2.1.6 Maritime Navigation

2.1.6.1 Regulatory Setting

CEQA Guidelines, Appendix G, Item XV, Transportation/Circulation requires the Port to consider the potential of a project to substantially increase hazards due to a design feature or incompatible use. For certain Port projects, the environmental evaluation should consider the potential for design, construction, and/or operational features to introduce or substantially increase hazards to navigation. The vessel transportation section of the EIR (or joint CEQA/NEPA document) identifies routes and rules pertaining to navigation, estimates existing vessel transportation volumes, presents vessel accident data for a period of at least 5 years, and evaluates the project impact in light of this information and the evaluation criteria provided in Section 2.1.6.3 (Environmental Consequences, Evaluation Criteria).

2.1.6.2 Affected Environment

Several types of commercial vessels call at the POLB. The vessels follow vessel traffic lanes established by the United States Coast Guard (USCG). The Marine Exchange of Southern California and USCG are responsible for vessel traffic safety in the approach areas to the Port. Vessels enter the Long Beach Harbor through Queens Gate. In 2005, 829 berth calls were made at the POLB through the Cerritos Channel. Of these calls, 529 (63 percent) were container ships (POLB, 2008a). Once inside the harbor, some vessels use anchorages for a short time. The Port has six anchorage areas where vessels can bunker (refuel), wait for a dock, or wait for orders or minor repairs (USACE/LAHD, 1992). Container vessels will usually bunker at dockside while their cargo is being loaded or unloaded, rather than at anchorages, to minimize time in the Port.

Water depths throughout the Port range from 76 ft (23 m) in the Main Channel to 52 ft (15.8 m) in the Inner Harbor and 55 ft (17 m) in parts of the Middle Harbor. The 700-ft-wide (213-m-wide) Main Channel has a depth of 76 ft (23 m). Anchorage areas in the Outer Harbor on both sides of the Main Channel have depths of 36 ft (11 m) to 70 ft (21 m) (POLB, 2001). The navigable Back Channel is 300 ft (91 m) wide and approximately 60 ft (18 m) in depth from the MLLW. The depth of the Back Channel poses navigational obstacles for the new models of container ships passing under the bridge due to their larger dimensions. These areas of the Port are primarily used or are being developed for containerized cargo.

Existing and future operations within the Back Channel and Inner Harbor areas of the Port are most affected by the existing vertical vessel clearance of the Gerald Desmond Bridge. The span's maximum height above water, vertical vessel clearance, or air draft, is 156 ft (47.5 m) at mean high water (MHW). The Port's pilots can navigate under the bridge with a minimum 3-ft (1-m) overhead clearance for their vessels. Accordingly, this limits ships to an air draft of approximately 153 ft (46.6 m) (POLB, 2005a).

In addition to the constraints of the bridge and channel, SCE's high-voltage transmission lines that cross the Cerritos Channel from the LBGS currently limit the air draft of vessels transiting to Piers A and S (under development). The vertical clearance afforded by the transmission lines is currently 3 ft (1-m) less than the existing Gerald Desmond Bridge clearance of 156 ft (47.5 m). The North- and South-side Alignment Alternatives would provide a 200-ft (61-m) air draft to safely accommodate the larger container vessels currently in service and planned for the future; however, because the SCE transmission lines would still restrict maritime access to the Inner Harbor, coordination with SCE to relocate the lines as part of the navigational improvements is necessary. The Port is committed to working with SCE to provide the needed additional vertical clearance consistent with the planned bridge replacement. An analysis was undertaken to determine the most feasible solutions for addressing the transmission lines and towers. Different transmission line options were analyzed for their relocation (see Section 2.1.4 [Utilities and Service Systems] for a summary of the analysis).

The Port's Back Channel currently accommodates container ships transporting up to 8,000 TEUs. The *MSC Texas* was the first ship of that size to call on the Back Channel in September 2004. Calls on the Back Channel by 8,000-TEU ships increased from 11 in 2005 to 59 in 2008 (POLB, 2005b and 2009). It is assumed that an average of one 8,000-TEU ship per week calls on the Back Channel. These container vessels have air drafts ranging from 130 ft to 165 ft (40 m to 50 m) depending on their design and configuration.

Looking to the future, the next generation of vessels is called Ultra Large Container Vessels (ULCS). The air draft for this generation is not likely to increase substantially due to limitations in stacks of containers (i.e., 10 containers maximum at present) and major bridge clearances around the world; however, a potential 12,500-TEU ULCS of the future (based on current proposals) could have an air draft of approximately 180 ft (55 m). Industry experts believe that the first order for a 12,500-TEU ULCS will occur within the next 10 years, assuming that world trade continues to expand. Larger vessels of 18,000-TEU ULCS are being discussed, but these involve

substantial technical and operational problems, so the timeframe for that potential generation of vessels cannot be predicted (FORCE Technology-DMI, 2002).

2.1.6.3 Environmental Consequences

Evaluation Criteria

An adverse effect on marine vessel transportation would occur if a change in vessel traffic related to construction and/or operations results in congestion within the harbor and/or the capacity for maritime commerce to operate efficiently and safely is exceeded.

No Action Alternative

The No Action Alternative would not replace the existing Gerald Desmond Bridge. A review of the specifications for some of the larger container vessels currently in the world fleet reveals that ships in the 8,000 to 9,999 TEU range are approaching the limits of what constitutes safe passage under the Gerald Desmond Bridge. Based on published specifications, most of these vessels can physically pass under the bridge if fully loaded, but they are within the 3-ft (1-m) clearance area. Unloaded or partially loaded vessels (in the 8,000 to 9,999 TEU range) are able to pass by taking on more ballast water to lower the ship. It can be concluded that some vessels in this size range can access Pier A and future Pier S; however it is assumed that vessels greater than 10,000 TEUs cannot serve these terminals (POLB, 2007).

North-side Alignment Alternative

This alternative would replace the existing vertically restricted (156-ft [47.5-m] air draft) Gerald Desmond Bridge with a 200-ft (61-m) air draft bridge. Not taking into consideration channel depth, the additional air draft provided by the new bridge would provide safer passage for the largest container vessels calling on the Port, which are currently the new "seventh generation" (8,800 to 9,200 TEUs), and the future "eighth generation" vessels that are expected to have a capacity of approximately 10,000 to 12,000 TEUs. One "seventh generation" ship currently calls at Pier A, notwithstanding a calculated air draft of 154.2 ft (47 m). As a result, it is assumed that some vessels in this size range can access Piers A and S (when developed), and that vessels greater 10,000 TEUs cannot serve these terminals. While the increase in air draft provided by the new bridge would make it safer for larger ships to pass, ships accommodating larger container capacity are still constrained by the depth of the channel (POLB, 2007).

Construction of the North-side Alignment Alternative could temporarily affect operations at adjacent facilities. The North-side Alignment would require ROW and relocation of the main office building at Connolly Pacific, demolition of the Port Maintenance Yard facilities to accommodate construction access and the new bridge footings, easements during demolition of the existing bridge from the California United Terminals and Weyerhaeuser Company, and temporary relocation of Fire Boat Station #20 during construction (see Sections 2.1.1 [Land Use, Recreation, and Coastal Zone] and 2.1.3.2 [Relocations] for further detail regarding affected land use and facilities). Landside effects on these facilities would have no effect on ship access to Port facilities or piers.

Construction of the North-side Alignment Alternative would not affect the Port's capacity for maritime commerce; rather, it would allow the Inner Harbor terminals to operate safer and more efficiently. Construction of this alternative would be planned to avoid closure of the channel during construction.

South-side Alignment Alternative

The South-side Alignment Alternative would result in the same benefits to maritime safety described under the North-side Alignment Alternative. In addition, the South-side Alignment Alternative would also temporarily affect operations at Piers T, D, and E during construction. The South-side Alignment Alternative would require ROW from Pier T and would also require reconfiguration of terminal land-based operations on these piers (see Sections 2.1.1 [Land Use, Recreation, and Coastal Zone] and 2.1.3.2 [Relocations] for further detail regarding affected land use and facilities). Landside effects on these facilities would have no effect on ship access to Port facilities or piers. Construction of the South-side Alignment Alternative would not affect the Port's capacity for maritime commerce; rather, it would allow the Inner Harbor terminals to operate safer and more efficiently. Construction of this alternative would be planned to avoid closure of the channel during construction.

Rehabilitation Alternative

Construction required under the Rehabilitation Alternative would take place within the footprint of the existing bridge and the paved approach roadways. Construction of this alternative would be planned to avoid closure of the channel during construction. Once construction is completed, effects of the Rehabilitation Alternative on maritime safety and commerce would be the same as the No Action Alternative.

2.1.6.4 Avoidance, Minimization and/or Mitigation Measures

No measures are required.