles from the Southern California mainland. Two Harbors and Isthmus Cove offer 700 moorings available for rent along with protected coves and harbors along the coast. No vessels associated with this Project will use Two Harbors.

3.7.1.2 Mandatory Vessel Traffic and Coastwise Shipping Lanes

The U.S. Coast Guard (USCG) uses a wide range of techniques and regulations to prevent vessel collisions, and groundings in the approach, harbor and inland waterway phases of navigation. There are several specific types of navigational regulation systems that govern the shipment of goods in offshore areas. In areas where international ships converge at headlands, straits, and major harbors, including the San Pedro Channel, the USCG and the International Marine Organization (IMO) institute Traffic Separation Schemes (TSS's) to separate vessels and control crossing and meeting situations. TSS shipping lanes along the California coast are generally located four to 20 nautical miles offshore and are separated by an approximately one nautical mile separation zone. Vessel traffic within these lanes may include tanker ships, container ships, military vessels, research vessels, cruise ships, tugs and tows, commercial fishing boats, and recreational vessels. The TSS lanes for the Project area are shown in Figure 3.7-1.

In the offshore Project area, the Vessel Traffic Service (VTS) is used in conjunction with the TSS. A VTS provides vessel operators with advanced information regarding real time marine traffic, advice, and recommendations which may affect vessel safety within the VTS area. While TSS's are often found offshore in international waters, VTS's are generally utilized closer to shore, in national waters. The VTS for the Project area is jointly operated by the USCG and Marine Exchange of Los Angeles/Long Beach and is operated from the Vessel Traffic Center (VTC) located in San Pedro (Marine Exchange of Southern California and USCG, 2015). The San Pedro VTC assists in the safe navigation of vessels approaching the POLA/POLB in an area extending 25 miles out to sea from Point Fermin.

In addition to the TSS in the POLB/POLA, the Project area is located within a POLA/POLB "Precautionary Area." A precautionary area or zone may be any area within which ships must use particular caution and should follow the recommended direction of traffic flow. In this case, the precautionary zone exists as a designated area where ships are preparing to enter or exit the POLA/POLB. Ship pilots may be picked up or dropped off anywhere within the precautionary zone in order to facilitate safe movement into or out of the Ports. Vessel traffic is not restricted within the precautionary zones, but guidance is provided for the safe and effective movement of vessels. The Platforms are located less than one mile south of the San Pedro designated precautionary area. As shown in Figure 3.7-1 (Site Location Map and Vessel Traffic Corridor), portions of the Project survey transect lines overlap with the precautionary zone.

3.7.1.3 Voluntary and Current Vessel Traffic

Voluntary Traffic Lanes. In addition to the required TSS traffic lanes, members of the Western States Petroleum Association (WSPA), whose tankers carry crude oil from Alaska, voluntarily keep vessels further offshore at a minimum of 50 nautical miles (92.6 kilometers) from shore. Slower-going ocean tank barges generally transit at approximately 15 to 25 nautical miles (27 to 46 kilometers) from shore to minimize interaction with the offshore oil tankers and the inshore container ships. Platforms Elly and Eureka are located approximately 0.5 miles (0.80 kilometers) east of the eastern boundary of the northbound Coastwise Traffic Lane, approximately five miles east of the designated ferry route from Santa Catalina Island to Long Beach, and approximately five miles (eight kilometers) north, west of the designated ferry route from Santa Catalina Island to Newport Bay. As shown in Figure 3.7-1 (Site Location Map and Vessel Traffic Corridor), portions of the Project survey area overlap with the TSS.

Current Vessel Traffic to and From the Beta Unit Platforms. Currently a supply vessel/work boat (*M/V Kenneth Carl*) makes three round trips to the platforms each week with additional trips as needed. In addition, a crew boat (*M/V Nicholas L.*) makes five daily round trips from Terminal Island inside of the POLA/POLB to the platforms. During weekends, the crew boat makes this trip four times per day. There are no other vessel trips associated with the daily operations of the platforms.

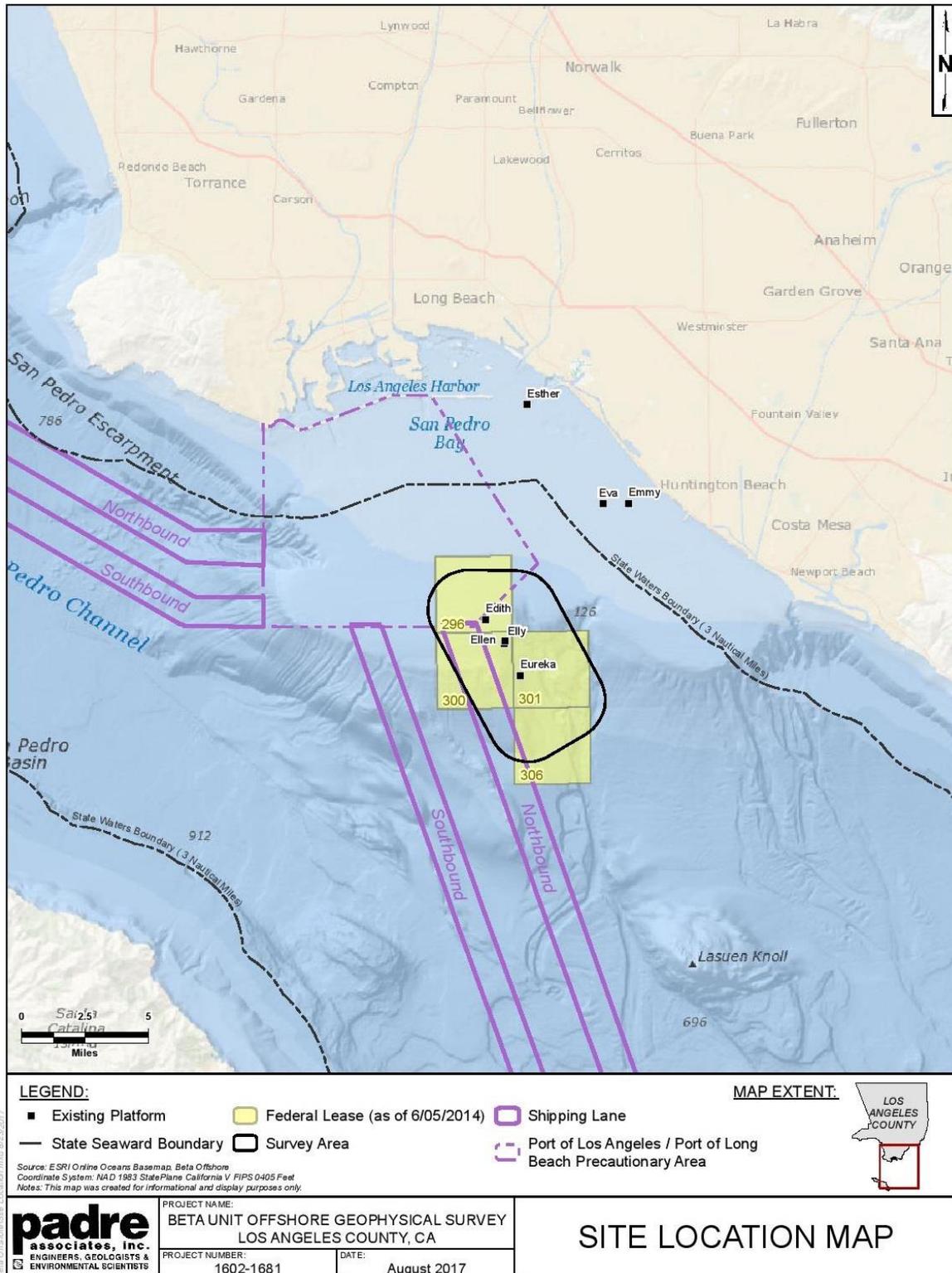


Figure 3.7-1. Site Location Map with Traffic Separation Scheme/Shipping Lanes (Purple)

Current vessel traffic leaves from Terminal Island and takes a designated straight-line route to the Beta Unit Platforms Elly and Eureka. The route crosses designated shipping lanes; therefore, the crew boat routinely crosses paths with large cargo ships on its way to the platforms. The crew boat does not interfere with shipping activities or vessel traffic, and navigates safely to and from its destinations several times a day.

Existing Beta Unit Platform Safety Zones. The USCG requires a safety zone around Platforms Edith, Ellen and Elly, and Eureka within Title 33 (Navigation and Navigable Waters), Part 147 (Safety Zones).

§ 147.1108. Platform EDITH safety zone: (a) Description: The area within a line 500 meters [1,640 feet] from each point on the structure's outer edge. The position of the center of the structure is 33°-35'-45" N, 118°-08'-27" W. (b) Regulations: No vessel may enter or remain in this safety zone except for the following: (1) An attending vessel, (2) a vessel under 100 feet [30.5 meters] in length overall not engaged in towing, or (3) a vessel authorized by the Commander, Eleventh Coast Guard District.

§ 147.1104. Platform ELLEN & ELLY safety zone: (a) Description: The areas within a line 500 meters [1,640 feet] from each point on the outer edge of each structure. The structures are approximately 120 meters [394 feet] apart. The position of the center of each structure is: Platform Ellen, 33°-34'-57" N, 118°-07'-42" W; and Platform Elly, 33°-35'-00" N, 118°-07'-40" W. (b) Regulations: No vessel may enter or remain in this safety zone except the following: (1) An attending vessel serving either structure, (2) a vessel under 100 feet [30.5 meters] in length overall not engaged in towing, or (3) a vessel authorized by the Commander, Eleventh Coast Guard District.

§ 147.1111. Platform EUREKA safety zone: (a) Description: The area within a line 500 meters [1,640 feet] from each point on the structure's outer edge. The position of the center of the structure is 33-33-50 N, 118-07-00 W. (b) Regulations: No vessel may enter or remain in this safety zone except the following: (1) An attending vessel, (2) a vessel under 100 feet [30.5 meters] in length overall not engaged in towing or (3) a vessel authorized by the Commander, Eleventh Coast Guard District.

3.7.1.4 Marine Aquaculture

According to the NOAA Fisheries Office of Aquaculture, in 2016 the privately-owned Catalina Sea Ranch received several government grants to begin offshore mussel farming within Federal waters of the U.S. Currently, the Catalina Sea Ranch has developed approximately 100 acres in the San Pedro Bay for cultivation of Mediterranean mussel (*Mytilus galloprovincialis*). The Catalina Sea Ranch facility is located approximately two miles (3.2 kilometers) north-east from the Project Platforms (Edith and Elly). This area is designated by four lighted buoys at each corner of the facility. In addition, a NOAA NOMAD buoy is anchored at one corner of the facility and equipped with technologies for transmitting real-time data for remotely monitoring. Vessels servicing the facility include a 72-foot long LCM-8 aquaculture harvest vessel (the Enterprise) and a 75-foot long research vessel (the Captain Jack). Project activities have been designed to avoid the Catalina Sea Ranch aquaculture facilities.

3.7.2 Regulatory Setting

3.7.2.1 Federal

Federal regulations addressing offshore marine navigation are codified in 33 CFR Parts 1 through 399 and are implemented by the USCG and the U.S. Army Corp of Engineers (ACOE). In addition to Federal regulations, the IMO provides rules and guidelines for TSS's to separate vessels and control crossing and meeting situations in shipping lanes within Section 10 of the COLREGS - International Regulations for Preventing Collisions at Sea. The M/V *Clean Ocean* will technically be exempt from the requirements of the COLREGS under Part (k), which states that “a vessel restricted in her ability to manoeuvre [sic] when engaged in an operation for the maintenance of safety of navigation in a traffic separation scheme is exempted from complying with this Rule to the extent necessary to carry out the operation.” However, wherever feasible the M/V *Clean Ocean* and supporting vessels will hold to the COLREGS Standards as it is standard operating procedure.

3.7.2.2 Local

The offshore transportation system for the Project is subject to the policies and plans of the Los Angeles/Long Beach Harbor Districts. As discussed above, the POLA/POLB are located adjacent to each other in the San Pedro Bay, but are operated separately. POLA is operated by the City of Los Angeles and the POLB by the City of Long Beach. The two ports compete for business, but cooperate on joint rail and infrastructure projects. The Long Beach Harbor Department is the agency responsible for management of the POLB. The POLA is managed by the City of Los Angeles through the California Tidelands Trust Act.

A summary of regulations considered for the proposed Project area are presented in Table 3.7-1.

Table 3.7-1. Regulations Considered for Proposed Project Area

Agency or Regulation	
Ports and Waterways Safety Act - USCG	Code of Federal Regulations Title 33 Navigation and Navigable Waters - Part 147 (Safety Zones) around Platforms Edith, Ellen and Elly, and Eureka.
Port of Los Angeles - Port Master Plan (2014)	Port of Long Beach - Master Plan (1990, amended 2005)
COLREGS - International Regulations for Preventing Collisions at Sea (2005)	

3.7.3 Impact Assessment

The proposed scope of work offshore will require operating a node placement/recovery vessel, geophysical survey vessel, and support vessel in the survey area. Project activities will require transit of the vessels and between the survey area and nearby harbors (POLA/POLB). Potential impacts to transportation resources would therefore be limited to: 1) onshore personnel transportation to and from the POLA/POLB; 2) vessel transport during node deployment/removal, and 3) survey vessel and supporting vessel transport along transects and to/from the POLA/POLB during geophysical survey activities for refueling and supplies.

Existing platform Safety Zones extend for 500 meters (1,640 feet) from the outer edges of Platforms Elly, Ellen, and Eureka and USCG regulations for those areas preclude vessels from entering or remaining within those platform Safety Zones in except for the following: (1) an attending vessel, (2) a vessel under 100 feet (30.5 meters) in length overall not engaged in towing, or (3) a vessel authorized by the Commander, Eleventh Coast Guard District. Due to this existing platform Safety Zone, Project activities occurring within 500 meters (1,640 feet) of the platforms would not affect transportation resources.

3.7.3.1 Onshore Personnel Transportation to and from the POLA/POLB

Section 1.6.2 (Personnel Requirements) provides a summary of anticipated personnel required during each phase of the Project for its duration (42 operational days [six weeks]). Project activities may require a maximum of up to approximately 25 personnel during survey operations (28 days), which is the most of any proposed work task. During each phase of the Project, personnel would park and board Project vessels at the POLA/POLB and would remain onboard until Project activities for that phase of work are complete. Where feasible, carpooling and shuttling will be utilized for personnel within the surrounding areas. Based on the short duration of Project activities as well as the limited number of crew changes anticipated, impacts to onshore transportation routes and parking within the POLA/POLB will be minimal and within standard operations for the Ports.

3.7.3.2 Vessel Transport During Node Deployment/Removal

The proposed node deployment/recovery vessel is the M/V *Clean Ocean* based out of the POLB. During mobilization of the M/V *Clean Ocean* to the offshore Project area, no vessel preclusion would be required. However, during node deployment/recovery activities, a vessel Exclusion Zone would be established that precludes offshore vessel traffic from the immediate work vessel. Deployment of the nodes by the M/V *Clean Ocean* is anticipated to take approximately seven operational days (one week). At the end of the survey, the M/V *Clean Ocean* would retrieve each line of temporary nodes, which would also take approximately seven operational days (one week). However, node deployment and recovery activities would be temporary and transitory in nature. Although some preclusion of other vessels during offshore deployment/recovery of the nodes would be required within the immediate work area, Project activities would adhere to standard operating procedures within vessel transit corridors and the POLA/POLB. No impacts to vessel transportation corridors would result.

3.7.3.3 Survey Vessel and Supporting Vessel Transport Along Transects During the Primary Geophysical Survey (Including Transects that Overlap into the TSS)

Following placement of nodes on the seafloor, the Project survey vessel (M/V *Silver Arrow*) would conduct the geophysical survey. Due to the Project's proximity to the POLA/POLB and coastwise shipping lanes, a nodal survey has been proposed to avoid the larger operational preclusion area that is typically required during surveys utilizing streamer acquisition technologies. During mobilization of the M/V *Silver Arrow* from Seattle, Washington to the offshore Project area, no vessel preclusion would be required. During survey activities, Project vessels will follow currently used direct pathways from the POLA/POLB to the Platforms, and, where feasible, Project vessels will operate within the established vessel traffic lanes.

Once within the proposed geophysical survey area, the Project survey vessel will tow the source array approximately 328 - 492 feet (100 - 150 meters) behind the vessel along linear transects as shown in Figure 1-2 (Source Vessel Track Map of Beta Unit Proposed Geophysical Survey Area). While towing the source array, the M/V *Silver Arrow* would "fly" the appropriate USCG-approved day shapes (mast head signals used to communicate with other vessels) and display the appropriate lighting to designate the vessel has limited maneuverability and towed equipment. While in, near, or entering/exiting TSS Areas, Project vessels will be required to follow all applicable regulations outlined within Rule 10 of the COLREGS, International Regulations for Preventing Collisions at Sea to the extent feasible.

While the source array is active, non-essential vessels would be precluded from the immediate work area. In addition to the existing 500-meter (1,640 feet) platform Safety Zone surrounding each of the Beta Unit Platforms in accordance with normal operating procedures; an additional vessel Exclusion Zone will extend radially from the source array out 1,640 feet (500 meter) including the survey vessel. The purpose of the vessel Exclusion Zone will be to keep vessel traffic outside of Project work areas. While transiting within the TSS or near other vessels that may have limited maneuverability, implementation of the Exclusion Zone will need to be coordinated. This will be accomplished using standard vessel procedures as required within the internationally accepted COLREGS as well as such communication measures such as issuance of a Local Notice to Mariners (NTM) and radio communication.

The M/V *Jab* or equivalent will also provide support during the proposed geophysical survey. This will include assisting with additional radio communications, if necessary, with vessels nearing the vessel Exclusion Zone. Project geophysical survey operations are standard industry procedure and are not expected to result in an increased risk to ship strike or vessel collision within the TSS.

The proposed geophysical survey would take approximately 28 days to complete. Offshore Project activities would be temporary and transitory in nature and are scheduled to begin in September 2018. Although some preclusion of vessels will occur during survey operations for safety purposes, these are well within the normal operating procedures for vessels within shipping lanes; and offshore transportation would not be excessively hindered or interrupted. Project survey and support vessels would be required to remain in contact with the local VTC and would

only begin survey transects when other vessels utilizing the shipping lanes are out of the way. Impacts to offshore transportation routes are not anticipated.

Project Incorporated Measures to Reduce Potential Impacts:

- **Notice to Mariners.** At least 15 days prior to in-water activities, Beta's contractor will submit a Local Notice to Mariners (NTM) to the 11th District, U.S. Coast Guard and, as required, to the Captain of the Port. This notification will specify vessel and personnel contact information, scope of the proposed actions, location, and the anticipated duration of the activities.
- **Posting of Notices.** A document that shows and describes the proposed activities will be posted at the Harbor Master's office at the Port of Los Angeles (POLA), Port of Long Beach (POLB), Long Beach Marina area, Anaheim Bay/Huntington Harbor, and Newport Bay. That document will provide information on the proposed activities, contact information for all Project vessels and personnel, and will have a map depicting the ocean area affected.
- **Voluntary Traffic Lanes To/From the Project Platforms.** Where feasible, vessel traffic will follow currently used direct pathways from the POLA/POLB to the Platforms.
- **Mandatory Vessel Traffic and Coastwise Shipping Lanes.** Where feasible, Project vessels will operate within the established vessel traffic lanes.
- **Navigational Safety.** At all times, Project vessels will operate using the highest level of navigational safety and in accordance with International and USCG regulations and guidelines.
- **USCG-Approved Day Shapes.** In accordance with USCG requirements and to alert nearby vessels, the work vessel will "fly" the appropriate "day shapes" that specifies that the vessel is engaged in Project activities and that it has limited maneuverability.

3.7.4 References

City of Long Beach. 2013. City of Long Beach General Plan - Mobility Element

COLREGS. 1972. COLREGS - International Regulations for Preventing Collisions at Sea - Articles of the Convention on the International Regulations for Preventing Collisions at Sea, 1972 - Article I - General obligations

Marine Exchange of Southern California and USCG. 2015. Los Angeles-Long Beach Vessel Traffic Service (VTS) User Manual Los Angeles - Long Beach Vessel Traffic Service (VTS).

National Oceanic and Atmospheric Administration (NOAA). 2016. Navigational Chart No. 18746.

Port of Los Angeles. 2014. Port Master Plan